The Contribution of Roots: The Division of Labor between Grammar and the Lexicon in Meaning Composition

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Abstract

English

This dissertation explores the division of labor between grammar and the lexicon from the viewpoint of event structural theories which take verb meanings to decompose into event templates and roots. Event templates define the temporal and causal structure of the event, while roots fill in real-world details. On this view, the semantics of the whole syntactic structure and the grammatical properties of the verbs are solely determined by the event templates, and never by roots. In this dissertation, I argue against this strong division of labor by showing that roots play a bigger role in grammar and meaning composition. I argue in favor of an event structural theory of verb meaning in which the contributions of event templates and roots are not mutually exclusive, but complement each other with grammatical consequences. Namely, root-specific entailments are shown to be grammatically relevant insofar as they restrict the syntactic structure and in turn determine the grammatical properties of verbs. I argue thus in favor of an event structural approach which needs to be sensitive to the semantic contribution of roots insofar as roots impose restrictions on their syntactic contexts.

Catalan

Aquesta tesi explora la divisió del treball entre la gramàtica i el lexicó des del punt de vista de les teories d'estructura eventiva en què els significat dels verbs es decomposa en patrons d'estructura eventiva i arrels. Els patrons defineixen l'estructural temporal i causal de l'esdeveniment mentre que les arrels proporcionen informació del món. Segons aquesta visió, la semàntica de tota l'estructura sintàctica i les propietats gramaticals dels verbs estan exclusivament determinades pels patrons i mai per les arrels. En aquesta tesi, argumento en contra d'aquesta forta divisió del treball mostrant que les arrels juguen un paper més important en la composició del significat i la gramàtica. Argumento a favor d'una teoria d'estructura eventiva on les contribucions dels patrons i les arrels no són mútuament exclusives, però es complementen amb conseqüències gramaticals. En concret, es demostra que les conseqüències lògiques de les arrels són gramaticalment rellevants ja que restringeixen l'estructura sintàctica i determinen les propietats gramaticals dels verbs. Argumento així a favor d'un enfocament de l'estructura eventiva que ha de ser sensible a la contribució semàntica de les arrels ja que les arrels imposen restriccions als contextos sintàctics on apareixen.

Abbreviations used

a	Light Adjective
*a*P	Light Adjective Phrase
AP	Adjective Phrase
AdvP	Adverb Phrase
Asp	Aspect
AspP	Aspect Phrase
COS	Change of State
DepP	Depictive Phrase
DP	Determiner Phrase
n	Light Noun
NP	Noun Phrase
PathP	Path Phrase
PlaceP	Place Phrase
PP	Prepositional Phrase
p	Light Preposition
*p*P	Light Prepositional Phrase
SC	Small Clause
v	Light Verb/Little V
*v*P	Light Verb Phrase
V	Verb
VP	Verb Phrase
VoiceP	Voice Phrase

Glossing conventions

1, 2, 3	Person
ACC	Accusative
DOM	Differential Object Marking
ERG	Ergative
ESS	Essive
F	Feminine
M	Masculine
PFV	Perfective
PL	Plural
PRS	Present
PRT	Particle
PST	Past
PTCP	Participle
SG	Singular

Contents

Chapter 1

Introduction

Contents

1.1 Empirical scope and main goals

This dissertation explores the division of labor between grammar and the lexicon from the viewpoint of event structural theories which take verb meanings to decompose into event templates and roots (cf. Rappaport Hovav & Levin, 1998; Levin & Rappaport Hovav, 2005; Ramchand, 2008; Alexiadou et al., 2015; Beavers & Koontz-Garboden, 2020, *i.a.*). Under these theories, the standard assumption is that event templates are responsible for defining the temporal and causal structure of the event. Roots, in contrast, fill in real-world details about the event. An important consequence of this view is that the semantics of the whole event structure and in turn the grammatical properties of the surface verbs, such as their morphology, aspectual properties or argument structure, are mostly determined by event templates. This is because only event templates are assumed to introduce structural components of meaning such as change, causation or entailments of agency associated with the external argument. For instance, under syntactic decompositional analyses which hold that verbs are built in the syntax (cf. Hale & Keyser, 1993, 1997, 2002; von Stechow, 1996; Marantz, 1997; Harley, 2003, 2005; Folli & Harley, 2005; Borer, 2003, 2005b, 2013; Acedo-Matellán & Mateu, 2014; Alexiadou et al., 2015, *i.a.*), the roots of change of state verbs such as *break* are stative and the entailment of change typical of this verb class is only structurally introduced by event templates, defined by functional heads in the verbal domain. Consequently, examples such as *John broke the vase* or *John opened the door* involve the same syntactic structure and only differ in the type of information that the roots provide about the event.

In this dissertation, I argue against this strong division of labor between event templates and roots by showing that roots play a bigger role in grammar and meaning composition. In particular, by analyzing a range of different but related phenomena I provide evidence in favor of an event structural theory of verb meaning in which the contributions of event templates and roots need not be mutually exclusive, as assumed in standard decompositional theories, but can complement each other in some cases with grammatical consequences. I contend that root-specific entailments are grammatically relevant as they can have an impact on the syntactic structure and in turn on the grammatical properties of the surface verbs. The overall picture is that roots can impose restrictions on the syntactic structures they associate with and therefore that the semantics of the whole event structure

can be fully determined by roots. This argues in favor of an event structural approach to verb meaning that needs to be sensitive to the semantic contribution of distinct classes of roots. The central goal of this dissertation is thus to provide a more nuanced view of the types of semantic entailments roots can carry in contrast to event templates by analyzing their division of labor as assumed in standard event structural theories. My central thesis is that the meanings roots and event templates introduce can complement each other with grammatical consequences, insofar as there are certain classes of roots that can introduce structural components of meaning, i.e., the meanings typically associated with event templates. This suggests that there are semantic components of the event structure that need not be represented in the syntactic structure, but can be encoded directly within the root.

1.2 Theories of verb meaning

In this section, I provide an overview of two major theories that have been proposed in order to capture the interaction of verb meaning with the syntactic structure. On the one hand, a line of research holds that the grammatically relevant aspects of verbs involve a set of thematic roles which interacts with syntax via some linking rules. The overall idea is that verbs assign thematic roles to their arguments and therefore verbs assigning different thematic roles have different syntactic properties (Gruber, 1965; Fillmore, 1968, 1970; Jackendoff, 1972). On the other hand, so-called event structural theories of verb meaning classify types of events and not the participants of the events. On this view, verb classes exhibit distinct syntactic properties since they are associated with distinct event structures (Rappaport Hovav & Levin, 1998; Goldberg, 1995; Croft, 2001; Harley, 2005; Ramchand, 2008; Alexiadou et al., 2015).[1]

1.2.1 Thematic roles

One early approach to a theory of verb meaning proposed that the grammatically relevant meaning components of verbs involve a set of thematic roles

[1] A complete and detailed survey of theories of verb meaning can be found in Levin & Rappaport Hovav (2005).

that verbs assign to the arguments they take. Under this approach, thematic roles are independent from verbs and constitute universal classes such as agent, often defined as the argument that carries out an action (e.g., *John murdered the man*), patient and theme, which are often used interchangeably and usually denote entities that either undergo change of state or location (e.g., *John murdered the man*), instrument, the entity that an agent uses to carry out an action (e.g., *John murdered the man with this gun*), or location, the place in which an event is located (e.g., *John murdered the man with this gun in Barcelona*). The basic idea behind this approach is that syntactic phenomena such as the mapping to subject or object is taken to follow from the thematic roles that a verb assigns to its arguments through some linking rules. For instance, Fillmore (1968) proposes a subject selection rule whereby the highest ranked thematic role on a hierarchy, such as the one below, is mapped to the subject position.

(1) a. agent > instrument > patient.
b. The argument with the highest thematic role is the subject. (Beavers & Koontz-Garboden, 2020: 7)

This hierarchy predicts that in predicates involving all three thematic roles, such as *John broke the window with the hammer*, the agent argument is always the subject since it is the highest ranked thematic role. In the absence of the agent argument, the instrument can be the subject, e.g., *The hammer broke the vase*, and in the absence of both the agent and instrument arguments, the patient can be the subject, e.g., *The vase broke*. Other related linking rules involve the ones below which restrict the possible syntactic configurations of a verb, e.g., if a verb assigns an agent and a patient thematic role to its arguments, then the linking rules below ensure that the agent argument is the subject and the patient argument the object.

(2) a. If the verb has an agent argument, it is the subject.
b. If the verb has a patient argument, it is the object. (Beavers & Koontz-Garboden, 2020: 6)

Under this approach, verbs that assign the same thematic roles to their arguments fall into the same grammatically relevant verb class and therefore verbs with distinct thematic roles should in principle have different syntactic properties. For instance, Fillmore (1970) observes that what at first blush ap-

pear to be similar verbs such as *break* and *hit* in fact show distinct argument structure patterns, strongly suggesting that they constitute two separate verb classes. Namely, although both *break* and *hit* allow the agent or the instrument argument to be the subject, only *break* has an intransitive variant in which the entity that becomes broken is the subject. In contrast, *hit* does not allow that entity that is hit to be realized as the subject. Compare this in the examples below (adapted from Fillmore, 1970: 122-3).

(3) a. John broke the stick with a rock.
b. A rock broke the stick.
c. The stick broke.

(4) a. John hit the tree with a rock.
b. A rock hit the tree.
c. *The tree hit.

Importantly, Fillmore observes that these are not simply isolated facts about *break* and *hit* in particular. Rather there are many verbs that show the same behavior as they pattern like *break* or *hit* in having the same argument structural properties. Compare this in the following examples (from Beavers & Koontz-Garboden, 2020: 4).

(5) a. Kim bent/shattered/cracked the laptop (with the hammer).
b. The hammer bent/shattered/cracked the laptop.
c. The laptop bent/shattered/cracked.

(6) a. Kim slapped/struck/bumped the table (with the hammer).
b. The hammer slapped/struck/bumped the table.
c. *The table slapped/struck/bumped.

Such contrasts led Fillmore to propose that verbs actually fall into grammatically relevant classes according to the thematic roles verbs assign to their arguments, e.g., what Fillmore originally called *break* and *hit* verbs.

(7) a. *Break* verbs: *bend*, *fold*, *shatter*, *crack* ...
b. *Hit* verbs: *slap*, *strike*, *bump*, *stroke* ...
(Fillmore, 1970: 125)

As Fillmore observes, the crucial difference between *break* and *hit* verbs is that *break* verbs entail change of state while *hit* verbs entail surface contact,

as shown by the contradiction tests below.

(8) a. I hit the window with a hammer; it didn't faze the window, but the hammer shattered.
b. #I broke the window with a hammer; it didn't faze the window, but the hammer shattered.
(Fillmore, 1970: 125)

Fillmore's basic insight is that verbs that entail change of state fall under the *break* verb class (7-a) and assign the same thematic roles to their arguments (9-a). In contrast, verbs that entail surface contact fall under the *hit* verb class (7-b) and show the same argument structural properties that *hit* has as they assign a distinct set of thematic roles (9-b). Compare this below.

(9) a. *Break* verbs: (agent) (instrument) object.
b. *Hit* verbs: (agent)(instrument) place.
(Fillmore, 1970: 125)

Under Fillmore's account, a thematic role in parentheses is taken to be optional, and the fact that in the case of *hit* verbs the agent and instrument roles are adjacent states that *hit* verbs, in contrast to *break* verbs, must express one of the arguments in parentheses. On this view, the distinct argument structural properties of *break* and *hit* verbs follow since they have a distinct set of thematic roles, where *object* in *break* verbs (9-a) must be read as patient. For instance, with both verb classes, an instrument argument can be the subject since this thematic role is in the argument structure of both verb classes (cf. *The hammer hit the window* and *The hammer broke the window* respectively). The unavailability of examples such as **The window hit* is captured because *hit* verbs require the presence of an agent or an instrument, whereas *break* verbs do not.

Building on Fillmore (1968, 1970), Dowty (1989, 1991) (and subsequent work, e.g., Primus, 1999; Ackerman & Moore, 1999a,b, 2001; Beavers, 2006, 2010) provides a more nuanced view and defines thematic roles as sets of lexical entailments, rather than atomic notions. In particular, Dowty (1991) proposes two thematic proto-roles, the Agent Proto-Role and the Patient Proto-Role. Dowty builds on the assumption that verb arguments are related to lexical entailments that verbs assign to them (cf. Dowty, 1989). On this view, thematic roles are not atomic, but they refer to sets of lexical en-

tailments, i.e., thematic roles are properties of predicates (Levin & Rappaport Hovav, 2005: 53). Dowty proposes that only the Agent Proto-Role and the Patient Proto-Role are necessary in order to account for argument structure patterns of verbs, associated with the following properties (from Dowty, 1991: 572).

(10) Contributing properties for the Agent Proto-Role:
   a. volitional involvement in the event or state.
   b. sentience (and/or perception).
   c. causing an event or change of state in another participant.
   d. movement (relative to the position of another participant).
   e. (exists independently of the event named by the verb).

(11) Contributing properties for the Patient Proto-Role:
   a. undergoes change of state.
   b. incremental theme.
   c. causally affected by another participant.
   d. stationary relative to movement of another participant.
   e. (does not exist independently of the event, or not at all).

The basic insight behind this thematic role approach is that arguments can be said to be agent-like or patient-like to certain degrees depending on the number of Agent or Patient Proto-Role entailments that they carry. In other words, there is not a fixed set of lexical entailments that determines whether an argument is mapped to subject or object and therefore arguments need not be associated with the whole set of the Agent Proto-Role entailments in order to be realized as subject. For instance, as Dowty (1991: 572) discusses in detail, the subject of an example like *John sees/fears Mary* only has the Agent Proto-Role entailment of sentience, whereas the object of a predicate like *John erased the error* is only associated with the change of state lexical entailment of the Patient Proto-Role. Of course, an argument that is associated with the whole set of Agent or Patient Proto-Role entailments would constitute a *prototypical* case of a subject or object, as in an example like *John murdered Tom*, in which the agent argument *John* is associated with the whole set of lexical entailments of the Agent Proto-Role. A consequence of this approach is then that subjects and objects can be said to be more or less prototypical agents or patients, with the subject of a verb like *murder* instantiating a prototypical case of an agent argument. Under this Proto-Role

approach to thematic roles, the argument that is associated with the most Agent Proto-Role entailments is thus realized as the subject, and the argument that carries the most Patient Proto-Role entailments is realized as the object, i.e., Dowty's Argument Selection Principle (Levin & Rappaport Hovav, 2005: 53-9).

However, the use of thematic roles as a theory of verb meaning in order to account for the syntactic properties of verb classes, such as their argument structure and realization patterns, has been shown to be limited, despite Dowty's innovation. For instance, on a thematic role approach it has been shown that it is quite difficult to determine the amount of thematic roles that can be said to be grammatically relevant. Namely, thematic role approaches have struggled in identifying a set of roles that can be said to be universal and grammatically relevant across verb classes. Moreover, as Beavers & Koontz-Garboden (2020: 8) discuss, it is not clear what combinations of thematic roles determine possible verb classes, e.g., while combinations of agent and patient roles mapped to subject and object are quite frequent, other combinations such as verbs assigning location and instrument roles to their arguments are rarely attested. Under these approaches, it is not clear then why certain combinations of thematic roles such as instrument and location rarely (if ever) define grammatically relevant verb classes.

Another inherent problem relates to the fact that although it has been widely accepted that the agent thematic role is highly ranked in the hierarchies described above, approaches in this tradition do not often agree with how other roles are to be ranked. Similarly, although the object argument of change of state verbs like *break* or change of location verbs like *put* instantiate canonical cases of patient and theme roles respectively, thematic role approaches do not show consensus regarding the thematic roles of the objects of less studied verbs, i.e., in Levin's (1999: 226) words "there are many English transitive verbs whose objects cannot be readily assigned roles from the most common semantic role inventories", as in the examples below (from Levin, 1999: 226).

(12) a. The engineer praised the bridge.
b. The engineer touched the bridge.
c. The engineer avoided the bridge.
d. The engineer owned the bridge.
e. The engineer imagined the bridge.

f. The engineer studied the bridge.

In particular, what thematic role is *the bridge* assigned in these examples? If one accepts that patient and theme arguments refer to participants that undergo change of state or location, it is clear that *the bridge* is neither a patient nor a theme in these examples. Other thematic roles usually assigned to objects such as experiencer, stimulus, location or instrument do not seem to be good candidates either.

Nowadays, thematic role approaches to verb meaning have been mostly abandoned for the inherent problems they have and an alternative approach to verb meaning that classifies types of events and not the participants of the events has now become the dominant approach to verb meaning (see Dowty, 1989, 1991; Croft, 1991, 1998; Rappaport Hovav & Levin, 1998; Levin & Rappaport Hovav, 2005; Beavers, 2006; Beavers & Koontz-Garboden, 2020 for further discussion and a detailed overview of the problems and limitations that theories relying on thematic roles face).

1.2.2 Event structures

A more influential view has drawn on the idea that verb meanings can be taken to be decomposed into basic subcomponents. This idea dates back at least to linguists known as Generative semanticists (Lakoff, 1968, 1970; McCawley, 1968, 1971; Ross, 1972) who observed that verb meanings can be paraphrasable by constructions that explicitly describe how the event develops. For instance, the causative change of state verb *break* in (13-a) can be said to be roughly equivalent to the analytic construction in (13-b) which makes explicit reference to the basic components of the event, i.e., intuitively, there is an action by an agent subject that causes the referent of the object to undergo a change (Beavers & Koontz-Garboden 2020: 8-9).

(13) a. John broke the vase.
b. John caused the vase to become broken.

Similarly, unaccusative change of state verbs as in (14-a) can also be said to be equivalent to the paraphrase as in (14-b), which also makes explicit reference to the fact that the theme subject undergoes a process that leads to a change.

(14) a. The vase broke.

b. The vase became broken.

What is important is that these paraphrases do not simply describe the properties of the events, but they actually decompose the event into basic subcomponents which are somehow implicit in the meaning of the verb. For instance, descriptively speaking, a causative change of state verb like *break* as in (13-a) can be said to be composed of components such as CAUSE and BECOME (Beavers & Koontz-Garboden 2020: 9).

Drawing on these observations, what are usually known as event structural theories have proposed that verb meanings consist of an event structure which restricts the types of events that the verb describes (see Dowty, 1979). This event structural approach to verb meaning is probably the most widely-adopted one when it comes to the study of verb meaning as it is assumed by many linguists working on different theoretical approaches (see Lakoff, 1965, 1968, 1970; McCawley, 1968, 1971; Ross, 1972; Dowty, 1979; Pinker, 1989; Jackendoff, 1990; Hale & Keyser, 1993, 1997, 2002; Goldberg, 1995; Levin & Rappaport Hovav, 1995, 2005; Pesetsky, 1995; Marantz, 1997; Van Valin & LaPolla, 1997; Wunderlich, 1997; Rappaport Hovav & Levin, 1998, 2010; Harley, 2003, 2005; Borer, 2003, 2005a; Grimshaw, 2005; Folli & Harley, 2005, 2007; Ramchand, 2008, 2014b; Alexiadou et al., 2006, 2015; Mateu & Acedo-Matellán, 2012; Acedo-Matellán & Mateu, 2014; Beavers & Koontz-Garboden, 2012, 2017a, 2020). Under these approaches, a verb's event structure decomposes into event templates, which define the temporal and causal structure of the event, and roots, which provide real-world details about the event. An important assumption amongst these theories is that it is the event templates roots occur in which define the grammatical properties of the surface verbs (e.g., their morphology, argument structure, argument realization, aspectual properties etc.). As Koontz-Garboden & Beavers (2017) note, this division of labor between event templates and roots is assumed in all theories of event structures, whether lexicalist (e.g., Pinker, 1989; Rappaport Hovav & Levin, 1998), constructionist (e.g., Goldberg, 1995; Croft, 2001) or neoconstrucionist (e.g., Borer, 2005b; Ramchand, 2008; Alexiadou et al., 2015). There is hence a strong division of labor between roots and event templates, since only event templates define the temporal and causal structure of the event, whereas roots simply provide real-world details about the event. For instance, if there is an entailment of change in an event structure, e.g., *The vase broke*, it is because there is

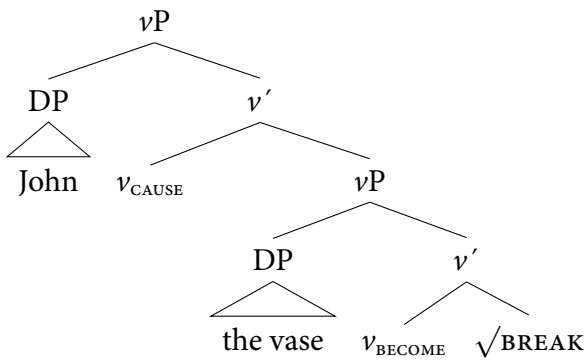
the corresponding event template introducing this structural component of meaning. In the lexical event structures of Rappaport Hovav & Levin (1998), this is the job of operators such as BECOME (cf. Dowty, 1979).

(15) a. The vase broke.
b. [The vase BECOME <*BREAK*>]

In Rappaport Hovav & Levin's (1998) event structural approach (see §2.2 of Chapter 2), event structures are not represented in the syntax, but rather an event structure is taken to be part of the lexical entry of a verb (Beavers & Koontz-Garboden 2020: 11).

In contrast, syntactic decompositional theories of verb meaning take event structures to be represented in the syntax (Lakoff, 1965; McCawley, 1968, 1971; Ross, 1972; Hale & Keyser, 1993, 1997, 2002; Pesetsky, 1995; von Stechow, 1996; Marantz, 1997; Harley, 2003; Borer, 2003; Folli & Harley, 2005; Ramchand, 2008; Alexiadou et al., 2015; Acedo-Matellán, 2016). This approach is significantly represented by linguists working in the Distributed Morphology tradition (Halle & Marantz, 1993; Marantz, 1997; Embick, 2004; Harley, 2014) which holds that verbs are created in the syntax by merging roots with event templates, defined by functional heads in the verbal domain. The root is taken to be acategorial and is verbalized by a little *v* head which also introduces structural meanings such as entailments of change or causation, as illustrated below.

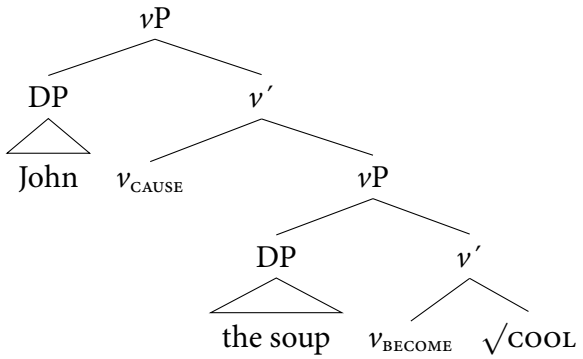
(16) John broke the vase.



More specifically, meanings such as entailments of change are solely introduced in the syntax, via functional heads (e.g., v_{BECOME}), and roots simply

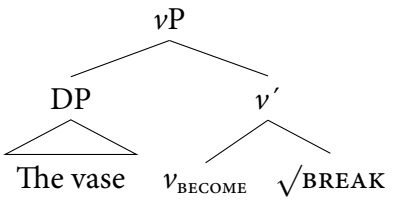
provide idiosyncratic information. Importantly, the roots of change of state verbs such as *break* or *cool* are both stative and they only acquire an entailment of change when merged with the corresponding functional head. Stative roots thus only differ in the (real-world) information they provide about the state they denote and the structure for a causative change of state event of *breaking* or *cooling* are given the same structure. Compare this below.

(17) John cooled the soup.



Under these approaches, there is no need to posit linking rules that map arguments to syntactic positions. Namely, the fact that the agent argument is the highest one follows from the basic architecture of event structure since the functional head introducing the agent argument, i.e., v_{CAUSE}, is always higher in the event structure than other light verbs, e.g., v_{BECOME}, which introduce other types of arguments such as patients. In an intransitive change of state predicate such as *The vase broke* which lacks v_{CAUSE}, the patient argument is realized as the subject insofar as it is the highest argument in this case.

(18) The vase broke.



On this view, however, it is less clear why *hit* does not have such an intran-

sitive variant, in contrast to *break*, i.e., **The window hit*. In other words, it is not clear why in this case the root of *hit* cannot be associated with an event structure as the one in (18).

In order to capture the distribution possibilities of roots in distinct syntactic contexts, theories of event structure have proposed distinct ways to account for the fact that not all classes of roots occur in the same event structures. On the one hand, an influential approach has classified roots into semantic classes depending on either their semantic content or their logical type which restrict the event structures that roots can be associated with. Another influential approach, on the other hand, holds that roots are not constrained regarding the event structures they can occur in, and examples like **The window hit* simply illustrate incompatibilites between the conceptual content of the root and the meaning of the event structure. In the next section, I turn to discuss the nature of root meaning and the distribution of roots in the event structure in more detail.

1.3 The nature of root meaning

Although event structural theories of verb meaning have devoted much attention to the role event templates play in determining grammatical properties, the contribution of roots has generally been neglected. Previous research adopting an event structural approach has mostly focused on the meanings that event templates contribute. As discussed before, roots have been assumed to simply provide idiosyncratic information (also called encyclopedic information or conceptual content), but such information is not taken to be grammatically relevant (e.g., Borer 2003, 2005b; Mateu & Acedo-Matellán 2012, Acedo-Matellán & Mateu 2014), namely it does not have an impact on syntactic structure. This view is taken to the extreme in more radical approaches (e.g., Borer, 2013) since under such approaches roots are argued to lack any type of information, i.e., content is only introduced when roots appear in some specific grammatical context. In contrast, an influential approach classifies roots into ontological types according to their semantic content (which is often taken to be conceptual in nature) and the type that a root has is argued to determine their syntactic distribution (Rappaport Hovav & Levin, 1998; Marantz, 1997; Harley & Noyer, 2000; Alexiadou et al., 2006; Ramchand, 2008). Despite these important differences, a common assumption among event structural theories of verb meaning is that it

is the event templates that mostly determine the grammatical properties of the surface verb such as its morphology, aspectual properties etc.

In this section, I first provide an overview of a widely assumed hypothesis about the nature of root meaning which constrains the types of meaning roots can have. I then briefly discuss several event structural approaches that have classified roots into grammatically relevant semantic classes according to their semantic content as well as approaches that classify roots into logical types. Further, I discuss Beavers & Koontz-Garboden's (2020) recent proposal in particular with regard to the claim that root meanings are more complex than previous approaches to event structure have assumed. I finish by discussing approaches which in contrast hold that roots do not have semantic content that is grammatically relevant.

1.3.1 The Bifurcation Thesis for Roots

As Beavers & Koontz-Garboden (2020: 26) note, a question that has not received much attention by theories of verb meaning assuming an event structural approach is whether there is a clean divide between the meanings that roots and event templates introduce (but see Dowty, 1979; Goldberg, 1995; Wechsler, 2005b and especially Beavers & Koontz-Garboden, 2017b; Koontz-Garboden & Beavers, 2017; Beavers et al., 2017; Beavers & Koontz-Garboden, 2020; Ausensi, 2020a; Ausensi et al., 2020, 2021, to appear). In other words, this line of research has not looked into whether structural components of meanings such as causation or change are solely introduced structurally, i.e., by event templates, or whether roots can in turn also introduce them. The general assumption, as discussed before, is that since event templates are responsible for introducing structural components of meaning, roots then must introduce meanings which are not grammatically relevant insofar as the semantics of the whole event structure is taken to be solely determined by event templates, and not by roots.

Such a strong division of labor is the default assumption especially in syntactic approaches to event structure that take templatic meanings to be introduced solely by functional heads in the syntax (see Harley, 1995; Embick, 2004; Borer, 2005a,b, 2013; Folli & Harley, 2005; Pylkkänen, 2008; Ramchand, 2008; Alexiadou et al., 2015, *i.a.*). In particular, Embick (2009: 1) proposes the Bifurcation Thesis for Roots which explicitly argues that the meanings roots and event templates introduce are mutually exclusive (see

also Arad, 2005: 79 for the same claim, as well as Borer, 2005b, 2013; Dunbar & Wellwood, 2016).

(19) The Bifurcation Thesis for Roots: If a component of meaning is introduced by a semantic rule that applies to elements in combination [= by functional heads, JA], then that component of meaning cannot be part of the meaning of a root.

Theories of event structure assume then a clean divide between the types of meanings introduced by event templates and the ones by roots. In other words, if there is an entailment of change, it is because there is the corresponding template or functional head in syntactified event structures introducing such a structural component of meaning. This division of labor has been made explicit in the Bifurcation Thesis for Roots by Embick (2009) and in the Root Hypothesis by Arad (2005), yet it is also assumed (though implicitly) by all theories of event structure regardless of implementational choice since the default assumption is that only event templates determine the grammatical properties of the surface verbs as they introduce structural components of meaning (see Chapters 3 and 6 for further discussion).

1.3.2 Grammatically relevant ontologies of roots

A major question for event structural approaches is what constrains the distribution of roots in different event templates. Namely, can roots be freely integrated into any event template? Or, in contrast, are there incompatibilities between certain classes of roots and association patterns with the event structure? It seems that the answer to these questions is that root distribution is not completely unconstrained since, as Harley & Noyer (2000) observe, some roots cannot appear in certain event templates. For instance, a root like $\sqrt{\text{DIE}}$ does not occur in event templates that contain a causer argument. In contrast, roots like $\sqrt{\text{DESTROY}}$ do not occur in event templates that lack such a causer argument. Compare this below.

(20) a. John died.
b. *John died the man.

(21) a. John destroyed the city.
b. *The city destroyed.

One way to account for such distribution restrictions is by assuming that roots contain licensing requirements, as linguists in the Distributed Morphology tradition (Halle & Marantz, 1993) have proposed (Marantz, 1997; Harley & Noyer, 1999, 2000; Megerdoomian, 2002; Embick, 2004; Harley, 2005; Alexiadou et al., 2006, 2015; Kelly, 2013). For instance, Harley & Noyer (2000) argue that the contrast above can be accounted for by assuming that a root like √DESTROY can only appear in event templates that contain this causer argument, i.e., the root √DESTROY would be specified for [+ CAUSE], adopting the licensing requirements Harley & Noyer propose. The example in (21-b) is thus ungrammatical because the root √DESTROY is integrated into an event structure that does not contain CAUSE. In contrast, √DIE would be [- CAUSE] and therefore (20-b) would be accounted for since √DIE is integrated into an event structure that does contain CAUSE.

Under Harley & Noyer's approach, roots thus fall into ontological types according to their distribution patterns with the event structure (see also Marantz, 1997; Harley, 2005; Ramchand, 2008). In this vein, Alexiadou et al. (2006) (see also Alexiadou et al., 2015) propose that roots fall into semantic classes according to their conceptual content. For instance, under Alexiadou et al.'s account roots like √MURDER would be externally caused and agentive, i.e., they require an external argument interpreted as agent and therefore only appear in event templates that contain such an argument. Alexiadou et al. propose that this explains why roots like √MURDER can only appear in event templates that contain an external argument interpreted as agent (cf. *John murdered the senator* and **The senator murdered*). Further, roots like √KILL or √DESTROY, although they do not require an agentive causer argument (cf. *Cancer killed thousands*), are nonetheless still taken to be externally caused by Alexiadou et al. insofar as they cannot appear in unaccusative structures (22). Similarly, roots like √DIE would be internally caused, like √BLOSSOM or √WILT, and therefore cannot appear in event templates containing such an external cause (23) (though see Alexiadou, 2014a; Rappaport Hovav, 2020). Last, Alexiadou et al. propose that roots that appear in both causative and unaccusative structures are those which are taken to be unspecified for CAUSE, e.g., √BREAK, √OPEN, √CLOSE (24).

(22) a. John killed the man.
b. *The man killed.

(23) a. *John wilted the flowers.

b. The flowers wilted.

(24) a. John broke the vase.
b. The vase broke.

The lexical event structural approach laid out by Rappaport Hovav & Levin (1998, 2010) is possibly the most influential one when it comes to ontological-type classifications of roots according to their semantic content. As it will be discussed in detail in Chapter 2, Rappaport Hovav & Levin propose that roots fall into two broad classes depending on their semantic content. Roots that encode a manner of action have the ontological-type classification of manner (e.g., *scrub, sweep, wipe*), whereas result roots are roots that encode a result state as part of their semantic content (e.g., *break, open, destroy*). Rappaport Hovav & Levin propose then that manner and result roots have distinct association patterns with the event structure. On this view, the semantic content of roots, i.e., that of manner or result, is taken to be grammatically relevant since manner roots are integrated as modifiers of the event structure (25-b), notated by means of subscripts, whereas result roots are associated with the event structure as arguments (26-b) (further see §2.2 of Chapter 2 as well as Chapter 5).

(25) a. John swept.
b. [John ACT $_{<SWEEP>}$]

(26) a. The vase broke.
b. [The vase BECOME <*BREAK*>]

Later work in the Distributed Morphology tradition (Harley, 2005; Embick, 2004, 2009; Alexiadou et al., 2015) builds on this semantic classification and argues that manner roots are merged as modifiers to the verbalizing little *v* head, whereas result roots are complements of *v* in a syntactic decompositional approach of event structure (cf. §1.4). As it will be discussed in detail in Chapter 2 as well as in Chapter 5, the main empirical motivation for such a semantic classification of roots comes from the observation that apparently verbs derived from manner and result roots have distinct argument structure and realization patterns. Namely, Rappaport Hovav & Levin (1998) originally observe that only manner verbs permit the omission of the object (27) and nonselected objects (28)-(29) (examples from Rappaport Hovav & Levin, 1998: 6-7).

(27) a. Leila swept.
b. *Kelly broke.

(28) a. Cinderella scrubbed her fingers to the bone.
b. *The clumsy child broke his knuckles to the bone.

(29) a. The child rubbed the tiredness out of his eyes.
b. *The clumsy child broke the beauty out of the vase.

Under Rappaport Hovav & Levin's approach, these differences in argument structure can be accounted for since in examples of the type in (28) and (29) the verbal root is associated with the event structure as a modifier as it provides the manner of the event. The result state is actually denoted by a result phrase (e.g., *to the bone*, *out of his eyes*) associated with the event structure as the argument of BECOME. Since result roots are always arguments, the ungrammaticality of the (b) examples follow (see Chapters 2 and 5 for a detailed discussion).

1.3.3 The logical types of roots

A similar approach proposes that roots fall into semantic classes according to their logical type, e.g., whether roots are predicates of states, of events, of individuals etc. An influential proposal in this respect is that of Levinson (2007, 2010, 2014) (see also Coon, 2019; Henderson, 2019). Levinson, drawing on Harley (2005), proposes an ontological-type classification of roots according to their logical type and provides a set of diagnostics to distinguish between types. The first class relates to what Levinson calls root creation verbs which are of type <e, t>, i.e., predicates of individuals, and involve verbs like *braid, pile* or *slice*. Root creation verbs entail that an entity is created, yet the direct object these verbs take do not actually denote the created entity. Consider this below.

(30) a. The stylist braided her hair. → At least one braid was created.
b. The decorator piled the cushions. → At least one pile was created.
c. The baker sliced the bread. → At least one slice was created.
d. The barista grounded the coffee beans. → Fine coffee grounds were created.
(Levinson, 2014: 211)

Namely, Levinson observes that the meaning of these predicates can be paraphrasable by analytic constructions like the following ones.

(31) a. The stylist braided her hair.
b. The stylist made/reconfigured her hair into a braid.
(Levinson, 2014: 211)

In (31-b), the PP headed by *into* introduces the entity that is created, but the direct object in (31-a) does not. Levinson thus proposes that in predicates involving root creation verbs like in (30), the entity that is created is named by the root. Levinson proposes that root creation verbs are of the logical type <e, t>, i.e., they denote predicates of individuals.

The second class involves what Levinson names explicit creation verbs, e.g., *bake, build*. In contrast to root creation verbs, the direct object of explicit creation verbs does denote the entity that is created. The root, in turn, provides the manner of the event, i.e., the manner that is employed to bring about the creation of the entity named by the DP object.

(32) a. John baked a cake.
b. John made/created a cake by baking.

Levinson notes that an explicit creation predicate as in (32-a) can be paraphrased then by an analytical construction of the type in (32-b) which makes explicit reference to an event of creation brought about by a specific manner. In contrast to root creation verbs where the root names the created individual, explicit creation verbs denote predicates of eventualities as they are of type $<s_e, t>$.

The third and last class Levinson analyzes involves canonical change of state verbs, e.g., *open, break*. In contrast to both root creation and explicit creation verbs, change of state verbs are derived from roots that denote predicates of individuals mapping to predicates of states, i.e., the root type of change of state verbs is that of $<e, < s_s,t>>$.

Levinson thus proposes an ontological-type classification of roots according to their logical type. By making use of a battery of diagnostics, she observes that the classes of roots discussed above do not show the same behavior with respect to their occurrence in distinct syntactic contexts. Levinson (2014: 209) concludes that roots must have semantic specifications otherwise they would not be able to correctly compose with the syntactic struc-

ture.

In short, ontological-type approaches to root meaning that classify roots into classes according to either their semantic content or their logical type hold that the semantic specifications of roots are actually empirically necessary in order to account for their distribution in the event structure. Under these approaches, thus, the ontological type of roots interacts with the event structure and such an interaction is argued to determine the argument structure and realization patterns of the surface verbs (further see Reinhart, 2002; Harley, 2005; Pylkkänen, 2008; Ramchand, 2008, 2014b; Alexiadou, 2014b; Anagnostopoulou & Samioti, 2014; Doron, 2014; Rappaport Hovav, 2014a; Roßdeutscher, 2014; Kastner, 2017; Irwin, 2019; Yu, 2020; Ausensi et al., 2021 and the discussion in Chapter 5).

1.3.4 Structural components of meaning in roots

Beavers & Koontz-Garboden (2020) have recently argued against theories of event structure assuming a division of labor between roots and event templates along the lines of the Bifurcation Thesis for Roots by convincingly showing that certain classes of roots can introduce structural components of meaning as part of their truth-conditional content.[2] As I discuss in detail in Chapter 3, Beavers & Koontz-Garboden make use of sublexical modification with modifiers like *again* (cf. Dowty, 1979 and §1.4) and contradiction tests as their main piece of evidence for their claim that roots can introduce structural components of meaning, i.e., what Beavers & Koontz-Garboden call templatic meanings. Beavers & Koontz-Garboden note that while theories of event structure that assume such a division of labor between roots and event templates make sound predictions, they also make some crucial false ones with regard to the possible meanings roots can have and in turn about possible verb classes.

More specifically, Beavers & Koontz-Garboden convincingly argue that the Bifurcation Thesis for Roots needs to be abandoned by analyzing two classes of stative roots, one of which Beavers & Koontz-Garboden argue inherently comprises templatic meanings as part of their truth-conditional content. The first class constitutes what Beavers & Koontz-Garboden call

[2] Parts of the discussion in this subsection have appeared in *Journal of Linguistics* as Ausensi (2021).

Property Concept Roots, which includes roots from which deadjectival verbs encoding change of state are derived, e.g., *cool, widen, thin, open*. The second class, i.e., Result Roots, includes roots from which monomorphemic verbs encoding change of state are derived, e.g., *break, kill, melt, crack*. Beavers & Koontz-Garboden argue that Result Roots come with entailments of change, namely they predicate a state of a unique participant but crucially require that such a state must be the result of a change—there must be an event that gives rise to that state. In contrast, Property Concept Roots predicate a simple state of a participant with no event entailments. Beavers & Koontz-Garboden propose thus that Result and Property Concept Roots differ in the nature of the state they predicate: both classes of roots are predicates of states, but only Result Roots introduce an entailment of change that gives rise to the state they denote (see Chapter 3 for further discussion).

(33) a. $[\![\sqrt{\textsc{break}}]\!] = \lambda x \lambda s[\textit{broken}'(x, s) \wedge \exists e'[\textit{become}'(e', s)]]$
b. $[\![\sqrt{\textsc{cool}}]\!] = \lambda x \lambda s[\textit{cool}'(x, s)]$

As Beavers & Koontz-Garboden (2020: 31-2) themselves note, their approach is in the spirit of approaches that assume that roots have logical types (Levinson, 2014; Coon, 2019; Henderson, 2019) but the difference between Beavers & Koontz-Garboden's approach and logical type approaches à la Levinson (2014), as discussed above, is in the level of granularity, i.e., there are different classes of stative and eventive roots. Namely, although Result Roots and Property Concept Roots are both predicates of states, they differ in that Result Roots introduce an entailment of change to the state they predicate.

Beavers & Koontz-Garboden's analysis of Result Roots argues against the Bifurcation Thesis for Roots insofar as entailments of change are uncontroversially assumed to be introduced by functional heads, e.g., by projections such as the verbalizing little *v* head in the verbal domain (see D'Alessandro et al. 2017 for a general overview), as previously discussed. By making use of contradiction tests and sublexical modification with modifiers that are able to target subparts of the event structure, e.g., *again* (see Dowty, 1979; von Stechow, 1995, 1996; Beck & Snyder, 2001; Beck & Johnson, 2004 and §1.4), Beavers & Koontz-Garboden show that Property Concept Roots and Result Roots are two well-defined classes of roots denoting states that differ in whether they come with an entailment of change themselves. More importantly, Beavers & Koontz-Garboden show that the fact that Result Roots

inherently comprise entailments of change as part of their truth-conditional content has grammatical consequences on the morphological forms of the surface verbs and adjectives that are derived from this class of roots. Namely, adjectives derived from Property Concept Roots come in two types, i.e., morphologically basic (e.g., *open, wide, thin*) and deverbal (e.g., *opened, widened, thinned*), whereas adjectives derived from Result Roots only come in one type, i.e., morphologically deverbal (e.g., *broken, killed, cracked*) (further see Beavers et al., 2017).

In short, Beavers & Koontz-Garboden argue that roots play a bigger role in grammar as the meanings that some classes of roots have are more complex than previously assumed. Beavers & Koontz-Garboden contend that these root-specific entailments are grammatically relevant insofar as they can constrain syntactic structure and determine a verb's grammatical properties, e.g., argument realization or the morphological forms of the verbs and adjectives that are derived from these classes of roots. By doing so, Beavers & Koontz-Garboden ultimately lay out a theory of verb meaning that has predictive power with regard to possible verb classes. Their overall conclusion is that there are no templatic meanings that are not entailed by a class of roots. This strongly suggests that the Bifurcation Thesis for Roots needs to be abandoned. Although Beavers & Koontz-Garboden strongly argue against theories of event structure that assume Bifurcation, they note that event templates are still necessary. Namely, whether lexical or syntactic in nature, event templates are necessary insofar as they capture structural phenomena such as the fact that agents are subjects in the presence of an object because agents are less embedded in the event structure (cf. §1.2.2 and §1.4).

1.3.5 Free distribution approach to roots

Last, a very influential approach, which is at odds with the approaches discussed above, holds that roots do not have semantic content or logical types that are grammatically relevant, i.e., what Rappaport Hovav (2017) has called the Free Distribution approach (Arad, 2003, 2005; Borer, 2003, 2005b, 2013; Acquaviva, 2008, 2014; Harley, 2009; Mateu & Acedo-Matellán, 2012; Acedo-Matellán & Mateu, 2014; Dunbar & Wellwood, 2016; Acedo-Matellán, 2016). On this view, roots are not constrained in terms of the syntactic contexts they can occur in since in principle any root can appear in any syntactic

context. This line of approaches strongly argues in favor of a view of verb meaning in which the syntactic and semantic properties of the surface verbs are exclusively determined by the event templates, generally defined by functional structure in the verbal domain. The overall picture then is that the same root can be associated with distinct semantic interpretations as well as distinct syntactic properties depending on the event structure the root occurs in. For instance, on this view, that the same root $\sqrt{\text{WHISTLE}}$ can appear in a variety of distinct syntactic contexts is unsurprising, as the surface verbs are predicted to have this verbal elasticity.

(34) a. Kim whistled.
b. Kim whistled at the dog.
c. Kim whistled a tune.
d. Kim whistled a warning.
e. Kim whistled me a warning.
f. Kim whistled her appreciation.
g. Kim whistled to the dog to come.
h. The bullet whistled through the air.
i. The air whistled with bullets.
(Rappaport Hovav & Levin, 1998: 2)

This line of approach is prominently represented by Borer (2003, 2005b, 2013); Mateu & Acedo-Matellán (2012); Acedo-Matellán & Mateu (2014). Borer (2013: 403-17, 436-70) for instance argues that roots are phonological indices without any content insofar as content is only introduced when roots appear together with some specific grammatical context. Similarly, Acedo-Matellán & Mateu (2014) (also Borer, 2005b; Acedo-Matellán, 2010; Mateu & Acedo-Matellán, 2012) assume that roots have idiosyncratic content, yet it is not taken to be grammatically relevant. Consequently, roots are predicted to appear in any context and cases of apparent ungrammaticalities are incompatibilities between the semantics introduced by the functional structure and the idiosyncratic content of the root. For instance, Acedo-Matellán & Mateu (2014: 20) argue against Rappaport Hovav & Levin's (1998; 2010) claim that result verbs like *break* can only be interpreted as result, i.e., as providing the result state of the event, by showing that result verbs can also be structurally interpreted as manner.

(35) a. The strong winds broke the glass.

b. The glass broke.
c. The hammer head broke off.
d. The boy broke into the room.
(Acedo-Matellán & Mateu, 2014: 20)

Namely, whereas in (35-a)-(35-b) the root $\sqrt{\text{BREAK}}$ provides the result state of the event, i.e., in (35-b) it is the case that *the glass* becomes broken, (35-c) and (35-d) do not entail that the subject referent becomes broken, but rather the root provides the manner of the event, e.g., in (35-c) the *breaking* is the means by which *the hammer head* gets separated, as *break* is structurally interpreted as manner, according to Acedo-Matellán & Mateu (2014) (see also Embick, 2004; McIntyre, 2004; Harley, 2005; Mateu, 2012; Mateu & Acedo-Matellán, 2012 and the discussion in Chapters 4 and 5).

In short, Free distribution approaches strongly reject the assumption that roots can have content that is grammatically relevant. On this view, there is thus a strong division of labor between roots and event templates insofar as only event templates determine the semantic and syntactic properties of the surface verbs.

1.4 Framework and assumptions

The approach that I adopt in the present dissertation is the one commonly known as the event structural approach to verb meaning, as briefly sketched out in §1.2.2. In particular, I adopt the theory of event structure laid out in Embick (2004) and in Beavers & Koontz-Garboden (2020) in which the architecture of event structure is a level of representation in the syntax (cf. Marantz, 1997; Harley & Noyer, 2000; Hale & Keyser, 2002; Embick, 2004; Folli & Harley, 2005; Harley, 2005; Borer, 2005b; Ramchand, 2008; Alexiadou et al., 2015; Harley, 2005; Borer, 2005b; Ramchand, 2008; Alexiadou et al., 2015). The basic functional head that builds argument and event structures is the verbalizing little v head, which comes in two basic types, i.e., v_{BECOME} and v_{CAUSE}. The v_{BECOME} head introduces entailments of change and categorizes the root, following the standard assumption in the Distributed Morphology tradition (Halle & Marantz, 1993) that roots are acategorial and need to be categorized by heads such as v, a, n, etc. The light verb v_{CAUSE} introduces entailments of causation and the external argument, here called *effector* in a more broad sense (see Van Valin & Wilkins, 1996). Consider

this below (from Beavers & Koontz-Garboden, 2020: 14).[3]

(36) a. $[\![v_{\text{BECOME}}]\!] = \lambda P \lambda x \lambda e \exists s[become'(s, e) \wedge P(x, s)]$
"Event e gives rise to a state s of type P for individudal x."
b. $[\![v_{\text{CAUSE}}]\!] = \lambda Q \lambda y \lambda v \exists e[effector'(y, v) \wedge cause'(v, e) \wedge Q(e)]$
"Event v with y as its effector causes an event e of type Q."

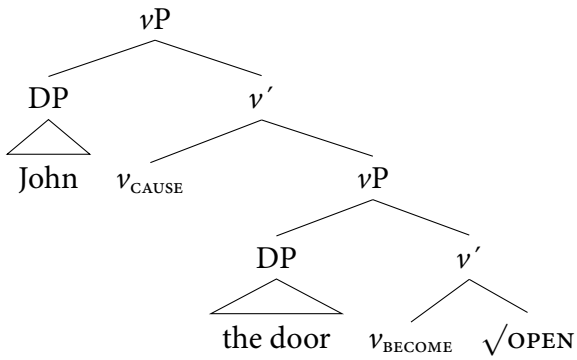
Regarding roots, I assume that they have logical types, following Levinson (2007, 2010, 2014); Coon (2019); Henderson (2019); Beavers & Koontz-Garboden (2020). For instance, the roots of change of state verbs such as *open* are stative as they predicate a simple state of a participant (37-a). In contrast, the roots of verbs denoting actions such as *pound* are predicates of events (37-b). As discussed in detail in Chapter 3, there are other classes of stative roots that are also predicates of states yet they differ from roots of the $\sqrt{\text{OPEN}}$ type in introducing more complex meanings. For the time being, the basic root ontology is defined as follows (based on Beavers & Koontz-Garboden, 2020: 14).

(37) a. $[\![\sqrt{\text{OPEN}}]\!] = \lambda x \lambda s[open'(x, s)]$
"A state of openness s holds of x."
b. $[\![\sqrt{\text{POUND}}]\!] = \lambda x \lambda e[pound'(x, e)]$
"An event of pounding e where x is pounded."

Putting all the pieces together, a causative change of state predicate such as *John opened the door* is represented as follows. Functional projections above the vP level contributing tense, aspectual or discourse information are not represented since they are not of interest to the discussion of the present dissertation.

[3] There is discussion in the literature regarding whether CAUSE or BECOME are actually heads, or are instead introduced when a specific structure needs to be interpreted (see Schäfer, 2008; Embick, 2009; Alexiadou et al., 2015). Whether CAUSE or BECOME are actually heads or instead interpretations that are to be read off the syntactic structure is orthogonal to the discussion of the present dissertation in the sense that the claims made do not depend on assuming flavors of v or similar approaches along the lines of Cuervo (2003); Folli & Harley (2005); Harley (2005) and others.

(38) John opened the door.



An event structural approach to verb meaning neatly captures the fact that sublexical modification with *again* yields different readings depending on the height of its structural attachment site in the event structure, as it has been discussed in detail in the literature on event decomposition (cf. Dowty, 1979; von Stechow, 1995, 1996, 2003; Beck & Snyder, 2001; Beck & Johnson, 2004; Bale, 2007; Beavers & Koontz-Garboden, 2020; Ausensi et al., 2020, 2021, to appear). Namely, in verbs with complex event structures such as in *John opened the door*, the modifier *again* generates multiple interpretations, i.e., the so-called restitutive and repetitive readings. The restitutive reading in the case of (38) relates to restoring the door to a previous state of openness that the door had before. When modified by *again*, such an example can be further ambiguous between (at least) two repetitive readings, namely that John is repeating his own previous event of causing the door to open and the one where John is causing the door to open, and it had opened before (though such a previous opening may have had no cause or may have been caused by something or someone different than John, e.g., the door opening by itself). Such an ambiguity can be accounted for if the event structure of causative uses of verbs such as *open* is the one as in (38), so that *again* can take scope over the root, producing restitutive readings since the root denotes a simple uncaused state (37-a), over the functional head v_{BECOME}, producing a repetitive reading that simply presupposes that the door had opened before and over the functional head v_{CAUSE}, which in this case presupposes that something or someone had caused the door to open before.

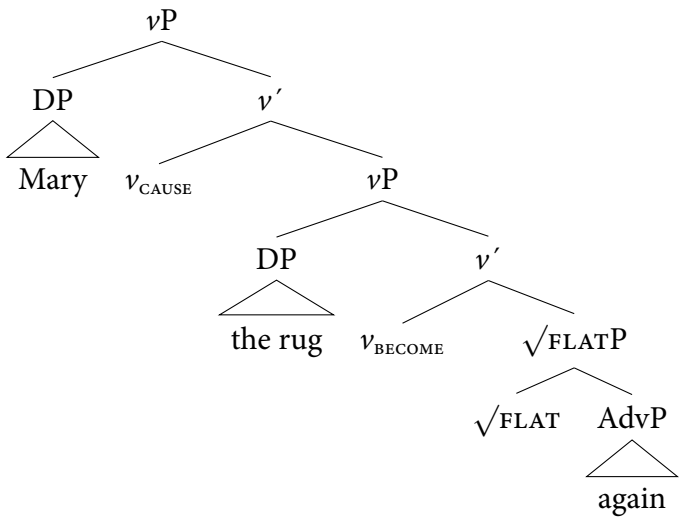
Regarding the semantics of *again*, I adopt the denotation from Beavers

& Koontz-Garboden (2020: 17), defined in (39), where the variable z makes reference to an individual, e to an eventuality, in this case a state, and P is a property of eventualities. In addition, following Beavers & Koontz-Garboden, $e'' \ll e'''$ is true if and only if e'' took place before e'''. I assume, as Beavers & Koontz-Garboden do following Beck (2006) and Deo et al. (2011), that the meaning of *again* is presuppositional (hence the ∂ operator from Beaver, 1992).[4]

(39) $[\![again]\!] = \lambda P \lambda z \lambda e'''[P(z, s''') \wedge \partial \exists s''[s'' \ll s''' \wedge P(z, s'')]]$

The different presuppositions that *again* generates with causative change of state verbs like *open* or *flatten* can be said to follow from its structural attachment site, as discussed above, i.e., whether it takes scope over just the root, or the functional heads introducing change and causation. Compare this in the examples below (from Beavers & Koontz-Garboden, 2020: 17-8).

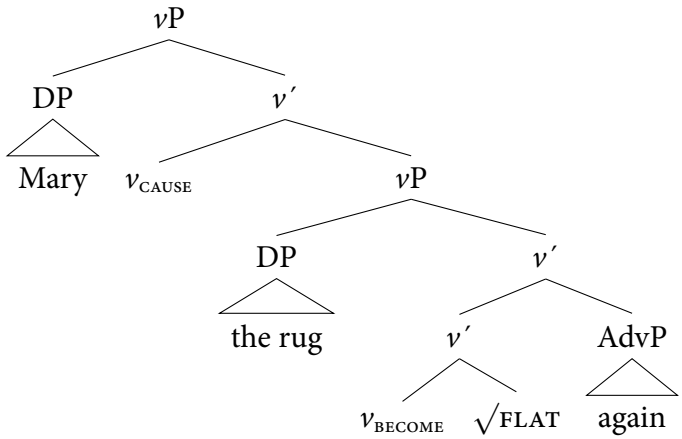
(40) Mary flattened the rug again, and it had been flat before. (Restitutive)



[4] Beavers & Koontz-Garboden's denotation of *again* is a simplified version of that in von Stechow (1996); see also Beck & Johnson (2004); von Stechow (1995, 2003); Beck (2006); Marantz (2007, 2009).

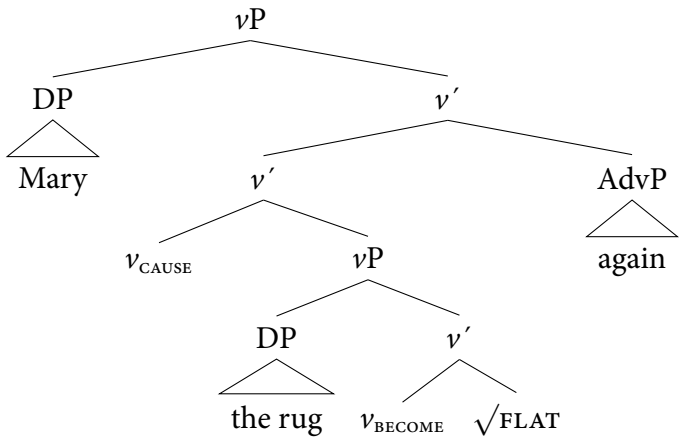
$\exists v \exists e[\textit{effector}'(\mathrm{m}, v) \wedge \textit{cause}'(v, e) \wedge \exists s[\textit{become}'(s, e) \wedge \mathrm{flat}'(\mathrm{r}, s) \wedge \partial \exists e''[e'' \ll s \wedge \mathrm{flat}'(\mathrm{r}, e'')]]]$
"There is an event v of which Mary is the effector and v causes an event e which is an event of change that gives rise to a state s of flatness that holds of the rug and there is presupposed to be an earlier state e" of flatness that held of the rug."

(41) Mary flattened the rug again, and it had flattened before. (Repetitive #1)



$\exists v \exists e[\textit{effector}'(\mathrm{m}, v) \wedge \textit{cause}'(v, e) \wedge \exists s[\textit{become}'(s, e) \wedge \mathrm{flat}'(\mathrm{r}, s) \wedge \partial \exists e''[e'' \ll e \wedge \exists s[\textit{become}'(s, e'') \wedge \mathrm{flat}'(\mathrm{r}, s)]]]$
"There is an event v of which Mary is the effector and v causes an event e which is an event of change that gives rise to a state s of flatness that holds of the rug and there is presupposed to be an earlier event e" which is an event of change that gave rise to a state s of flatness that held of the rug."

(42) Mary flattened the rug again, and she had flattened it before. (Repetitive #2)



$\exists e'''[\exists e[\textit{effector}'(\mathrm{m}, e''') \wedge \textit{cause}'(e''', e) \wedge \exists s[\textit{become}'(s, e) \wedge \mathrm{flat}'(\mathrm{r}, s) \wedge \partial \exists e''[e'' \ll e''' \wedge \exists e[\textit{effector}'(\mathrm{m}, e'') \wedge \textit{cause}'(e'', e) \wedge \exists s[\textit{become}'(s, e) \wedge \mathrm{flat}'(r, s)]]]]$

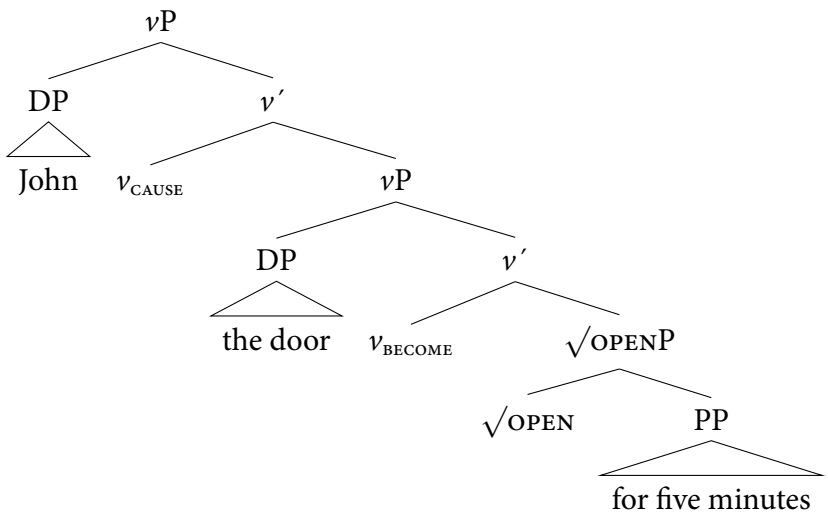
"There is an event e'''" of which Mary is the effector and e'''" causes an event e which is an event of change that gives rise to a state s of flatness that holds of the rug and there is presupposed to be an earlier event e" of which Mary is the effector and e" caused an event e which is an event of change that gave rise to a state s of flatness that held of the rug."

Crucially, from such a theory of event structure it follows then that the root, e.g., √FLAT in the present case, is an undecomposable scopal unit. In other words, on the lowest structural attachment site of *again*, namely when *again* has the truth-conditional content of the root in its scope, *again* generates a presupposition that a participant meets again the truth-conditional content of the root, i.e., the meaning related to the state the root names. Thus, in *John opened the door again*, where *again* has low scope, means that *the door* meets (again) the truth conditions related to the state of *openness* (Beavers & Koontz-Garboden, 2020: 18). The fact that the root involves an undecomposable scopal unit predicts then that "there is no further accessible decomposition of the meaning of the root" (Beavers & Koontz-Garboden 2020: 18). This will be of great significance for the current dissertation, insofar as it makes predictions about the possible truth-conditional content of roots. In Chapters 2 and 3, I return to this point insofar as it becomes cru-

cial in identifying (im)possible verb meanings as well as whether roots can introduce more complex meanings than previous event structural theories of verb meaning have assumed.

Other sublexical modifiers that can target specific parts of the event structure include durative modifiers of the *for x time* sort that generate readings that the state that the root names holds for a specific amount of time when they take scope over the root to the exclusion of event templates higher up in the structure. In this case, an example like the one below, i.e., *John opened the door for five minutes*, means that the door was in a state of *being open* for five minutes (see Dowty, 1979).

(43) John opened the door for five minutes.

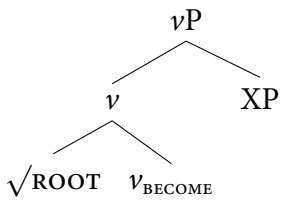


Event structural approaches provide a natural explanation for the distinct presuppositions sublexical modifiers like *again* or durative phrases like *for x time* generate insofar as the restitutive and repetitive readings follow from the height of their structural attachment site in the event structure, e.g., whether *again* takes scope exclusively over the root to the exclusion of other event templates higher up in the structure.

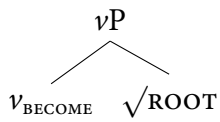
Other assumptions and implementational choices are also in place. Following Embick (2004), McIntyre (2004), Harley (2005), Mateu & Acedo-Matellán (2012), I assume that roots can be structurally interpreted as manner or result depending on how they are associated with the event structure. More specifically, following Embick (2004: 370-2), I assume that roots ad-

joined to v_{BECOME} through Direct Merge create a complex head where the root is structurally interpreted as providing the manner with which a result state is brought about.[5] In contrast, roots in the complement position of v_{BECOME} are interpreted as the state that comes about after the event is over. In this sense, I depart thus from Rappaport Hovav & Levin (1998, 2010) (also Rappaport Hovav, 2017; Levin, 2017) and other approaches that assume that the ontological-type classification of roots determines how roots are associated with the event structure, e.g., Alexiadou et al. (2015) (see also Marantz, 1997; Harley & Noyer, 2000; Reinhart, 2002; Harley, 2005; Ramchand, 2008 and §1.3) (further see the discussion in Chapters 4 and 5).[6]

(44) Manner specification



(45) Result specification

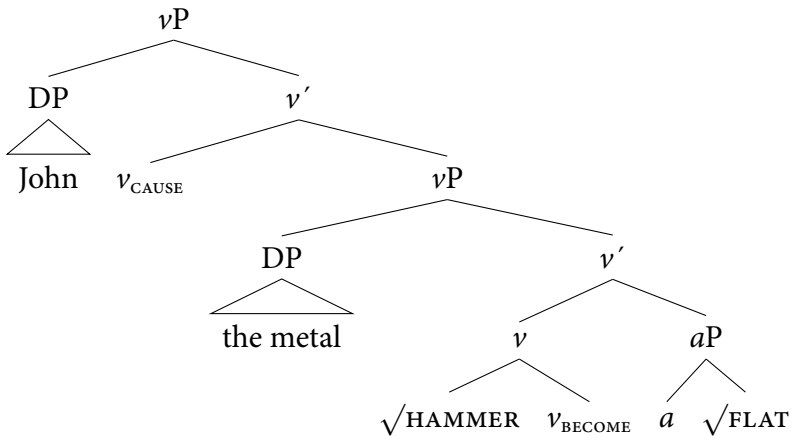


Putting all the pieces together, a resultative construction involving two separate roots such as *hammer the metal flat* in which the roots contribute the manner of the event and the result state respectively is represented as follows (further see Embick, 2004).

[5] Manner adjunction to *v* is only possible if a complement is taken by *v* (see Mateu & Acedo-Matellán, 2012).

[6] In the remainder of the dissertation, if the specifier position of the *v*P is empty as in (44) and (45), the *v*′ level is not represented.

(46) John hammered the metal flat. (≈ cause the metal to become flat by hammering)



Last, in the discussion to follow, I make use of the AP label in the body of the text to refer to adjective phrases in a nontheoretical/descriptive sense, in contrast to *a*P in the tree representations, as I take the *a* to categorize the root in this case as in (46). Concomitantly, I simply make use of the label PP in the tree representations to refer to prepositional phrases in a broad sense and do not engage in the discussion whether prepositions are functional or lexical elements and therefore whether the choice of *p*P or PP would be preferred over the other one depending on the nature of the preposition. For the present purposes, such a difference does not have any consequences for the analysis that I develop here (see Cinque & Rizzi, 2010; Svenonius, 2010; Real-Puigdollers, 2013 for discussion on the nature of prepositions).

1.5 Structure of the dissertation

This dissertation is divided into two parts. Part I "The nature of verb and root meaning" explores the nature of verb and root meaning and whether there are constraints that limit how much or what types of meaning verbs and roots can have. Part I consists of Chapter 2 that explores the question of (im)possible verb meanings and Chapter 3 that looks into the types of meaning roots can have in more detail. Part II "The architecture of event structure" discusses the interaction of root meaning with the event structure and consists of Chapter 4 that examines the division of labor between roots

and event templates with regard to the expression of resultativity and Chapter 5 that looks into the syntactic distribution of roots in the event structure. Last, Chapter 6 explores how root meaning can interact with the syntactic structure in more detail and provides some concluding remarks.

Regarding Part I in more detail, Chapter 2 looks into the question of whether there are constraints or limitations in the lexical entailments of verbs. In particular, I argue against Rappaport Hovav & Levin's (2010) claim that the idiosyncratic meaning of verbs is actually constrained in that verbs can only make reference to a manner of action or a result state, but never both. Namely, Rappaport Hovav & Levin's claim presupposes that there should not be verbs that encode a type of action that gives rise to a specific state, i.e., actions and states are in complementary distribution. By analyzing what I call *murder* and *manner-of-stealing* verbs, I argue that there are no constraints regarding the lexical entailments of verbs of the type argued for by Rappaport Hovav & Levin. In this respect, I isolate a type of action that is common across all *murder* and *manner-of-stealing* verbs, i.e., these verbs encode an intentional-type action that brings about a result state, i.e., *death* in the former verb class and *change of possession* in the latter. After analyzing these verb classes, I propose that agent entailments, i.e., entailments of intentionality associated with the agent argument, are sufficient to induce manner properties and hence that intentionality has more important consequences for the study of verb meaning than previously assumed.

Chapter 3 explores the types of meaning that roots can have in terms of truth-conditional content. In particular, I focus on the roots of *murder* verbs and argue that this class of roots violates another constraint on root meaning, namely the Bifurcation Thesis for Roots. In this respect, I argue that $\sqrt{\text{MURDER}}$-type roots comprise entailments of change and intentionality as part of their truth-conditional content, therefore violating the Bifurcation Thesis for Roots insofar as intentionality and change are meaning components that are uncontroversially assumed to be solely introduced structurally. I note that the fact that certain classes of roots can introduce structural components of meaning has grammatical consequences, e.g., it heavily bears on type of causation, whether direct or indirect, that verbs denote. Last, I further argue that $\sqrt{\text{MURDER}}$-type roots not only entail intentionality associated with the external argument, but must also represent the external argument in their lexical semantics, i.e., they associate with the external argument internally rather than externally, contra Kratzer (1996) *et*

seq. By doing so, I provide evidence against the prevalent view that intentionality entailments as well as the external argument are structurally introduced by functional heads in the syntax (cf. Kratzer, 1996; Folli & Harley, 2005; Pylkkänen, 2008; Alexiadou et al., 2015, *i.a.*).

Regarding Part II in more detail, Chapter 4 focuses on the division of labor between event templates and roots with regard to the expression of resultativity. In particular, my starting point is the widely-accepted restriction involving resultative constructions in English that there can only be one result state predicated in a single clause (cf. Goldberg, 1991, *et seq*.). More specifically, I focus on result verbs and the types of result phrases they combine with. Contra Rappaport Hovav & Levin (2010), I show that result verbs can combine with result phrases denoting distinct result states than the one encoded by the verb. The data I provide show that semantically two result states can be predicated of the same entity in a single clause, namely, the result state encoded by the result verb and the one denoted by the result phrase. Although this type of examples semantically involves that two distinct result states are predicated of the same entity, they are argued to be well-formed since structurally there is only one result state. Namely, the restriction on the number of result states is argued to follow from the architecture of event structure, i.e., structurally there can only be one overt predicate denoting a result state in a single clause. I thus propose a more nuanced view regarding the expression of resultativity in English from the viewpoint of the division of labor between roots and event templates.

Chapter 5 examines the syntactic distribution of roots in the event structure. I show that the most influential approaches to event structure do not fully account for the syntactic distribution of roots. On the one hand, I provide evidence against approaches of the type developed by Rappaport Hovav & Levin (1998, 2010) and Alexiadou et al. (2015) which propose that the lexicalization of a manner or result component by the root determines syntactic distribution, i.e., manner roots are event modifiers and result roots are complements. In this respect, I provide data that challenge these approaches as they involve result roots occurring as event modifiers. On the other hand, I also argue against approaches of the type developed by Borer (2005b, 2013); Mateu & Acedo-Matellán (2012); Acedo-Matellán & Mateu (2014) that hold that roots are not constrained with regard to the syntactic contexts they occur in. In this respect, I provide data that show that root distribution is not completely unconstrained. In order to account for these contrasts, I propose

that certain association patterns with the event structure seem to be sensitive to the semantics of the type of root involved, i.e., the semantics of roots must be compatible with the semantics of the event structure. On this view, the semantics of roots heavily bears on the grammatical properties of classes of roots insofar as it can determine their syntactic distribution and in turn the argument structure and realization patterns of the surface verbs.

Chapter 6 explores in more detail how root meaning can interact with the syntactic structure from the viewpoint of syntactic decompositional approaches. In particular, if certain classes of roots can contain structural components of meaning as part of their truth-conditional content, as argued in the previous chapters, a question that arises then is whether the semantics of the whole event structure is still solely determined by event templates or roots can in this case impose semantic restrictions on the syntactic structure. Similarly, if roots impose semantic restrictions on the syntactic contexts they occur in, one might ask whether event templates are still necessary after all. In this chapter, I provide an initial answer to these questions and arrive at the conclusion that when roots introduce structural components of meaning as part of their truth-conditional content, they determine the semantics of the syntactic contexts they occur in. This points to a direction in which syntax can be assumed to be *simpler* (cf. Culicover & Jackendoff, 2005, 2006) since in some cases structural components of meaning can be encoded directly within the root and consequently need not be represented in the syntactic structure.

1.5.1 A note on data

The data in the present dissertation were extracted from two different corpora, as well as from Google Books (GBooks) (https://books.google.com/) and Web searches (Web). The first corpus employed was *Corpus of Contemporary American English* (COCA) (Davies, 2008) and the second one was *Corpus of Web-Based Global English* (GloWbE) (Davies, 2013). After the relevant examples had been extracted from these corpora, they were then verified by a variety of native speakers whose mother tongue was either British or American English. Linguistic examples with no source have been constructed by me.

Part I

The nature of verb and root meaning

Chapter 2

Roots and (im)possible verb meanings

Contents

2.1 Introduction

The question of (im)possible verb meanings, i.e., whether there are constraints or limitations in the lexical entailments of verbs, has been a recurrent question in linguistics (at least) since Lakoff (1965) and Dowty (1979). Prima facie, there does not seem to be any reason why there should exist constraints or limitations regarding the complexity of actions or states verbs denote, since, as Grimshaw (2005) already suggests, verb meanings, or more specifically, the semantic content of verbs does not seem to be constrained in terms of complexity.

> Suppose there is a manufacturing process that involves pulverizing something then mixing it with molten plastic, allowing it to harden, and then encasing it in steel. Of course we can label the entire process with one verb: *to smolt*, for example. (Grimshaw, 2005: 85)

However, there is an alternative option, namely assuming that the idiosyncratic meaning of verbs is actually constrained in that verbs can only encode a (manner of) action or a (result) state, but never both, i.e., there are no verbs that encode a type of action that gives rise to a specific state. This is the assumption taken by Rappaport Hovav & Levin (2010), as they argue that actions and states are in complementary distribution insofar as a single verb can only encode a (manner of) action or a (result) state, but never both.[1]

In the present chapter, following recent claims in the literature by Mateu & Acedo-Matellán (2012) and Beavers & Koontz-Garboden (2012, 2017a, 2020), I argue that verbs are not constrained in terms of idiosyncratic meaning, i.e., in truth-conditional terms understood as the lexical entailments of a verb (see Dowty, 1989). Namely, the idiosyncratic meaning of verbs is not constrained in terms of denoting actions or states, contra Rappaport Hovav & Levin (2010). In this respect, I argue that some of the *murder* verbs by Levin (1993: 230-2), i.e., *murder*, *slay*, *assassinate*, *slaughter* and *massacre*, encode a manner of action that gives rise to a specific result state, i.e., *death*

[1] In the present dissertation, I use *encode* to make reference to lexical entailments of verbs. Thus, a verb encodes a result state or a manner of action if it entails it (cf. *#John killed the men, but the men did not die).*

in this case. Regarding the type of manner of action these verbs encode, I take on a modest goal and simply isolate a type of action that is common across all *murder* verbs. In this respect, I claim that these verbs encode an intentional-type action that is carried out in order to bring about the result state encoded by the verb. Other verbs in the same class, however, may have more complex manner entailments. For instance, as I discuss in §2.5, *massacre* also involves magnitude of killing and *slay* further requires violence and the use of a sharp object, yet *murder* verbs all have this type of manner of action in common, namely an intentional action that is carried out with the purpose of bringing about of the death of a theme.

The analysis of *murder* verbs as manner-result encoding verbs makes the prediction that a verb encoding a result state and intentionality should pattern as both manner and result. I show that this prediction is actually borne out by analyzing some of the *steal* and *cheat* verbs by Levin (1993: 128-30), which I call *manner-of-stealing* verbs in a broad sense, and include *rob*, *mug*, *seize* and *snatch*. I argue that this class of verbs also patterns as both manner and result as the verbs in this class pass standard result and manner diagnostics. More specifically, as Levin (1993: 128-9) notes, these verbs encode a change of possession, which is a type of result state. Yet, they also encode intentionality, and therefore pattern as manner verbs as well. Of course, as with *murder* verbs, some *manner-of-stealing* verbs may have more complex manners of action than simply the carrying out of an intentional action, yet such a manner of action is common across all *manner-of-stealing* verbs. After analyzing both *murder* and *manner-of-stealing* verbs, I conclude that agent entailments (Dowty, 1991), in the present case intentionality entailments associated with the agent argument, are sufficient to induce manner properties, therefore strongly suggesting that intentionality has more important consequences for the study of verb meaning than previously acknowledged.

This chapter is structured as follows. In §2.2, I present the hypothesis about (im)possible verb meanings known as Manner/Result Complementarity. In §2.3, I briefly summarize two of the most influential accounts against Manner/Result Complementarity (as a claim on the lexical entailments of verbs), namely the accounts by Mateu & Acedo-Matellán (2012) and Beavers & Koontz-Garboden (2012). In §2.4, I present the analysis of *murder* and *manner-of-stealing* verbs and show that they pattern as manner-result encoding verbs when subject to relevant diagnostics. I argue then that

these verb classes encode both a manner and a result and therefore violate Manner/Result Complementarity as a claim on the truth-conditional content of verbs. In the same section, I make use of sublexical modification in order to show that manner and result entailments in such verb classes are encoded in a single root insofar as sublexical modifiers cannot take scope over the manner to the exclusion of the result. In §2.5, I present some final remarks on (im)possible verb meanings and their relation with manner and result. §2.6 concludes the chapter.

2.2 Manner/Result Complementarity

One of the most influential proposals regarding (im)possible verb meanings is probably the one laid out by Rappaport Hovav & Levin (1998, 2010) known as Manner/Result Complementarity. Rappaport Hovav & Levin argue that verbs fall into two wide semantic classes, i.e., manner verbs (1-a), which encode a manner of action, but not any result state from that action, and result verbs (1-b), which encode a result state but not the manner of action that brings about the result state.

(1) a. Manner verbs: *wipe*, *run*, *poison*, *scrub*, *sweep*, etc.
b. Result verbs: *clean*, *arrive*, *kill*, *clear*, *remove*, etc.

It is important to note that Manner/Result Complementarity crosscuts the transitive and intransitive distinction, in the sense that transitive and intransitive verbs can be further subdivided into (in)transitive manner and result verbs. As Rappaport Hovav (2017) notes, semantic classes can be also subdivided into verbs which encode a manner of action, but not any result state, and verbs which encode a result state, but not any manner of action. Compare this in the semantic classes of motion (2), change of state (3) and speech (4) (adapted from Rappaport Hovav, 2017: 77-8).

(2) a. Manner verbs: *run*, *jog*, *walk*, *swim*, *dance*, etc.
b. Result verbs: *arrive*, *fall*, *go*, *rise*, *approach*, etc.

(3) a. Manner verbs: *hit*, *beat*, *rub*, *scrub*, *wipe*, etc.
b. Result verbs: *break*, *kill*, *clean*, *empty*, *remove*, etc.

(4) a. Manner verbs: *whisper*, *yell*, *murmur*, *scream*, *bellow*, etc.
b. Result verbs: *say*, *propose*, *declare*, *proclaim*, *admit*, etc.

Rappaport Hovav & Levin (2010) (also Levin & Rappaport Hovav, 1991, 1995, 2005, 2006, 2013, 2014; Rappaport Hovav, 2014a, 2017; Levin, 2017) make the strong claim that a simplex verb, i.e., a nonderived, monomorphemic verb, cannot encode both a manner of action and a result state. In other words, there are no manner-result encoding verbs, as manner and result meanings are argued to be in complementary distribution (5).

(5) Manner/Result Complementarity: Manner and result meaning components are in complementary distribution: a verb lexicalizes only one. (Levin & Rappaport Hovav, 2013: 50)

More specifically, Rappaport Hovav & Levin argue that Manner/Result Complementarity is a claim regarding the idiosyncratic meaning of roots. In this respect, although there are languages in which surface verbs clearly express a manner of action that brings about a result state, Rappaport Hovav & Levin note that in these cases prefixes and stems combine to form complex verbs, and therefore manner and result meanings are contributed by two distinct predicates. For instance, Rappaport Hovav & Levin (2010: 26) note that in Lakhota, there are verb stems that describe result states such as *–blecha* 'be shattered' and a group of prefixes that describe different manners of action, e.g., *ya–* 'with the mouth'. In Lakhota, prefixes and stems can combine to form complex verbs such as *yablecha* 'break or cut with the teeth', which denote both a manner of action and a result state. However, such cases do not violate Manner/Result Complementarity in the sense that it is a hypothesis on root meaning, and those verbs are clearly bimorphemic.

Regarding the formal implementation of Manner/Result Complementarity, Rappaport Hovav & Levin argue that such a complementarity follows from the architecture of event structure (see Rappaport Hovav & Levin, 1998), in the sense that roots are associated with the event structure as modifiers to the so-called ACT predicate (6-a), notated via subscripts, or as arguments of the so-called BECOME predicate (6-b), but never as both. In other words, a single root cannot be associated with two different positions at the same time, i.e., as an argument and as a modifier at the same time, and therefore Manner/Result Complementarity follows.

(6) a. [x ACT $<_{ROOT}>$]
b. [[x ACT] CAUSE [y BECOME <*ROOT*>]]

More specifically, Rappaport Hovav & Levin argue that "there is a constraint on how roots can be associated with event schemas, which in turn constrains the meaning that a root can lexicalize". The constraint Rappaport Hovav & Levin refer to is the one known as 'The lexicalization constraint', which is defined as follows.

(7) The lexicalization constraint: A root can only be associated with one primitive predicate in an event schema, as either an argument or as a modifier. (Rappaport Hovav & Levin, 2010: 25)

Rappaport Hovav & Levin conclude then that Manner/Result Complementarity follows since the roots of manner verbs (e.g., $\sqrt{\text{WIPE}}$) are always modifiers as the root encodes a manner, whereas the roots of result verbs (e.g., $\sqrt{\text{BREAK}}$) are always arguments as the root, in this case, encodes a (result) state. Rappaport Hovav & Levin assume then that it is the ontological-type classification of the root that determines how roots are integrated into the event structure, taking manner and result as basic ontological types (cf. §1.3.2 of Chapter 1 and see especially Chapter 5 for further discussion on root ontologies and their relation with event structure.)

It is important to note that, as Beavers & Koontz-Garboden (2012: 333) point out, Manner/Result Complementarity is actually a twofold claim insofar as it constrains how much meaning verbs can have (8-a) and determines how roots are associated with the event structure (8-b) (see Mateu & Acedo-Matellán, 2012). Consider this below (based on Beavers & Koontz-Garboden, 2012: 354).

(8) Manner/Result Complementarity:
   a. A simplex verb can only encode a manner of action or a result state, but never both.
   b. A single root is associated with the event structure as a modifier or as an argument, but never as both.

In the present chapter, following Beavers & Koontz-Garboden (2012) and Mateu & Acedo-Matellán (2012), I argue that whereas (8-b) is correct, i.e., a single root cannot be associated with the event structure as a modifier and as an argument at the same time, (8-a) is actually contrary to fact, insofar as there are well-defined classes of verbal roots which despite being associated with one position in the event structure encode a manner of action

that brings about a result state. Thus, this strongly suggests that the fact that roots can only be integrated into the event structure as arguments or modifiers does not necessarily correlate with roots encoding a manner of action or a result state (see Mateu & Acedo-Matellán, 2012 for a more detailed discussion).

In the next section, I briefly summarize the proposal by Rappaport Hovav & Levin to equate manner and result with so-called scalar and nonscalar changes. In this respect, there is a (recent) growing body of literature that has proposed to analyze changes of state and location, i.e., result states, as scalar changes since both changes of state and location are argued to involve the transition of a theme along a scale.

2.2.1 Manner and result as (non)scalar changes

Recently, many linguists have proposed that changes of state or location, i.e., result states, can be represented as scales of change.[2] The motivation for this can be found in the work of Tenny (1994) (see also Verkuyl, 1972; Krifka, 1989). In this respect, Tenny characterized the direct object as the argument that "measures out" the event, i.e., "progress in the development of the described event can be monitored through the extent of the referent of the direct object" (Rappaport Hovav, 2014a: 259). In other words, in an event, for instance, of *eating an apple*, the progress of the development of the event can be monitored through the extent of the apple. As Rappaport Hovav (2014a: 260) points out, many linguists then formalized the notion of "measuring out" by Tenny as a scale of change due to the fact that the properties that are associated with both change of state and directed motion verbs can be formalized as scales of change (see Dowty, 1991; Tenny, 1994; Ramchand, 1997; Hay et al., 1999; Kennedy & McNally, 2005; Beavers, 2008, 2011b, 2013; Kennedy & Levin, 2008; Rappaport Hovav, 2008; Rappaport Hovav & Levin, 2010; Rappaport Hovav, 2014a; Beavers & Koontz-Garboden, 2012, 2017a, *i.a.*). In other words, in the events described by both classes of change of state/location verbs, a participant necessarily moves from an initial state or location to a different one at the end of the event, which results then in a change of state or location. It is important to note that in the approaches that represent changes of state and location as scalar changes the only difference

[2] The material in this subsection comes from Ausensi (to appearc).

between change of state and directed motion verbs relates to the type of scale lexicalized and not to differences in their event structure (Beavers, 2011b). In this respect, Beavers (2011b) proposes that directed motion verbs lexicalize location scales, describing changes of location (e.g., *arrive, send, go*), and change of state verbs lexicalize property scales, describing changes of state (e.g., *die, flower, shatter*), yet both change of state and directed motion verbs encode scalar changes.[3]

Within this scalar approach to changes of state and location, a scale is assumed to be formed by a set of degrees (which specify measurement values) on a specific dimension, i.e., width, length, alive-dead etc., with an ordering relation. For instance, a warming and a cooling event differ in the ordering relation of the degree of temperature, i.e., in the increasing and decreasing of the temperature that holds of the theme (Kennedy & McNally, 2005). Similarly, the verb *break* is also related to an attribute, i.e., *broken*, which holds of a theme when it participates in a breaking event. In more formal terms, a scale is usually defined in terms of a triple relation, as in (9) (from Beavers & Koontz-Garboden, 2012: 37).

(9) a. δ = some property/dimension (e.g., for height, length, straightness, temperature, proximity to some reference point).
b. S = a set of (intervals of) degrees for having property δ.
c. R = an ordering of members of S (determining directionality).

In addition, the type of scale, whether it is a two-point, e.g., *kill*, or a multi-point scale, e.g., *warm*, is argued to determine gradability, telicity and durativity (Beavers, 2008, 2011b). For instance, the scale lexicalized by *die* is a two-point scale, as it involves the transition from *alive* to *dead*, and this is reflected in a nongradable attribute (10-a), in telicity (10-b) and in durativity (10-c).

(10) a. #More dead/#deader.

[3] Beavers (2011b) proposes a third type of scale, i.e., extent scales, selected by consumption (e.g., *eat, drink*) and creation (e.g., *build, write*) verbs. However, Rappaport Hovav (2008) argues that consumption verbs do not lexicalize any type of scale, since verbs such as *eat* pattern like manner verbs. For the present purposes, I leave aside extent scales, since verbs of consumption and creation fall outside the scope of the present dissertation, but see Rappaport Hovav (2008) and Beavers (2008, 2011b, 2013).

b. John died in 1 hour/#for 1 hour.
c. John will die in 1 hour/It took John 1 hour to die. (*after* 1 hour reading = punctual)

In contrast, multi-point scales, e.g., *cool*, are generally gradable (11-a), can have variable telicity (11-b) and can be durative (11-c).

(11) a. Cooler.
b. Jon cooled the soup in 1 hour/for 1 hour.
c. John will cool the soup in 1 hour/It took John 1 hour to cool the soup. (*after/during* 1 hour readings = durative)

In this vein, Rappaport Hovav & Levin propose to equate result and manner with scalar and nonscalar changes respectively, where a scalar change is understood to involve "a change in value of [an] attribute in a particular direction along [a] scale, with the direction specified by the ordering relation". For instance, as expressed above, the verb *die* is related to an attribute, namely *dead*, which necessarily holds of a theme when it participates in a dying event. A scalar change then involves a change in some property or value of a participant, e.g., be *dead, cool* or *broken* after an event of *dying, cooling* or *breaking* respectively or be in *x* location after an event of *arriving, descending* or *rising*. In other words, scalar changes involve the transition of a participant along the scale lexicalized by the result verb and therefore a modification in the degree of some value or property of that participant, e.g., a soup becoming cooler or warmer after an event of *cooling* and *warming* respectively. Within verbs that encode directed motion (i.e., a type of result), e.g., *arrive*, *fall*, *go*, the scalar attribute is understood to be related to the location of a theme in respect of a reference object (Rappaport Hovav & Levin, 2010: 29). More specifically, note what Rappaport Hovav (2014a: 267) argues in this respect:

> Being located relative to a reference object (RO) is the relevant scalar attribute in all cases. When the theme and the RO are displaced in space, the set of contiguous points of location between them form a path. The path can be considered a multi-point spatial scale consisting of this set of points [...] and being located at one of these points on the path is the relevant gradable property.

Crucially, the path encoded by directed motion verbs constitutes a scale, and therefore directed motion verbs encode a result state, since the points on the scale are ordered (Rappaport Hovav & Levin, 2010: 29). In this respect, Rappaport Hovav & Levin (2010: 29) argue that English directed motion verbs can be classified into two classes depending upon how such an ordering relation is constituted. In directed motion verbs like *ascend* or *fall* the ordering relation is completely specified by the verb. For instance, in *fall* "the points on the path are ordered in the direction of gravity, while with *ascend* they are ordered against it" (Rappaport Hovav & Levin, 2010: 79). In other directed motion verbs like *arrive* or *leave* "the points on the path are ordered according to whether they are closer to or further away from [= a reference, JA] object". Thus, although directed motion verbs differ with respect to how the points on a path are established, both types of directed motion verbs encode a change of location (i.e., a result state) since an entity necessarily traverses the path lexicalized by the verb.

The fact that an entity necessarily traverses the path in the case of directed motion verbs and therefore undergoes a change of location can be illustrated by making use of the *x is somewhere else* diagnostic by Beavers (2011b), which picks out changes of location. As shown in (12) such a diagnostic results in a contradiction if the verb encodes a change of location.

(12) a. John just descended (to the cave), #but he is not somewhere else.
b. The rocket just fell (into the hole), #but it is not somewhere else.
c. Sally just arrived (in the UK), #but she is not somewhere else.

In contrast to result verbs, Rappaport Hovav & Levin characterize manner verbs as verbs that encode nonscalar changes, where nonscalar changes are defined as "any changes that cannot be characterized in terms of an ordered set of values of a single attribute" (Rappaport Hovav & Levin, 2010: 32). Nonscalar changes thus relate to complex combinations of various changes, but these complex combinations do not constitute an ordered relation and therefore no scalar change follows, as the verbs do not lexicalize any scale of change. In this respect, note what Rappaport Hovav & Levin (2010: 33) argue regarding a manner verb such as *jog*, considered a canonical verb encoding nonscalar changes.

> The verb *jog* involves a specific pattern of movements of the legs, one that is different, for example, from the pattern associated with *walk*. Furthermore, even though there is a sequence of changes specified by *jog*, collectively these changes do not represent a change in the values of a single attribute, nor is any one element in the sequence of changes privileged as being the necessary starting point of motion; that is, one can start jogging by moving one's left leg first or one's right leg first.

Such manner of motion verbs thus do not encode a result state, in this case a change of location. This is illustrated by the fact that verbs like *jog* do not generate contradictions when subject to the diagnostic by Beavers (2011b), which contrasts with directed motion verbs as in (12).

(13) a. John just jogged for hours, but he is not somewhere else.
b. John just ran for hours, but he is not somewhere else.
c. John just swam for hours, but he is not somewhere else.

In short, whereas scalar changes are simple in the sense that they involve "a directed change in the values of a single attribute" (Rappaport Hovav & Levin, 2010: 32), nonscalar changes instead involve "complex sequence[s] of separate changes that collectively define an action, but do not necessarily add up to a single cumulative change along any one dimension" (Beavers & Koontz-Garboden, 2012: 343).

2.3 Against Manner/Result Complementarity

Over the years, Manner/Result Complementarity has been challenged as it has been argued to not hold categorically (Férez, 2007; Zlatev & Yangklang, 2004; Goldberg, 2010; Husband, 2011, and see Levin & Rappaport Hovav, 2013, 2014 and Rappaport Hovav, 2017 for some responses). In this section, I summarize two of the most influential contributions in this respect, namely the contribution by Mateu & Acedo-Matellán (2012) and Beavers & Koontz-Garboden (2012), and the recent response by Rappaport Hovav (2017) to these two contributions.

2.3.1 Mateu & Acedo-Matellán (2012)

Adopting a neoconstructionist approach to argument/event structure, Mateu & Acedo-Matellán (2012) argue that Manner/Result Complementarity actually holds in the event structure level insofar as a single root can only occupy a specific position, as briefly discussed before (cf. (8)). Thus, in this sense, there is a complementarity between manner and result; in Mateu & Acedo-Matellán's (2012: 212) words "a single root cannot act both as a [= small-clause-result, JA]-like predicate and as a *v* modifier at the same time". Crucially, though, Mateu & Acedo-Matellán argue that manner and result are in fact different interpretations associated with specific positions in the event structure, and not meaning components of the roots themselves, or as Mateu & Acedo-Matellán (2012: 211-2) put it "Manner and Result are not meaning components of the root, but interpretations derived from the position the root occupies in the structure". Thus, a manner interpretation arises when a root is merged as a modifier to *v* and a result interpretation arises when a root is the complement of some small-clause predicate (further see Embick, 2004; McIntyre, 2004; Harley, 2005 and Chapters 4 and 5). In this vein, Mateu & Acedo-Matellán note that the same root $\sqrt{\text{BREAK}}$ can be structurally interpreted as manner (14) and as result (15) depending on its integration into the event structure, i.e., as a modifier or as a complement. Compare this below (from Mateu & Acedo-Matellán, 2012: 211).

(14) a. $[_{vP}\ [_{v}\ \sqrt{\text{BREAK}}\ v]\ [_{SC}\ [_{DP}$ he] [into the room]]]
b. He broke into the room.

(15) a. $[_{vP}\ [_{v}\ [_{SC}\ [_{DP}$ the glass] $[\sqrt{\text{BREAK}}]$]]
b. The glass broke.

In sum, in Mateu & Acedo-Matellán's account, a root can involve both manner and result, but crucially it cannot be both interpreted as manner and result at the same time, since manner and result are interpretations that are derived from the position of the root in the event structure. Regarding the semantic content of roots, Mateu & Acedo-Matellán (2012: 214) assume, contra Rappaport Hovav & Levin, that root meanings can be as complex as one wants, or as they put it "a root can of course be claimed to encode "manner" and "result" simultaneously as part of its conceptual content, that is, as part of the conceptual scene it invokes" (cf. Grimshaw, 2005).

2.3.2 Beavers & Koontz-Garboden (2012)

Beavers & Koontz-Garboden (2012) analyze what they call *manner-of-killing* verbs (i.e., *drown*, *guillotine*, *hang*, *electrocute* and *crucify*) in order to develop their main case against Manner/Result Complementarity as a claim on the truth-conditional content of verbs. In this respect, it is important to recall that verbs of killing are often divided into those that only encode a result state, but not a manner of killing (e.g., *kill*), and those that encode a manner of killing, but not a result state (e.g., *poison*), i.e., what Levin (1993) calls *poison* verbs. However, regarding some *poison* verbs, Levin (1993: 232) herself acknowledges that "[...] these verbs need not entail that the action they denote results in death; however, some of them do appear to have this entailment". Drawing on Levin's disclaimer, Beavers & Koontz-Garboden argue that some of the *poison* verbs previously classified as manner by Levin actually encode a manner of action that brings about a result state, i.e., what they call *manner-of-killing* verbs.[4]

Beavers & Koontz-Garboden thus argue that there exists a third class of verbs, i.e., manner-result encoding verbs, and therefore that manner and result can be part of the entailments of some verb classes, contra Rappaport Hovav & Levin. To this end, Beavers & Koontz-Garboden first develop several manner and result diagnostics following the definitions of result and manner by Rappaport Hovav & Levin and show that *manner-of-killing* verbs pattern as both manner and result when subject to relevant diagnostics. In addition, they also make use of sublexical modification with *again* and *re-* prefixation (cf. von Stechow, 1995, 1996; Beck & Snyder, 2001; Beck & Johnson, 2004; Marantz, 2007 and Chapter 3) in order to show that manner and result are part of the meaning of the roots of *manner-of-killing* verbs. In this respect, Beavers & Koontz-Garboden note that sublexical modification in the case of the roots of *manner-of-killing* verbs cannot pick manner and result entailments apart since such meanings are encoded in a single undecomposable root.[5]

[4] Beavers & Koontz-Garboden also include two other verb classes when arguing against Manner/Result Complementarity, namely *ballistic motion* (i.e., *flip*, *throw* and *toss*) and *manner-of-cooking* verbs (i.e., *braise*, *poach* and *sauté*). In the present section, I only mention *manner-of-killing* verbs since such a class is the main case study they consider when arguing against Manner/Result Complementarity.

[5] See §1.4 of Chapter 1 and more specifically Chapter 3 for a detailed discussion of

2.3.3 A response: Rappaport Hovav (2017)

Rappaport Hovav (2017) has recently argued that *manner-of-killing* verbs are not relevant to Manner/Result Complementarity in that they are denominal, and therefore morphologically derived despite not displaying any overt morphology (i.e., *guillotine*) or they are not monomorphemic (i.e., *crucify, electrocute*), and therefore irrelevant as Manner/Result Complementarity is a claim about simplex verbs, as discussed in §2.2. In a similar vein, Rappaport Hovav argues that *drown* does not encode any manner of action, but only a result state, and therefore that it does not present a counterexample. More specifically, Rappaport Hovav (2017: 83) argues that *manner-of-killing* verbs do not actually pose a problem if Manner/Result Complementarity "is a constraint on what is encoded in roots". In this respect, Rappaport Hovav (2017: 84) points out the following:

> An analysis in the case of the first two verbs [= *crucify*, *electrocute*, JA] would determine the contribution of each morpheme to the meaning of the verb, and in the case of the latter [= *guillotine*, JA], the contribution of the nominal root and the derivation of the verb.

Regarding *drown*, Rappaport Hovav argues that it does not encode a manner of action, but only a result state, though she argues that the result state is not death, but rather death is an inference from context, since "not all uses of the root √DROWN involve a manner of killing" (Rappaport Hovav, 2017: 83). In this respect, Rappaport Hovav points out that *drown* permits the anticausative in English and natural forces as causers, where the notion of an action (by an agent) is irrelevant.[6]

(16) a. John drowned.
b. The water drowned him.
(adapted from Rappaport Hovav, 2017: 85)

sublexical modification and its relation with roots and the architecture of event structure.

[6] Regarding the last *manner-of-killing* verb, namely *hang*, although Rappaport Hovav does not develop a full analysis of such a verb, she nonetheless suggests that a similar analysis could be derived for this verb too, as she takes it to be a result verb, rather than a manner verb.

Regarding Mateu & Acedo-Matellán's (2012) claim that roots can either be interpreted as manner or result depending on the position they occupy in the event structure, and therefore that any root can be integrated into the event structure as a modifier or as an argument, Rappaport Hovav argues that even when result roots are merged as modifiers to *v*, i.e., when they are structurally interpreted as manner, they "still conform to MRC [= Manner/Result Complementarity, JA] in specifying the result (a state) of an event, but no nonscalar change (manner)". She illustrates her claim with the following examples, in which even when result verbs such as *break* are found in manner structures, they still specify the result state they encode, as this cannot be explicitly denied.

(17) a. The hammer-head broke off (#but nothing broke).
(There was a breaking; no specification of how the breaking came about)
b. The squash split open (#but there was no split in it).
(There was a splitting; no specification of how the splitting came about)
(Rappaport Hovav, 2017: 96)

Rappaport Hovav (2017: 96) concludes that in these structures, "*break* maintains its truth-conditional content as a result, not a manner root" since "the truth-conditional content of the verb specifies only that there was breaking; it says nothing about the kind of action which brought about the breaking".

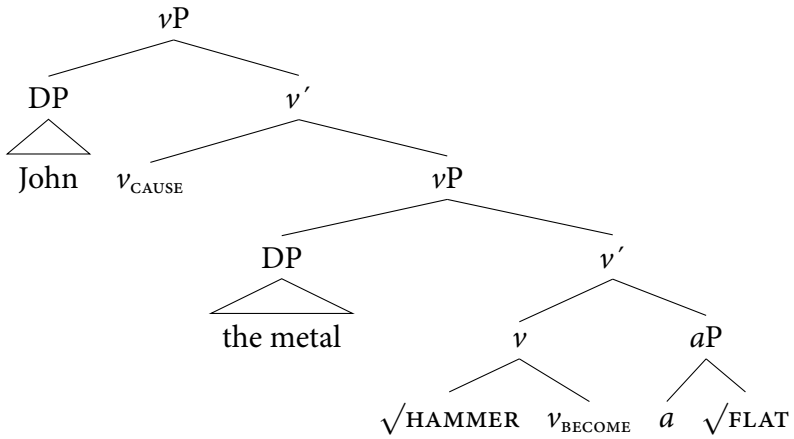
2.3.4 A complementarity in the event structure

Both Mateu & Acedo-Matellán and Beavers & Koontz-Garboden agree that Manner/Result Complementarity actually holds as a restriction on the architecture of event structure, insofar as a single root can only occupy a specific position, associated with manner or result interpretations. In Rappaport Hovav & Levin's formulation, this complementarity in the event structure is cast in terms of whether a root acts as a modifier or as an argument of the so-called ACT and BECOME predicates. In event structures represented in the syntax, as assumed in the present dissertation, a root can only be merged as a modifier or as a complement of the verbalizing little *v* head (see Embick, 2004; McIntyre, 2004; Harley, 2005; Den Dikken, 2010; Acedo-Matellán & Mateu, 2014; §1.4 and Chapters 4 and 5). Thus, Manner/Result Comple-

mentarity comes about since a root cannot be a modifier and a complement of *v* at the same time (cf. Mateu & Acedo-Matellán, 2012).

Of course, a complex predicate with two overt roots can express that a manner of action brings about a result state. This is the case of resultative constructions such as *hammer the metal flat*, where one root denotes the manner that brings about the state named by another root, as illustrated in (18). In this case, the root naming an action, i.e., √HAMMER, is merged as a modifier to *v* whereas the root naming a state, i.e., √FLAT is merged as a complement of *v*, as shown below.

(18) John hammered the metal flat.



2.3.5 Interim summary

Manner/Result Complementarity is possibly the most influential claim regarding (im)possible verb meanings, insofar as it makes testable predictions about the possible lexical entailments of verb classes and the architecture of event structure. In particular, as it has been discussed in detail, Manner/Result Complementarity is actually a twofold claim, one about the possible lexical entailments of simplex verbs, and another about the architecture of event structure (cf. (8)). While previous research agrees that Manner/Result Complementarity holds at the event structure level, insofar as a single root cannot be integrated into two distinct positions at the same time, the claim that verbs cannot encode both manner and result entailments has been challenged and shown not to hold categorically.

With these assumptions in mind, in the next section, I defend the view initially put forth by Beavers & Koontz-Garboden (2012), namely that Manner/Result Complementarity is contrary to fact in the sense that the truth-conditional content of roots can have both manner and result entailments at the same time, contra Rappaport Hovav & Levin (2010) and Rappaport Hovav (2017). In order to make my case, I focus on monomorphemic, non-derived verbs, i.e., simplex verbs, from two different verb classes, i.e., some of the *murder* verbs by Levin (1993) and what I have called *manner-of-stealing* verbs, which include some of the verbs from the verb classes that Levin (1993) calls *steal* and *cheat* verbs, as mentioned before.

2.4 Agent entailments induce manner properties

In this section, I first focus on some of the *murder* verbs by Levin (1993: 230-2), i.e., *murder*, *slaughter*, *massacre*, *slay* and *assassinate*, which I call *murder* verbs, in order to argue that some well-defined classes of simplex verbs encode both a manner of action and a result state, contra Rappaport Hovav & Levin (2010). In this respect, I contend that *murder* verbs, despite being simplex, monomorphemic verbs, encode an intentional-type action that brings about a result state, therefore providing further evidence in favor of the initial claim put forth by Beavers & Koontz-Garboden (2012). Concomitantly, the analysis of *murder* verbs as manner-result encoding verbs has consequences for the role that intentionality plays within the study of verb meaning, since I argue that agent entailments (Dowty, 1991), in the present case intentionality entailments associated with the agent argument, are sufficient to induce manner properties, and therefore that intentionality appears to be of more importance than previously acknowledged.[7]

Regarding intentionality, it is a rather uncontroversial fact that verbs of the *murder* sort entail it, whereas verbs like *kill* do not (see Talmy, 1985; Dowty, 1991; Van Valin & Wilkins, 1996; Lemmens, 1998; Van Valin, 2005; Rooryck & Wyngaerd, 2011; Grano, 2016; Solstad & Bott, 2017; Ausensi, 2019a; Ausensi et al., 2020, 2021, *i.a.*). This difference can be illustrated by the fact that *murder* verbs require the referent of the subject to act intention-

[7] I am indebted to Louise McNally for her invaluable comments regarding this argument.

ally, whereas *kill* does not. This is shown in the following examples, in which the presumed intentionality in *kill* can be either canceled or reinforced (19) (since it is not a lexical entailment), something not possible with *murder* verbs (20)-(21), as intentionality is a lexical entailment of this verb class.

(19) a. The elf killed the gnome unintentionally/by accident.
b. The elf killed the gnome intentionally/on purpose.

(20) a. #The elf murdered the gnome unintentionally/by accident.
b. #The wizard slew the ogre unintentionally/by accident.
c. #The knight assassinated the king unintentionally/by accident.
d. #The witch massacred the monsters unintentionally/by accident.
e. #The archers slaughtered the ogres unintentionally/by accident.

(21) a. ??The elf murdered the gnome intentionally/on purpose.
b. ??The wizard slew the ogre intentionally/on purpose.
c. ??The knight assassinated the king intentionally/on purpose.
d. ??The witch massacred the monsters intentionally/on purpose.
e. ??The archers slaughtered the ogres intentionally/on purpose.

Intentionality is understood in the present section as a verb entailment that relates to performing an action intentionally, where the entity denoted by the subject acts volitionally when performing an action with a specific intention, in this case, the causing of the death of the entity denoted by the theme (further see Chapter 3 for a more detailed account). That *murder* verbs require intent by the entity denoted by the subject, whereas *kill* does not, is illustrated in the following examples, in which denying that the referent of the subject of *murder* verbs does not show intent when causing the event generates a contradiction. Compare this below.

(22) a. The elf killed the gnome, but didn't intend to.
b. The elf killed the gnome, but it wasn't his intention.

(23) a. #The elf murdered the gnome, but didn't intend to.
b. #The elf murdered the gnome, but it wasn't his intention.

(24) a. #The wizard slew the ogre, but didn't intend to.
b. #The wizard slew the ogre, but it wasn't his intention.

(25) a. #The knight assassinated the king, but didn't intend to.
b. #The knight assassinated the king, but it wasn't his intention.

(26) a. #The witch massacred the monsters, but didn't intend to.
b. #The witch massacred the monsters, but it wasn't her intention.

(27) a. #The archers slaughtered the ogres, but didn't intend to.
b. #The archers slaughtered the ogres, but it wasn't their intention.

In the next sections §2.4.1 and §2.4.2, I make use of the result and manner diagnostics as implemented in Rappaport Hovav & Levin (2010) and Beavers & Koontz-Garboden (2012) in order to argue that *murder* verbs are simplex verbs that encode a manner of action that brings about a result state. *Murder* verbs contrast then with *kill*, in that the latter patterns as a canonical result verb. Thus, contra Rappaport Hovav & Levin (2010) and Rappaport Hovav (2017), this shows that manner and result can be part of the lexical entailments of some simplex verbs.

2.4.1 Result entailments

I start by introducing the result diagnostics as laid out by Rappaport Hovav & Levin (2010), and further developed by Beavers & Koontz-Garboden (2012), and show that *murder* verbs pattern like canonical result verbs when subject to these diagnostics. It is important to recall that the notion of result assumed by Rappaport Hovav & Levin relates to scalar change, i.e., a change of some value or property of a participant along a scale, and therefore the result diagnostics by Rappaport Hovav & Levin boil down to identifying whether a verb encodes scalar change.

2.4.1.1 Result diagnostic 1: Denial of result

The first result diagnostic relates to the fact that since result verbs encode scalar changes, as argued by Rappaport Hovav & Levin, if there is a participant that engages in an event involving a change along a scale, at the end of the event, such a participant must have an altered degree of some property or value. In other words, in a scalar change event, the participant undergoing a scalar change necessarily has a different degree of a property or value at the end of the event. Thus, an event of warming a soup necessarily involves a different degree of the temperature of the soup at the end of the event than at the beginning. One diagnostic in this respect is to deny the result state encoded by the verb by denying the past participle form of the verb (Rappa-

port Hovav & Levin, 2010; Beavers & Koontz-Garboden, 2012).[8]

(28) a. #Noah just broke the vase, but it is not broken.
b. #Noah just destroyed the city, but it is not destroyed.
c. #Noah just died, but he is not dead.

Nonetheless, Beavers & Koontz-Garboden (2012: 337) note that the original diagnostic by Rappaport Hovav & Levin could be subject to the criticism that it does not show that all result verbs encode the same notion of result. Thus, I also make use of the diagnostic as implemented in Beavers (2011b), as well as in Beavers & Koontz-Garboden (2012), namely the *something is different about x* diagnostic in order to capture that a participant has undergone a more general change (of state). For changes involving displacement, as in directed motion verbs (e.g., *arrive*), Beavers (2011b) proposes the *x is somewhere else* diagnostic, as discussed before. The *something is different about x* by Beavers (2011b) thus identifies a notion of change (of state) which is not specific to a particular verb's entailments. In this respect, transitive result verbs generate contradictions in this context, as shown in (29). Note that unaccusative verbs encoding changes of state also generate the same contradictions, as shown in (30).

(29) a. #Noah just broke the vase, but nothing is different about it.
b. #Noah just destroyed the city, but nothing is different about it.
c. #Noah just shattered the glass, but nothing is different about it.

(30) a. #Noah's tree just decayed, but nothing is different about it.
b. #Noah's cat just died, but nothing is different about it.
c. #Noah's flower just wilted, but nothing is different about it.

In contrast, the same diagnostic with canonical manner verbs, transitive (31) or unergative (32), does not result in a contradiction, consistent with the fact that they only encode a manner of action, but not any result state.

(31) a. Alex just wiped the table, but nothing is different about it.
b. Alex just hit the wall, but nothing is different about it.

[8] Following Beavers & Koontz-Garboden (2012), I make use of *just* in order to mitigate the effects of a possible reversing of the change, i.e., breaking something and then fixing it (cf. *John broke the vase, but nothing is different about it since Sam fixed it yesterday*).

c. Alex just swept the floor, but nothing is different about it.

(32) a. Alex just worked hard, but nothing is different about her.
b. Alex just swam quickly, but nothing is different about her.
c. Alex just exercised for hours, but nothing is different about her.

It is important to note, however, that as Beavers & Koontz-Garboden (2012: 338) point out, "these diagnostics are insensitive to manner encoding; a verb passing one of these tests may also encode manner". Namely, this result diagnostic simply picks out verbs which encode a result, regardless of the fact that the same verb can also encode a manner of action.

In this respect, *murder* verbs pattern like canonical result verbs in that they generate contradictions in these contexts, i.e., explicitly stating that nothing is different about the theme or that the referent of the theme does not die after a murdering event generates a clear contradiction.

(33) a. #The elf just murdered the gnome, but he is not dead.
b. #The wizard just slew the dragon, but it is not dead.
c. #The knight just assassinated the king, but he is not dead.
d. #The witch just massacred the monsters, but they are not dead.
e. #The archers just slaughtered the ogres, but they are not dead.

(34) a. #The elf just murdered the gnome, but nothing is different about him.
b. #The wizard just slew the dragon, but nothing is different about it.
c. #The knight just assassinated the king, but nothing is different about him.
d. #The witch just massacred the monsters, but nothing is different about them.
e. #The archers just slaughtered the ogres, but nothing is different about them.

2.4.1.2 Result diagnostic 2: Object deletion

The second result diagnostic relates to the claim by Rappaport Hovav & Levin (2010) that the distinction between manner and result is grammatically relevant. In this respect, Rappaport Hovav & Levin argue that tran-

sitive manner and transitive result verbs further differ in argument structure/realization. Namely, only transitive manner verbs permit their objects to be omitted, whereas object deletion is argued to be disallowed by transitive result verbs. The facts (generally) bear this out, since, as shown below, canonical manner verbs such as *sweep* (35) or *scrub* (36) permit object deletion and constructions that involve the deletion of the object such as *out*-prefixation (Ahn, 2020), whereas canonical result verbs like *break* (37) or *dim* (38) generally do not.

(35) a. John swept the floor.
b. All last night, John swept.
c. Cinderella outswept her stepsisters.
(Rappaport Hovav & Levin, 2002: 275)

(36) a. John scrubbed the floor.
b. All last night, John scrubbed.
c. Cinderella outscrubbed her stepsisters.
(Rappaport Hovav, 2008: 23)

(37) a. John broke the vase.
b. *All last night, John broke.
c. *Kim outbroke the other vase-smasher.
(Beavers & Koontz-Garboden, 2012: 339)

(38) a. John dimmed the lights.
b. *All last night, John dimmed.
c. *Our stage-hand outdimmed your stage-hand.
(Rappaport Hovav, 2008: 24)

As Beavers & Koontz-Garboden (2012: 338-9) note, Rappaport Hovav (2008: 24) proposes that disallowing object deletion follows from the fact that result verbs lexicalize scales of change, and therefore she suggests that scales "require that the participant whose property is measured by them be overtly realized". It follows, then, that result verbs do not permit object deletion, since this would involve that the participant whose property is being measured out is not overtly expressed. Similarly, from this it also follows that result verbs disallow nonselected objects since such objects also involve the deletion of the true object.

Concomitantly, Levin (2017: 583) argues that the objects of result verbs must be expressed "because to know that a state holds requires looking at

the entity it holds of", what she calls the 'theme realization condition'. Levin further argues that in an event of scalar change, the theme whose property is being measured out "must be expressed due to the theme realization condition and further it must be expressed as an object". From this it follows then that, as Levin (2017: 584) argues, result verbs "cannot be found with unspecified objects or nonselected objects, nor can they be found in constructions where anything but their theme argument is the object". This is shown below, where canonical result verbs also disallow nonselected objects (40), whereas nonselected objects are permitted by manner verbs (39).[9]

(39) a. Kim scrubbed her fingers raw.
(Rappaport Hovav & Levin, 2010: 21)
b. The joggers ran the pavement thin.
(Levin & Rappaport Hovav, 1995: 53)
c. The child rubbed the tiredness out of his eyes.
(Rappaport Hovav & Levin, 1998: 7)

(40) a. *The toddler broke his hands bloody.
(Rappaport Hovav & Levin, 2010: 22)
b. *Kim dimmed her eyes sore.
(Beavers & Koontz-Garboden, 2012: 340)
c. *We cooled the people out of the room with the air-conditioner on too high.
(Rappaport Hovav, 2008: 23)

In short, Rappaport Hovav & Levin strongly argue that if a verb encodes a result state predicated of a participant, such a participant must be given syntactic expression. As Beavers & Koontz-Garboden (2012: 338) note, this constraint might follow from Rappaport Hovav & Levin's (2001: 779)

[9] Although Rappaport Hovav & Levin (2010) argue that result verbs systematically disallow object deletion and nonselected objects, there have been some authors that have shown that result verbs permit, at least, some classes of nonselected objects as well as object deletion (see Goldberg, 2001; Mittwoch, 2005; Mateu & Acedo-Matellán, 2012). Insofar as the present chapter focuses on the result diagnostics as originally laid out by Rappaport Hovav & Levin (2010), I make use of them in order to show that certain verb classes pattern as result or manner according to the original diagnostics by Rappaport Hovav & Levin. Yet, as I argue in Chapter 5 (also see Ausensi, 2019b, to appearb) such a diagnostic needs to be revisited since (some) result verbs do permit nonselected objects and object deletion.

Argument-Per-Subevent Condition, which is defined as follows.

(41) Argument-Per-Subevent Condition: There must be at least one argument XP in the syntax per subevent in the event structure.

In this respect, recall that Rappaport Hovav & Levin argue that manner and result verbs differ with regard to the subevents they involve: manner verbs are simplex as they only involve one subevent (42-a), whereas (transitive) result verbs are more complex insofar as they involve two different subevents (42-b), i.e., the causing and the change-of-state subevents.

(42) a. [x ACT <$_{ROOT}$>]
b. [[x ACT] CAUSE [y BECOME <*ROOT*>]]

Thus, according to the Argument-Per-Subevent Condition, in result verbs the theme whose property is measured out must be expressed, since a result state involves a change-of-state (i.e., a BECOME) subevent of which a theme is the unique participant. Similarly, object deletion and nonselected objects occur with manner verbs since manner verbs do not encode a result state and therefore they do not have that additional subevent (further see Rappaport Hovav & Levin, 1998, 2001 and Chapter 5).

In this respect, *murder* verbs pattern like result verbs in that they disallow the deletion of the object (43) and nonselected objects (44). Although *out*-prefixation is generally disallowed, there are some examples of *murder* verbs in *out*-prefixation structures (45), which may give further evidence to the current claim, i.e., that these are manner-result encoding verbs.

(43) a. *All last night, John murdered.
b. *All last night, John slew.
c. *All last night, John assassinated.
d. *All last night, John massacred.
e. *All last night, John slaughtered.

(44) a. *The spy murdered his hands bloody.
(cf. Kim scrubbed her fingers raw)
b. *The knight slew his sword bloody.
(cf. John ran his shoes ragged)
c. *John assassinated himself tired.
(cf. John laughed himself tired)

d. *John slaughtered his fingers raw.
(cf. Kim scrubbed her fingers raw)
e. *John massacred himself into prison.
(cf. He effectively talked himself into prison) (GBooks)

(45) a. He outslaughtered the Wahhabis themselves. (GBooks)
b. Eventually he [...] outmassacred all his rivals. (Web)
c. Mao outmurdered Hitler and Stalin combined. (Web)

2.4.1.3 Result diagnostic 3: Restricted resultatives

The third and last result diagnostic relates to Rappaport Hovav & Levin's claim that result verbs permit a narrow range of possible result phrases, whereas manner verbs tend to allow a wider range, and this is taken as a diagnostic by Rappaport Hovav & Levin to tell manner and result verbs apart.[10]

Roughly put, this difference follows from the fact that result verbs already have a specific result state in their lexical semantics, whereas manner verbs do not. In this vein, Rappaport Hovav (2008: 22) argues that this restriction in limited result phrases boils down to lexicalizing a scale of change:

> Verbs with no lexically specified scale [= manner verbs, JA] can appear with a variety of results. [...] In contrast, verbs which have lexically specified scales [= result verb, JA] [...] are very restricted in the kinds of resultatives they can appear with.

Manner verbs thus permit a wide range of result phrases predicated of their object (46-a), as well as result phrases predicated of a nonselected object (46-b) or predicated of a fake reflexive (46-c). In contrast, result verbs, such as *break* or *freeze*, are argued to only permit result phrases that further specify the result state encoded by the verb, and therefore disallow result phrases that introduce a result state distinct than the one encoded by the verb, as well as result phrases predicated of nonselected objects or fake

[10] As Goldberg (2001) notes (see also Goldberg & Jackendoff, 2004; Ausensi, to appeara), result phrases with result verbs may not be as restricted as initially thought. For instance, result path phrases are compatible with result verbs (see Chapter 4 for further discussion):

(i) a. John broke the eggs into the bowl.
b. The machine melted the chocolate into the bowl.

reflexives, as illustrated below in (47) and (48) (further see Simpson, 1983; Tenny, 1987, 1994; Goldberg, 1991, 1995; Levin & Rappaport Hovav, 1995; Tortora, 1998; Rappaport Hovav & Levin, 2001; Wechsler, 2005b; Rappaport Hovav, 2008, 2014a; Beavers, 2008, 2011b; Ausensi, 2019b, to appeara and especially Chapter 4).

(46) a. John wiped the table clean/dry/shiny/spotless.
b. John ran his shoes ragged/threadbare.
c. John laughed himself silly.

(47) a. *John broke the vase off the table/valueless.
b. *John broke his hands bloody.
c. John broke the vase into pieces/in half.

(48) a. *John froze the soup onto the table/tasteless.
b. *John froze himself tired.
c. John froze the soup solid.

Regarding *murder* verbs, it does not seem to be possible to combine them with any type of result phrases. *Murder* verbs, thus, show a contrast with canonical result verbs like *break* or *freeze*, which, as discussed above, do permit result phrases that further specify the result state by the verb. Note that explicit contexts that provide further information do not appear to rescue the examples below.[11]

(49) a. CONTEXT: An elf throws a gnome into the cold waters of a lake.
??The elf murdered the gnome blue.
b. CONTEXT: A warrior slashes a dragon several times with a sword.
??The warrior slew the dragon into pieces.
c. CONTEXT: A knight throws rocks at a king until he dies from severe bruises.
??The knight assassinated the king black and blue.
d. CONTEXT: A warlock gasses some monsters causing them to

[11] There are some examples such as *The dragon slaughtered the soldiers into tiny pieces* or *The dragons massacred the soldiers into a bloody mass of limbs* which are not completely unacceptable, at least to some speakers. These examples would not pose a challenge to this result diagnostic, since the result phrases in these examples would still be further specifying the result state in the meaning of *murder* verbs instead of introducing a different result.

bleed.
??The warlock slaughtered the monsters bloody.

e. CONTEXT: A group of archers throw explosive arrows to an ogre's cave causing massive explosions.
??The archers massacred the ogres up in the air.

In short, in this section I have introduced the result diagnostics as proposed by Rappaport Hovav & Levin and further developed by Beavers & Koontz-Garboden, which are based on the notion of result as involving scalar change. Crucially, though, as discussed above, such diagnostics only pick out verbs that encode a result state, regardless of the fact that the same verb that has passed the result diagnostics could potentially encode a manner of action as well.

Thus far, I have only shown that *murder* verbs pattern like canonical result verbs when subject to relevant diagnostics. In the next section, I show that *murder* verbs also pattern like canonical manner verbs when subject to the manner diagnostics as developed by Beavers & Koontz-Garboden (2012). I conclude then that *murder* verbs are manner-result encoding verbs despite being simplex, contra Rappaport Hovav & Levin.

2.4.2 Manner entailments

Following the claim by Rappaport Hovav & Levin that manner verbs involve nonscalar changes, Beavers & Koontz-Garboden (2012) develop three manner diagnostics according to what they consider to be the most prototypical manner of action, i.e., moving some parts of the human body when carrying out an action, what they call being an 'actor' or 'actorhood' (further see Beavers & Koontz-Garboden, 2020). Beavers & Koontz-Garboden thus adopt Rappaport Hovav & Levin's definition of manner as nonscalar change, which, recall, is defined as follows (Rappaport Hovav & Levin, 2010: 32).

> A non-scalar change is any change that cannot be characterized in terms of an ordered set of values of a single attribute [...] The vast majority of non-scalar changes deviate from scalar changes in another, more significant respect: they involve complex changes—that is, a combination of multiple changes—and this complexity means that there is no single, privileged scale of change.

Beavers & Koontz-Garboden (2012: 343) conclude then that "manner is a complex sequence of separate changes that collectively define an action, but do not necessarily add up to a single cumulative change along any one dimension". In this vein, Beavers & Koontz-Garboden (2012: 343) note that a canonical case of nonscalar change would be the movement of arms and legs when running or walking in the sense that the several movements of the arms and legs do not constitute a particular change along any scale. Yet, as Beavers & Koontz-Garboden (2012: 343) point out, although the notion of result is certainly a well-defined one in that it involves a change in the value or a property of a participant along a scale, and therefore it is possible to develop a battery of diagnostics that would pick out result entailments according to that definition, it seems that it is a difficult task to develop a battery of diagnostics that would pick out the same manner of action, since manners are more complex and diverse in the sense that they involve motion (e.g., *swim*, *jog*), ways of speaking (e.g., *whisper*, *murmur*), ways of making noise (e.g., *buzz*, *screech*), among others (Beavers & Koontz-Garboden, 2012: 343). That is why Beavers & Koontz-Garboden focus on what they claim to be the most canonical manner of action, i.e., movement of the parts of the human body when carrying out a specific action, which does imply change, as it involves movement, yet it is nonscalar since it involves a series of distinct movements with no ordering relation. Thus, it qualifies as nonscalar change according to Rappaport Hovav & Levin.

In short, if a specific verb entails actorhood as well as a result state, then it is safe to conclude that there are manner-result encoding verbs. As I show next, *murder* verbs pattern like canonical manner verbs in encoding actorhood as they pass the manner diagnostics as laid out by Beavers & Koontz-Garboden. Namely, they encode an intentional-type action which is carried out with the intention of bringing about the result state of death of the theme.

2.4.2.1 Manner diagnostic 1: Selectional restrictions

The first manner diagnostic Beavers & Koontz-Garboden develop relates to selectional restrictions manner verbs impose on their subjects. In this vein, Beavers & Koontz-Garboden (2012: 344) argue that if a verb encodes a manner of action, then it restricts the range of subjects it can appear with since "result but not manner verbs require no specific action of their subjects". Result verbs, such as *break* or *destroy*, on the other hand, place fewer selec-

tional restrictions and therefore allow unintentional agents, natural forces as well as instruments as subjects (50), whereas canonical manner verbs such as *wipe* or *sweep* disallow them (51).[12]

(50) a. The child accidentally broke/destroyed the vase.
b. The earthquake broke/destroyed the vase.
c. The hammer broke/destroyed the vase.

(51) a. #John accidentally wiped/swept the floor.
b. #The wind wiped/swept the floor.
c. #The mop wiped/swept the floor.

The logic behind this diagnostic is that if a verb encodes a manner of action, then that verb is predicted to restrict the type of subjects it permits according to the manner of action the verb encodes (further see Beavers & Koontz-Garboden, 2017a). For instance, a verb like *wipe* only permits subjects that denote entities capable of carrying out the action denoted by the verb, i.e., capable of *wiping*. Result verbs are not restricted in this sense, as no manner of action is encoded, and therefore place no (or fewer) restrictions on their subjects.

In this respect, *murder* verbs pattern like canonical manner verbs since they restrict their subjects according to the manner of action they encode: only intentional agents that are capable of performing an intentional action (with the intention to cause the death of the theme) are permitted as subjects. Thus, unintentional agents (52), general causes (53), natural forces (54) and instruments (55) are systematically disallowed.

(52) a. #The elf murdered the gnome unintentionally/by accident.
b. #The knight assassinated the king unintentionally/by accident.
c. #The wizard slew the dragon unintentionally/by accident.
d. #The witch slaughtered the monsters unintentionally/by accident.
e. #The archers massacred the ogres unintentionally/by accident.

[12] Beavers & Koontz-Garboden (2012: 344) note that there may be exceptions to this. For instance, certain machines or instruments can appear as subjects with manner verbs, especially when the instrument is being controlled by the agent, as in *I like how this mop scrubs the floor.*

(53) a. #Cancer murdered every man in that hospital.
b. #Pneumonia assassinated every king and queen.
c. #That magical dust slew the dragon.
d. #A terrible drought slaughtered the ogres in that region.
e. #Hunger massacred the gnomes.

(54) a. #Floods murdered the gnomes.
b. #Strong winds assassinated the king.
c. #The magical storm slew the dragon.
d. #The earthquake slaughtered all the ogres in that region.
e. #The hurricane massacred the archers.

(55) a. #That machine weapon murdered the gnome.
b. #The poison from that snake assassinated the king.
c. #The magical sword slew the dragon.
d. #The bombs slaughtered all the ogres in that region.
e. #This gun massacred the archers.

In this respect, it is worth noting that *murder* verbs contrast with *kill*, since this verb does not encode any manner of action and therefore it does not impose any kind of selectional restrictions upon its subject. Thus, *kill* permits unintentional agents, natural forces, general causes, as well as instruments as subjects. Compare this in (56).

(56) a. The elf killed the gnome unintentionally/by accident.
b. Floods killed thousands.
c. Cancer killed two million people last year.
d. That machine weapon killed thousands.

Like canonical manner verbs, *murder* verbs restrict their subjects according to the manner of action encoded, i.e., only subjects capable of performing an action intentionally with the intention to cause the death of the theme are permitted. This contrasts with *kill*, since no manner of action is encoded and therefore it does not restrict its subject to any type.

2.4.2.2 Manner diagnostic 2: Denial of action

The second manner diagnostic Beavers & Koontz-Garboden develop relates to the entailments of manner verbs encoding actorhood. In this vein, Beavers & Koontz-Garboden (2012: 345) argue that if a subject qualifies as an actor,

then "it should be impossible to assert that they performed the action specified by the verb and yet didn't move a muscle". Thus, the *didn't move a muscle* diagnostic is the manner equivalent of the result diagnostic *something is different about x*. This seems to be a correct intuition, since in canonical manner verbs encoding actorhood, such a diagnostic generates clear contradictions.

(57) a. #John ran, but didn't move a muscle.
b. #John wiped the table, but didn't move a muscle.
c. #John worked, but didn't move a muscle.

With result verbs, as Beavers & Koontz-Garboden argue, then it should be possible to deny that an action has been performed in causing a change, since the verb encodes causation but not any manner of action or actorhood. Yet, consider what Beavers & Koontz-Garboden (2012: 345) note in this respect.

> If all result verbs encode is a result but not (any specific type of) action, then it should be possible to deny that an action occurred. But, [...] how can one cause something without acting in some way? [...] an example might be negligence–failing to act in some (expected) way to prevent a change from occurring, thereby being responsible for it.[13]

Thus, result verbs should be compatible with the *didn't move a muscle* diagnostic, especially in a negligence context, as they lexicalize causation, but not any sort of action; in Beavers & Koontz-Garboden's (2020: 176) words "if result verbs entail causation but not actorhood per se, then they should in principle be compatible with *didn't move a muscle* in a negligence context, even if other prerequisites for actorhood (e.g., being animate or human) obtain". This is shown in (58) (from Beavers & Koontz-Garboden, 2012: 346).[14]

[13] It is important to point out that, as Beavers & Koontz-Garboden (2012: 346) note, failing to act in some way in order to prevent a change does not always constitute causation. For instance, sentences such as *John emptied the tank* are not true if John is simply present but doing an activity that is unconnected with what is happening with the tank (cf. Talmy, 2000, *apud* Beavers & Koontz-Garboden).

[14] Some of the examples of result verbs in negligence contexts may sound contradictory at first if a specific scenario is not provided, as in (58). Similarly, examples like *John killed Tom, but didn't move a muscle* may also sound contradictory without a negligence context

(58) a. Jim destroyed his car, but didn't move a muscle — rather, after he bought it he just let it sit on his neighbor's lawn on cinder blocks, untouched, until it disintegrated.
b. Kim broke my DVD player, but didn't move a muscle — rather, when I let her borrow it a disc was spinning in it, and she just let it run until the rotor gave out!

In this respect, *murder* verbs pattern like manner verbs in that it is not possible to deny that an action has been carried out when bringing about the result state encoded by the verbs. This is explicitly shown in contexts in which causation, but not actorhood, is entailed, as below. It is worth pointing out that such a diagnostic does not result in a contradiction with *kill*. This is predicted under the present account, since *kill* does not encode a manner of action, but only a result state, and therefore it is not contradictory to deny that an action has been performed, as *kill* encodes causation but not actorhood (see §3.4 of Chapter 3 for further discussion about the distinct type of causal relation entailed by *kill* and *murder* verbs).

(59) a. John killed Tom, his son, but didn't move a muscle — rather, he deliberately did not give consent to his operation on his tumor due to religious beliefs.
b. #John murdered Tom, his son, but didn't move a muscle — rather, he deliberately did not give consent to his operation on his tumor due to religious beliefs.

(60) a. That soldier killed the congressman, but didn't move a muscle — rather, he refused to alert the Secret Service to the hidden bomb.
b. #That soldier assassinated the congressman, but didn't move a muscle — rather, he refused to alert the Secret Service to the hidden bomb.

(61) a. The knight killed the dragon, but didn't move a muscle — rather, he tacitly refused to feed it.

since the default reading for result verbs with agent subjects is that an action was carried out. Yet, this is not an entailment of such verbs, but rather a pragmatic inference, as already noted by Holisky (1987), namely that human subjects are, by default, interpreted as intentional agents if the contrary is not asserted.

b. #The knight slew the dragon, but didn't move a muscle — rather, he tacitly refused to feed it.

(62) a. The mayor killed all the citizens, but didn't move a muscle — rather, he refused to warn them about the incoming hurricane.

b. #The mayor massacred all the citizens, but didn't move a muscle — rather, he refused to warn them about the incoming hurricane.

(63) a. The police officer killed all the passersby, but didn't move a muscle — rather, he deliberately failed to alert security services to the car bomb.

b. #The police officer slaughtered all the passersby, but didn't move a muscle — rather, he deliberately failed to alert security services to the car bomb.

As Beavers & Koontz-Garboden note, this does not mean that in these scenarios the referent of the subject cannot be held accountable, but what is not possible is to express this with *murder* verbs. Namely, Beavers & Koontz-Garboden (2012: 347) claim that "one cannot be accused of electrocuting, hanging, drowning, or crucifying someone simply by negligently failing to prevent it". I propose to include *murder* verbs as well: whereas one can be accused of killing someone simply by negligently failing to prevent it, as in the examples above, this is not possible with *murder* verbs, thus showing that these verbs encode actorhood, and therefore, a manner of action.[15]

[15] There appears to be some variation amongst speakers about whether it is possible to deny that an action has been performed in the case of *murder*. For instance, if a doctor tacitly refuses to treat a patient with the intention of letting them die, it can be then categorized as a murdering event by some speakers. In this respect, I acknowledge that there may be some variation amongst speakers, especially with *murder*, since its manner is highly unspecified and therefore subject to variation, as discussed in detail in §2.5. Other *murder* verbs such as *massacre*, which encode a manner that has more specific entailments about the causing of the result state (i.e., in this case, it refers to magnitude of killing) do not seem to allow such a variation, since examples like *John massacred the city by refusing to alert the people about the hurricane* are clearly out.

2.4.2.3 Manner diagnostic 3: Complexity of action

The third and last diagnostic Beavers & Koontz-Garboden develop relates to the fact that most manner verbs are complex, as they encode nonscalar changes, according to Rappaport Hovav & Levin. Thus, Beavers & Koontz-Garboden assume that complex manners should be durative, and this is taken as a diagnostic. Beavers & Koontz-Garboden follow Beavers (2008) and the diagnostics laid out by Kearns (2000) to capture durativity. In this respect, the *take-time* diagnostic, considered to be a standard durativity test, yields an *after x time* reading with punctual predicates and both an *after* and a *during x time* reading with telic events with duration. Atelic predicates that are durative only have a *during x time* reading in the *spend x time* diagnostic. Compare this in (64) (adapted from Beavers & Koontz-Garboden, 2012: 348).

(64) a. It took John five minutes to jump (once).
(*after* five minutes = punctual)
b. It took John five minutes to build a house.
(*after*/*during* five minutes = durative)
c. John spent five minutes swimming.
(*during* five minutes = durative)

Thus, Beavers & Koontz-Garboden argue that simplex actions, i.e., simplex manners, correlate with punctuality, and complex actions with durativity. This is illustrated below (from Beavers & Koontz-Garboden, 2012: 348).

(65) a. It took John five minutes to blink (once).
(*after* five minutes = punctual)
b. John spent five minutes running.
(*during* five minutes = durative)

However, a caveat is in place here since, as Beavers (2008) shows, the type of scale also has consequences on durativity in the case of result verbs. In this respect, Beavers (2008) shows that multi-point scales involve durative predicates, whereas two-point scales involve punctual predicates by default. In other words, result verbs encoding complex changes, i.e., a change along a multi-point scale, can be durative, whereas result verbs encoding simplex changes, i.e., a change along a two-point scale, are generally punctual. For instance, result verbs like *break* that encode a simplex change have only an

after reading, whereas result verbs like *cool* that encode a complex change have both an *after* and a *during* reading (cf. §2.2.1). Compare this below.

(66) a. It took John five minutes to break the vase.
(*after* five minutes = punctual)
b. It took John five minutes to cool the soup.
(*after*/*during* five minutes = durative)

In the case of verbs that can potentially encode both a manner a result, the picture is more complex. In this respect, consider what Beavers & Koontz-Garboden (2012: 348) note:

> A punctual predicate could encode either just a simplex manner or just a two-point change, or both, but nothing about its punctuality indicates which. A durative predicate allows more possibilities: it may encode either a complex manner (where the change can be simplex, complex, or nonexistent) or a complex change (where the manner can be simplex, complex, or nonexistent). But durativity does not tell us which it is. However, if we know independently that the change for some verb is simplex, so that the scale has only two points, then if the predicate is durative, it must be because there is a complex manner.

In this respect, as Beavers & Koontz-Garboden (2012: 342) discuss, states on two-point scales (i.e., simplex changes) typically involve nongradable adjectives which are not compatible with comparative morphology. States on multi-point scales (i.e., complex changes), on the other hand, involve gradable adjectives, compatible with comparative morphology, as the scale has more than two values and therefore different degrees of a property, e.g., being more or less warm. Compare this in (67) and (68) (adapted from Beavers & Koontz-Garboden, 2012: 342).

(67) Two-point scales, nongradable.
a. shatter, return, die.
b. #more shattered, #more returned, #more dead.

(68) Multi-point scales, gradable.
a. warm, cool, dry.
b. warmer, cooler, drier.

Beavers & Koontz-Garboden (2012: 348) conclude then that if a verb encodes a simplex change, i.e., a change in a scale that only has two points, and yet the predicate is durative, it is because that verb encodes a complex manner, since only the manner of action can be contributing the durativity.

In this respect, *murder* verbs encode a two-point scale, and therefore a nongradable state, as shown by their incompatibility with comparative morphology. This is expected, since *murder* verbs encode the death of the theme, and the state of *death* is generally nongradable (cf. *#more dead/#deader*).

(69) a. #more murdered.
b. #more assassinated.
c. #more slain.
d. #more massacred.
e. #more slaughtered.

The change of state encoded by *murder* verbs is simplex, since the scale has only two points, but as I show, they are durative, which suggests that they encode a complex manner as well.

(70) a. It took the elf 5 minutes to murder the gnome.
(*after*/*during* five minutes = durative)
b. It took the knight 5 minutes to assassinate the king.
(*after*/*during* five minutes = durative)
c. It took the witch 5 minutes to slay the dragon.
(*after*/*during* five minutes = durative)
d. It took the wizard 5 minutes to slaughter the monsters.
(*after*/*during* five minutes = durative)
e. It took the archers 5 minutes to massacre the ogres.
(*after*/*during* five minutes = durative)

In other words, the result state in *murder* verbs, i.e., death, is nongradable and therefore this change cannot be contributing the durativity, since verbs encoding simplex, nongradable changes are punctual by default, as Beavers (2008) convincingly argues. Consequently, the manner of action is the only meaning component that can be contributing the durativity. This is in line with the observation by Beavers & Koontz-Garboden (2017a: 862) with regard to the fact that "some manners force a predicate to be durative even if the scale is nongradable".

In short, in this section, I have introduced the manner diagnostics as developed in Beavers & Koontz-Garboden, based on the notion of manner as involving nonscalar change, as proposed by Rappaport Hovav & Levin. As I have shown, *murder* verbs pass these manner diagnostics. However, they also pass canonical result diagnostics, thus showing that *murder* verbs encode a manner of action that brings about a result state. Hence, *murder* verbs, despite being simplex, monomorphemic verbs, violate Manner/Result Complementarity as a claim about (im)possible verb meanings, i.e., as a claim on the truth-conditional content of verbs.

In the next section, I focus on what I have called *manner-of-stealing* verbs in order to show that other simplex verbs from a different verb class that encode intentionality and a result state also pattern as manner-result encoding verbs, which is consistent with the present claim, namely that intentionality is sufficient to induce manner properties.

2.4.3 Further evidence: *manner-of-stealing* verbs

In this section, I argue that some of the *steal* (e.g., *seize*, *smuggle*, *steal*) and *cheat* (e.g., *rob*, *dispossess*, *drain*) verbs in Levin (1993) also pattern as both manner and result as they pass standard result and manner diagnostics. Such verbs, which I call *manner-of-stealing* verbs in a broad sense, include *rob*, *mug*, *seize* and *snatch*. *Manner-of-stealing* verbs encode intentionality, i.e., they require intent by the subject. This is illustrated in the following examples, in which intentionality cannot be cancelled (71) or reinforced (72), consistent with the fact that it is a lexical entailment of such verbs. Further, denying that the entity denoted by the subject does not show intent generates a contradiction (73).

(71) a. #Those criminals robbed the bank unintentionally/by accident.
b. #That felon mugged Sally unintentionally/by accident.
c. #Police officers seized a box of cocaine unintentionally/by accident.
d. #That thief snatched a luxury watch unintentionally/by accident.

(72) a. ??Those criminals robbed the bank intentionally/on purpose.
b. ??That felon mugged Sally intentionally/on purpose.
c. ??Police officers seized a box of cocaine intentionally/on pur-

pose.

d. ??That thief snatched a luxury watch intentionally/on purpose.

(73) a. #Those criminals robbed the bank, but didn't intend to/but it wasn't their intention.

b. #That felon mugged Sally but didn't intend to/but it wasn't his intention.

c. #Police officers seized a box of cocaine but didn't intend to/but it wasn't their intention.

d. #That thief snatched a luxury watch but didn't intend to/but it wasn't his intention.

Further, Levin (1993: 129) notes that *manner-of-stealing* verbs "primarily describe the removal of something from someone's possession" and that "they typically describe depriving someone/something of an inalienable possession (in a broad sense)". Following Levin, I start by showing that *manner-of-stealing* verbs encode a result state, namely a change of possession, as they pass result diagnostics. I then show that *manner-of-stealing* also pass manner diagnostics, strongly suggesting that they encode a manner of action as well.

2.4.3.1 Result entailments

Manner-of-stealing verbs pass the first result diagnostic, namely denying that a change has occurred. Recall that *something is different about x* picks out changes of state, whereas *x is somewhere else* picks out changes of location. Regarding *manner-of-stealing* verbs, and following what Levin (1993: 129) notes, these verbs encode a change of possession, i.e., some goods move from one individual or place to another one at the end of the event. In this respect, Beavers (2011b) does not develop a diagnostic that identifies changes of possession (though see Beavers, 2011a). Following Beavers (2011a) (also Beavers & Koontz-Garboden, 2020), I propose the *x gets something* diagnostic, which generates a contradiction if a verb encodes a change of possession. As I show in (74), this is actually borne out for *manner-of-stealing* verbs, consistent with the fact that these verbs encode a change (of possession), as Levin (1993) originally pointed out.

(74) a. #Those criminals just robbed that bank, but they didn't get anything (from it).

b. #That felon just mugged Sally, but he didn't get anything (from her).
c. #Police officers just seized a box of cocaine, but they didn't get it.
d. #That thief just snatched a luxury watch, but he didn't get it.

Further, like canonical result verbs, *manner-of-stealing* verbs disallow object deletion and *out-* prefixation.

(75) a. ??All last night, John robbed.
b. ??All last night, John mugged.
c. ??All last night, John seized.
d. ??All last night, John snatched.

(76) a. ??These criminals outrobbed those felons.
b. ??This group of thieves outmugged that one.
c. ??US officers outseized Canadian officers
d. ??That band of criminals outsnatched this one.

Last, while *manner-of-stealing* verbs may allow result phrases that further specify the result state they encode (cf. *They robbed him poor*), they do not allow result phrases that introduce distinct result states (77).

(77) a. ??Those criminals robbed the bank empty.
b. ??That felon mugged John black and blue.
c. ??These police officers seized a box of cocaine apart.
d. ??The thief snatched that boy's watch valueless.

In addition, result phrases predicated of nonselected objects do not seem to be permitted either, as shown in (78).

(78) a. CONTEXT: While robbing a bank ...
??Those criminals robbed themselves tired.
b. CONTEXT: While mugging a man ...
??That felon mugged his arms sore.
c. CONTEXT: While seizing goods at the border ...
??These police officers seized their hands dirty.
d. CONTEXT: After snatching luxury watches ...
??These thieves snatched themselves into prison.

In short, *manner-of-stealing* verbs encode a result state as they pass canonical result diagnostics as developed in both Rappaport Hovav & Levin (2010) and Beavers & Koontz-Garboden (2012).

2.4.3.2 Manner entailments

As discused above, *manner-of-stealing* verbs encode intentionality, i.e., the subject is intentional when performing the action encoded by the verb. Thus, it is predicted that they should pattern as manner verbs, insofar as the current account predicts that agent entailments, intentionality in the present case, are enough to induce manner properties. As I show below, this prediction is certainly borne out since *manner-of-stealing* verbs pass manner diagnostics.

Regarding the first manner diagnostic, *manner-of-stealing* verbs clearly impose selectional restrictions on their subjects according to the manner of action encoded, i.e., they only permit intentional agents, as illustrated below.

(79) a. The thief (#accidentally) mugged Tom with a knife.
b. #The knife mugged Tom.
c. #A strong earthquake mugged Tom.

(80) a. These criminals (#accidentally) robbed this bank with these guns.
b. #These guns robbed the bank.
c. #A toxic cloud of gas robbed the bank.

(81) a. Police officers (#accidentally) seized this illegal car with this crane.
b. #This crane seized this illegal car.
c. #Strong winds seized this illegal car.

(82) a. The thief (#accidentally) snatched luxury watches with a bag.
b. #The bag snatched a luxury watch.
c. #A gust of wind snatched this luxury watch.

Regarding the second manner diagnostic, i.e., denying that an action has been performed, *manner-of-stealing* verbs generate clear contradictions and cannot be saved by negligence contexts as those below. Recall that this diagnostic does not generate contradictions with canonical result verbs, since result verbs only entail causation, but not actorhood, and therefore do not

generate contradictions in these contexts.

(83) a. #John mugged Tom, but didn't move a muscle — rather, during the mugging, he stood still, observing it and tacitly refused to alert the police.
b. #Bank employees robbed the bank, but didn't move a muscle — rather, during the robbing, they sat on their chairs and tacitly refused to call the police.
c. #US police officers seized this illegal car, but didn't move a muscle — rather, during the seizing, they stood still and tacitly refused to stop it.
d. #The train passenger snatched this luxury watch, but didn't move a muscle — rather, during the snatching, she sat on her seat tacitly refusing to alert the inspector.

Before turning to the last manner diagnostic, it is important to show what type of change *manner-of-stealing* verbs encode, i.e., a simplex or a complex one. In this respect, recall that if a verb encodes a simplex change, the state will generally be nongradable and therefore incompatible with comparative morphology, as in *murder* verbs. *Manner-of-stealing* verbs also appear to encode nongradable states, as illustrated by their incompatibility with comparative morphology.

(84) a. #More mugged.
b. #More robbed.
c. #More seized.
d. #More snatched.

Namely, the change encoded by *manner-of-stealing* verbs is simplex (i.e., that of coming to possess something), since the scale has only two points (i.e., going from not possessing some item to possessing it), yet they are durative, as illustrated below, which suggests that they encode a complex manner as well. In other words, the result state in *manner-of-stealing* verbs, i.e., a change of possession, is nongradable and therefore this change cannot be contributing the durativity. I conclude then that it is the manner of action that contributes durativity, as Beavers & Koontz-Garboden (2017a) observe.

(85) a. It took the thief 5 minutes to mug Tom.
(*after/during* five minutes = durative)

b. It took the band of criminals 5 minutes to rob the bank.
(*after/during* five minutes = durative)
c. It took the police officers 5 minutes to seize this illegal car.
(*after/during* five minutes = durative)
d. It took the train passenger 5 minutes to snatch this luxury watch.
(*after/during* five minutes = durative)

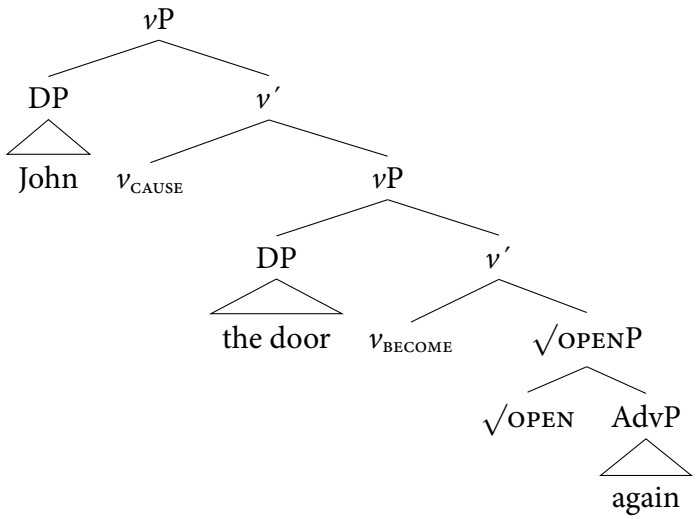
Manner-of-stealing verbs thus pass manner diagnostics as they pattern like canonical manner verbs in encoding actorhood. Yet, they also pass result diagnostics showing that they encode a manner of action that brings about a specific result state.

2.4.4 The decomposition of *murder* and *manner-of-stealing* verbs

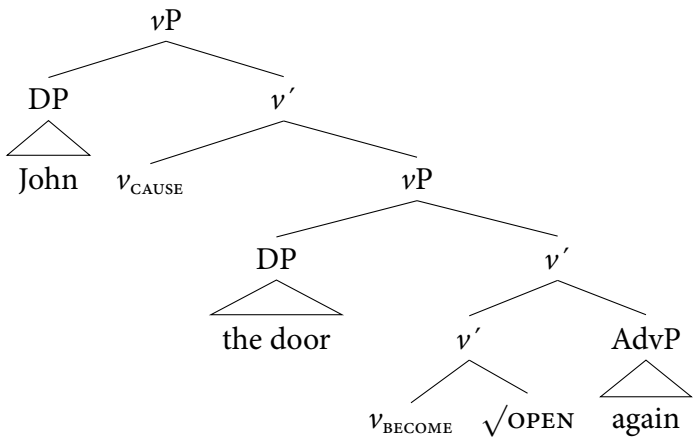
In the previous section, I argued that *murder* and *manner-of-stealing* verbs encode both a manner of action and a result state as they pass standard manner and result diagnostics. Such classes of verbs, thus, violate Manner/Result Complementarity as a claim on the truth-conditional content of verbs. Here, I show that the manner and result entailments of *murder* and *manner-of-stealing* verbs are encoded in a single (undecomposable) root. Namely, the roots of *murder* and *manner-of-stealing* verbs inherently comprise manner and result entailments as part of their meaning, contra Rappaport Hovav & Levin (2010).

A standard way to test what lexical entailments are encoded in a single root is by making use of sublexical modification, as discussed in detail in §1.4 of Chapter 1 (and see especially Chapter 3) . In this vein, recall that, at least since Dowty (1979), it is a well-known phenomenon that there exists a class of modifiers that can modify subparts of the event structure. For instance, the modifier *again* introduces a presupposition that the event it modifies has occurred before, thus allowing different interpretations depending on the structural height of its attachment site (von Stechow, 1996; Beck & Johnson, 2004; Beck, 2006). As discussed in §1.4, sentences like *John opened the door again* have (at least) three readings, namely the restitutive reading that John is restoring the door to its previous state of being open (86) and (at least) two repetitive readings, that John is causing the door to undergo an opening event that the door had undergone in a previous stage (87) and the repeating of the same event in which John was also the causer (88).

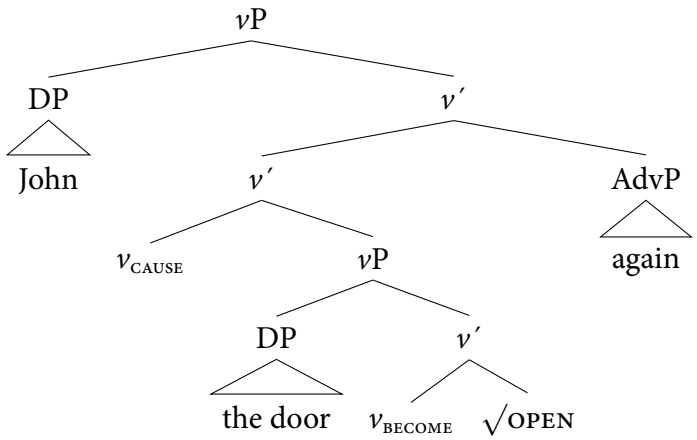
(86) John opened the door again, and it had been open before. (Restitutive)



(87) John opened the door again, and it had opened before. (Repetitive #1)



(88) John opened the door again, and had opened it before. (Repetitive #2)



Crucially, though, recall that the root constitutes an undecomposable scopal unit, as discussed in §1.4. In other words, in (86), *again* only has the truth-conditional content of the root in its scope. Thus, as Beavers & Koontz-Garboden (2012) argue, if manner and result entailments are encoded in a single root, sublexical modification with *again* should not be able to scope over the manner to the exclusion of the result and vice versa. In contrast, if manner and result are encoded in separate roots, as in resultatives (e.g., *John pounded the dough flat*), sublexical modification with *again* should be able to scope over the result to the exclusion of the manner (Beck & Snyder, 2001; Beck & Johnson, 2004; Beavers & Koontz-Garboden, 2012). This is predicted since in resultatives manner and result entailments are encoded in two different roots, and *again* can scope over one to the exclusion of the other, as illustrated in (89).

(89) a. Mary made a sheet of metal that is flat, but it later accidentally became bent. Fortunately, John hammered the metal flat again.

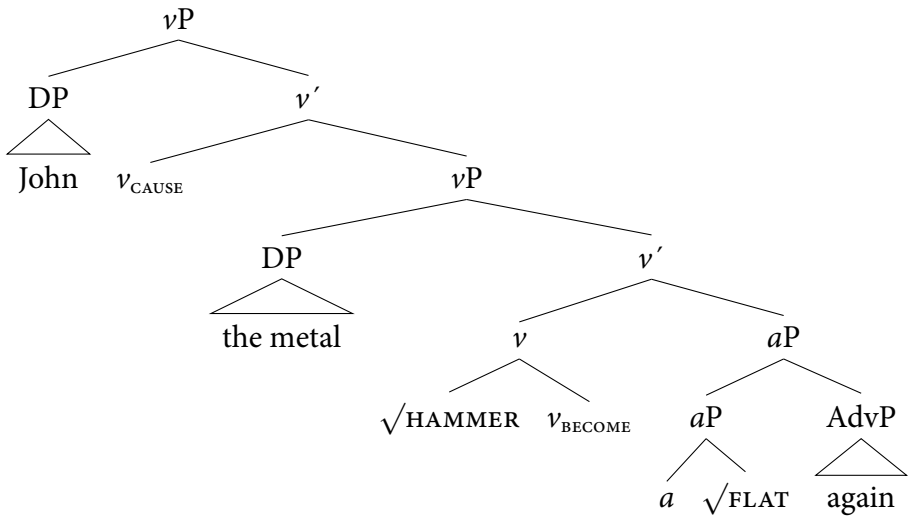
b. Mary bought a new front door for her house, and installed it in an open position. Later, the wind blew it closed, so John kicked it open again.

c. Mary, a natural red head since birth, decided to dye her hair bright green. However, after seeing herself in the mirror she was mortified, so she went to her hairdresser and she dyed it

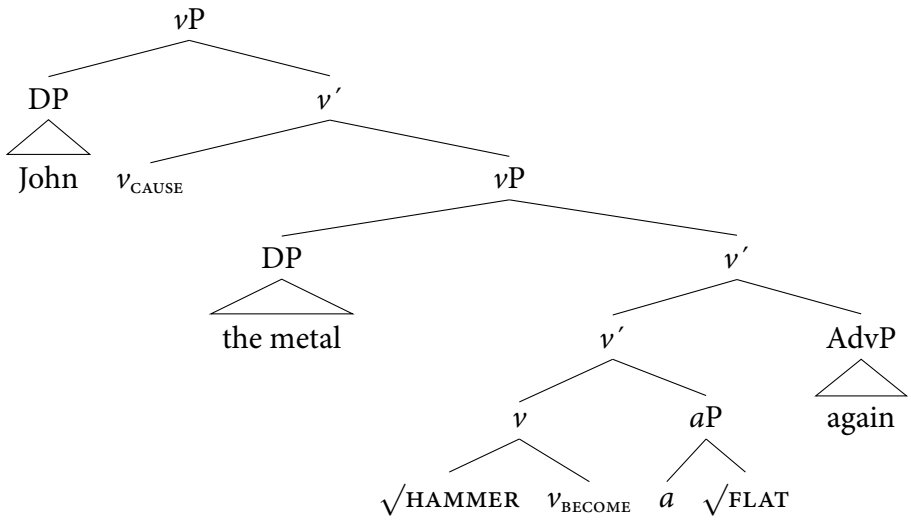
red again.
(Beavers & Koontz-Garboden, 2020: 195)

Namely, the reading in (89-a) is restitutive since the metal does not need to have been hammered in a previous stage or even flattened (Beavers & Koontz-Garboden, 2012: 357), as *again* is scoping just over the result to the exclusion of the manner, which is provided by the root √HAMMER, adjoined to *v*. Compare this below.

(90) Low scope of *again*, i.e., just over the result (= restitutive).

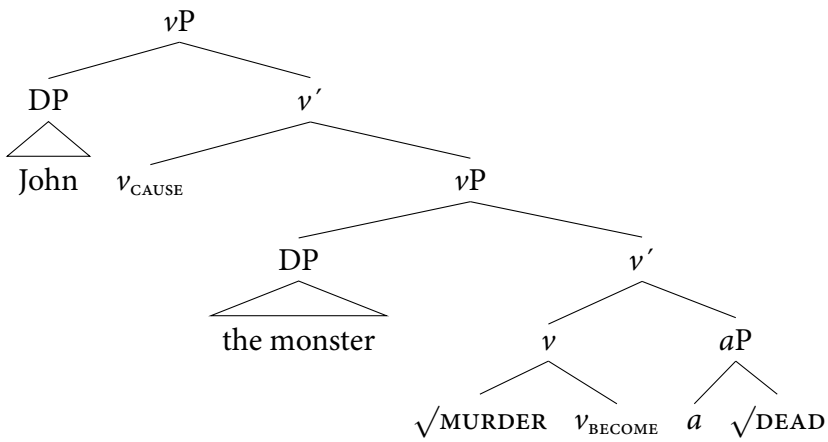


(91) High scope of *again*, i.e., over the manner and result (= repetitive).



The decomposition of resultatives of the *hammer the metal flat* type may suggest that this decomposition could also extend to *murder* verbs, because, just as in resultatives, these verbs entail that a specific state is brought about by a manner of action. In this vein, if *murder* verbs decomposed like resultatives, they would involve a structure along the lines of (92), in which the verbal root would merge as a modifier to *v* and the state of *death* would be expressed by another root, merged as the complement of *v*.

(92) John murdered the monster.



Namely, if *murder* verbs involved the same decomposition as in resultatives of the *hammer the metal flat type*, this then would predict that *again* should be able to scope exclusively over the result state of *death* to the exclusion of the manner component provided by the verbal root, as illustrated in (89). Crucially, though, I note that this is not borne out insofar as *again* modification with *murder* verbs cannot scope over just the result to the exclusion of the manner as with resultatives. This strongly suggests that manner and result components are encoded in a single root since *again* necessarily scopes over both meanings. This is illustrated in the following examples involving *murder* verbs which cannot mean that the object referent was previously killed by accident or unintentionally in a previous stage and now is being killed intentionally (further see Beavers & Koontz-Garboden, 2012, 2020 and the discussion to come in Chapter 3).

(93) a. The elf murdered/assassinated the monster king again.
OK The elf caused the monster king to become dead by intentionally killing it again.
The elf caused the monster king to become dead again by intentionally killing it but the last time it was killed by accident/unintentionally.

b. The knight slaughtered/massacred the monsters again.
OK The knight caused the monsters to become dead by intentionally killing them again.
The knight caused the monsters to become dead again by intentionally killing them but the last time they were killed by accident/unintentionally.

c. The warrior slew the dragon again.
OK The warrior caused the dragon to become dead by intentionally killing it again.
The warrior caused the dragon to become dead again by intentionally killing it but the last time it was killed by accident/unintentionally.

Compare this to *kill*: insofar as such a verb only encodes a result state in a single root, but does not specify how such a state is caused, sublexical modification with *again* allows presuppositions where the result state of *death* need not be brought about by an intentional-type action (see Chapter 3 for details).

(94) He killed the monsters again.
OK He caused the monsters to become dead by intentionally killing them again.
OK He caused the monsters to become dead again by intentionally killing them but the last time they were killed by accident/unintentionally.

Manner-of-stealing verbs pattern like *murder* verbs. Namely, the following examples cannot mean that the referent of the subject took some items by accident in a previous event and now is taking them on purpose.

(95) a. The thief robbed/mugged the man again.
OK The thief got some goods from the man by intentionally taking them from him again.
The thief got some goods from the man by intentionally taking them from him, but the last time the thief got them from him by accident/unintentionally.

b. The passenger snatched the watch again.
OK The passenger got the watch by intentionally taking it again.
The passenger got the watch by intentionally taking it, but the last time the passenger took it by accident/unintentionally.

c. The police patrol seized the box of cocaine again.
OK The police patrol got the box of cocaine by intentionally taking it again.
The police patrol got the box of cocaine by intentionally taking it, but the last time they took it by accident/unintentionally.

The decomposition of *murder* and *manner-of-stealing* verbs along the lines of resultatives as involving two separate roots providing manner and result meanings respectively makes the wrong prediction that *again* should be able to scope over the result state of *death* or *change of possession* to the exclusion of the manner provided by the verbal root. This provides strong evidence regarding the claim that *murder* and *manner-of-stealing* do not decompose along the lines of resultatives and therefore that manner and result entailments are encoded in a single undecomposable root. This in turn presupposes that sublexical modification with *again* should not be able scope over the result to the exclusion of the manner, a prediction which I have shown

is borne out (see Chapter 3 for further discussion).

2.5 Final remarks on manner and result

I close this chapter by providing some final remarks on Manner/Result Complementarity. Following what Beavers & Koontz-Garboden (2012: 349) note for *manner-of-killing* verbs, it could be the case that *murder* and *manner-of-stealing* verbs encode a manner which is somewhat different from the manner encoded by canonical manner verbs such as *run*, *wipe* or *sweep*. In this respect, Beavers & Koontz-Garboden (2012: 349) note that the manner and result diagnostics they develop "were rooted in canonical manner and result verbs, and thus it seems clear that the relevant components that give rise to these behaviors are the same". In other words, since *manner-of-killing* verbs pass standard manner and result diagnostics, Beavers & Koontz-Garboden conclude that such verbs involve the lexical entailments of canonical manner and result verbs.

Thus, in one of its possible many senses, manner simply relates to carrying out an action, and this meaning component is also encoded in canonical manner verbs such as *run*, *wipe* or *sweep*. Of course, manner entailments can be more complex in other manner verbs, but the canonical manner component stays constant, i.e., that of performing an action. For instance, manner verbs such as *run* or *swim* have a more specific manner since they encode an action (in this case, a manner of movement) in a specific way (running differs from jogging, walking and swimming since the movement of the legs and hands and pace are different). In this vein, it is worth pointing out that Rappaport Hovav & Levin (2010: 33) themselves note that "verbs of non-scalar change [= manner verbs, JA] need not always be so specific about the precise changes [= manners of action, JA] they involve". Hence, manner verbs can encode specific manners of actions (e.g., *waltz*, *mop*, *jog*) or leave the manner of action (highly) unspecified (e.g., *work*, *touch*, *exercise*), yet regardless of the degree of specification, manner verbs always encode an action.

In a similar vein, one could object to the claim that *murder* verbs encode a manner of action by noting that it is possible to provide 'actual' manners of action. For instance, one can murder someone by poisoning, shooting or hanging them. I suggest that this is parallel to the fact that one can also provide more specific manners with some canonical manner verbs such as

exercise, i.e., one can exercise by running, swimming or jumping. However, the fact that *exercise* can be modified by more specific actions does not mean that it does not encode a manner of action, it simply shows that its manner is highly unspecified. As a matter of fact, Rappaport Hovav & Levin (2010: 33) themselves note that the manner of action encoded by *exercise* is not so specific.

> The verb *exercise*, for example, requires an unspecified set of movements, whose only defining characteristic is that they involve some sort of activity, typically physical, but on occasion mental.

Thus, I suggest that this low degree of specificity of the manner of action is encoded by *murder*. Although it is true that it is possible to murder someone by poisoning, shooting or crucifying them, these means are just additional modifiers of the manner of action encoded, i.e., the carrying out of an intentional action, and therefore they simply provide the specific means the entity denoted by the subject employs when performing the action encoded by the verb.

In short, I have isolated a manner of action that is common to all *murder* and *manner-of-stealing* verbs. However, this does not exclude the possibility that some *murder* verbs have, apart from this unspecified manner of action, more specific manner entailments, as pointed out above. For instance, it seems that *slay* not only refers to a manner of action related to an intentional action, but it also seems to involve violence or even the use of a sharp object. Similarly, *massacre* also appears to have some more specific lexical entailments than simply encoding an intentional action, i.e., it also refers to magnitude of killing (Husband, 2011), whereas *slaughter* appears to refer to an act of killing which must be violent. Compare this in (96).

(96) a. ??John slew the dragon by poisoning it.
(cf. John killed the dragon by poisoning it)

b. ??The warriors slaughtered the elves by cutting their supply of water.
(cf. The warriors killed the elves by cutting their supply of water)

c. #John massacred Tom/the ogre.
(cf. John killed Tom/the ogre)

2.6 Conclusion

In this chapter, I have argued that both *murder* and *manner-of-stealing* verbs encode a manner of action that gives rise to a specific result state, contra Rappaport Hovav & Levin (2010). The analysis of *murder* and *manner-of-stealing* verbs as manner-result encoding verbs violate Manner/Result Complementarity as a claim on the truth-conditional content of verbs. As I have shown, *murder* and *manner-of-stealing* verbs are simplex, monomorphemic, nonderived verbs that have both manner and result entailments encoded in a single root. In this vein, recall that Rappaport Hovav (2017) argues that *manner-of-killing* verbs by Beavers & Koontz-Garboden (2012) are not relevant to Manner/Result Complementarity since they are not monomorphemic or morphologically simple. Thus, even if one assumes that the verbs under discussion in Beavers & Koontz-Garboden are actually irrelevant in order to defend Manner/Result Complementarity (cf. Rappaport Hovav, 2017), *murder* and *manner-of-stealing* verbs nonetheless appear to be true counterexamples.

More specifically, I have proposed that agent entailments are sufficient to induce manner properties. In the present case, this relates to entailing intentionality. The present account thus predicts that a verb entailing intentionality should pattern as a manner verb, despite the fact that the same verb may also encode a result state. I have shown that this is the case for both *murder* and *manner-of-stealing* verbs: both classes entail intentionality, and therefore pass manner diagnostics, but they also encode a result state, as they pass result diagnostics, thus showing that *murder* and *manner-of-stealing* verbs are manner-result encoding verbs. In short, I have shown that the role intentionality plays within the study of (im)possible verb meanings appears to be of more significant importance than previously acknowledged, since entailing intentionality is sufficient for a verb to have manner entailments.

Chapter 3

Roots and agent entailments

Contents

3.1 Introduction

In Chapter 2, I argued that there do not appear to be constraints in the lexical entailments of verbs of the sort argued by Rappaport Hovav & Levin (2010) (cf. Grimshaw, 2005). In this respect, I argued, following Beavers & Koontz-Garboden (2012) and Mateu & Acedo-Matellán (2012), that *murder* and *manner-of-stealing* verbs encode a manner of action that gives rise to a specific result state, i.e., *death* in the former class of verbs and the *coming to possess something* in the latter class of verbs. Such classes of verbs violate Manner/Result Complementarity as a claim on the truth-conditional content of verbs insofar as *murder* and *manner-of-stealing* verbs are simplex, monomorphemic verbs that have both manner and result entailments as part of their meaning. In addition, by making use of sublexical modification (cf. Dowty, 1979), I further argued that the manner and result entailments of *murder* and *manner-of-stealing* verbs are encoded in a single, undecomposable root, thus showing that manner and result can be part of the lexical entailments of some roots.

In the present chapter, I specifically focus on the types of meanings that roots can have in terms of truth-conditional content. Recall that, as previously discussed in §1.2.2 and §1.4 of Chapter 1, current theories of event structure assume that verb meanings decompose into roots and event templates. Crucially, though, roots are assumed to simply provide real-world details about the event, also called idiosyncratic information or conceptual content (see §1.3 and Chapters 5 and 6 for further discussion on the nature of root meaning). Event templates, on the other hand, are assumed to define the temporal and causal structure of the event by introducing (structural) meanings such as change or causation, i.e., what Embick (2009: 2) calls "grammatical components of meaning". All theories of event structure thus assume a clear division of labor between roots and event templates, in the sense that the meanings roots and event templates introduce are mutually exclusive. In other words, roots cannot have meanings that are introduced templatically as part of their entailments, as per the Bifurcation Thesis for Roots (cf. §1.3.1 of Chapter 1, Embick, 2009). Consequently, it is the event templates that define the grammatical properties of the surface verbs, and not the roots (cf. Beavers & Koontz-Garboden, 2020).

In this chapter, I focus on the roots of *murder* verbs, namely $\sqrt{\text{MURDER}}$, $\sqrt{\text{SLAUGHTER}}$, $\sqrt{\text{SLAY}}$, $\sqrt{\text{ASSASSINATE}}$ and $\sqrt{\text{MASSACRE}}$, in order to argue

that such a class of roots violate another constraint on root meaning, namely the Bifurcation Thesis for Roots. In this respect, I argue that √MURDER-type roots come with entailments of change and intentionality, i.e., change and intentionality are part of the meaning of such a class of roots. Thus, √MURDER-type roots violate The Bifurcation Thesis for Roots insofar as intentionality and change are meaning components that are uncontroversially assumed to be introduced templatically, and not by roots. For instance, in approaches that hold that verbal decomposition is represented in the syntax, the locus of intentionality is argued to be in the so-called Voice head in the form of an Agent thematic role (as in approaches following Kratzer, 1996; e.g., Alexiadou et al., 2015). Similarly, approaches in the Distributed Morphology tradition (Halle & Marantz, 1993) hold that intentionality entailments are introduced by 'flavors' of the verbalizing little *v* head, such as v_{DO} (as in approaches following Chomsky, 1995; e.g., Folli & Harley, 2005). Concomitantly, entailments of change are also assumed to be introduced templatically, i.e., by operators such as BECOME (as in Rappaport Hovav & Levin, 1998, following Dowty, 1979) or by projections in the syntax such as *v* (Embick, 2004; Folli & Harley, 2005; Alexiadou et al., 2006, 2015). Drawing on Beavers & Koontz-Garboden (2020), I argue thus that root meanings can be more complex than previously assumed insofar as certain classes of roots can introduce templatic meanings with grammatical consequences. By doing so, I provide evidence that argues against the prevalent view that holds that entailments of intentionality associated with the external argument are structurally introduced by functional heads in the syntax (cf. Kratzer, 1996; Folli & Harley, 2005; Pylkkänen, 2008; Alexiadou et al., 2015, *i.a.*).

The present chapter is structured as follows. In §3.2, I briefly review the hypothesis put forth by Kratzer (1996) (also Chomsky, 1995) regarding the fact that external arguments are claimed to be severed from the verb's argument structure, i.e., they are not part of the verb's argument structure, as they are instead argued to be introduced in the syntax by projections such as Voice or *v*. In the same section, I briefly discuss the proposal by Folli & Harley (2005) and Alexiadou et al. (2015) regarding the claim that the functional heads introducing the external argument come in different types, i.e, the so-called flavors of Voice and *v*. In §3.3, I argue that √MURDER-type roots come with entailments of change and intentionality, contra the Bifurcation Thesis for Roots and Kratzer (1996) *et seq.* Namely, √MURDER-type roots have structural components of meaning as part of their truth-

conditional content, i.e., meanings that under current syntactic theories of event structure are assumed to be introduced in the verbal domain by functional heads such as Voice or the verbalizing little *v* head. Further, I provide data from several languages that show that the truth-conditional content of √MURDER-type roots is consistent across languages, contra recent claims in the literature that hold that root meanings are actually language specific (cf., Alexiadou & Lohndal, 2017). In §3.4, I argue that the fact that √MURDER-type roots have intentionality as part of their entailments, in contrast to roots of the √KILL sort, has further grammatical consequences insofar as entailing intentionality heavily bears on the type of causation, whether direct or indirect, allowed by the verbs that are derived from such classes of roots. In §3.5, following Ausensi et al. (2020), I argue that √MURDER-type roots not only entail intentionality associated with the external argument, but also represent the external argument in their lexical semantics, i.e., they associate with the external argument internally rather than externally, contra Kratzer (1996) *et seq*. §3.6 concludes the chapter.

3.2 Severing the external argument

In syntactic decompositional theories of verb meaning, it is a widespread assumption that external arguments are not arguments of the verbs themselves, but are introduced instead by functional heads in the syntax. This is based on the initial observation by Marantz (1984) that idiomatic meanings of verbs are only triggered by internal arguments (1), while idiomatic meanings of verbs are rarely (if ever) triggered by external arguments (2) (though see Nunberg et al., 1994). This is illustrated in the following examples (from Marantz, 1984: 25).

(1) a. kill a cockroach.
b. kill a conversation.
c. kill an evening watching TV.
d. kill a bottle (i.e., empty it).
e. kill an audience (i.e., wow them).

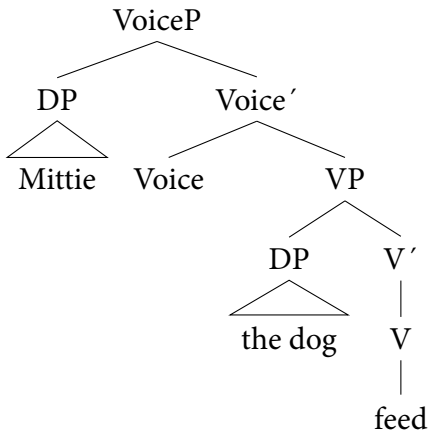
(2) a. Harry killed DP.
b. Everyone is always killing DP.
c. The drunk refused to kill DP.
d. Silence can certainly kill DP.

e. Cars kill DP.

In this vein, drawing on Marantz (1984), Kratzer (1996) influentially proposed that only internal arguments are true arguments of the verb itself since verbs only appear to impose semantic requirements on internal arguments. For instance, in order for *kill* to have the interpretation of 'spend time doing x' as in *kill an afternoon reading books* it selects an object that must denote time intervals. Kratzer concludes then that idiomatic meanings are only triggered by internal arguments, whereas external arguments are rather special since verbs do not appear to impose semantic restrictions on them, and therefore she predicts that the type of external argument will rarely alter the meaning of the verb. Kratzer's approach thus holds that external arguments are truly external to the verb, and therefore it is not possible for a verb to impose semantic requirements on them.

Regarding the formal implementation, Kratzer argues that external arguments are introduced by the functional head Voice in a neo-Davidsonian fashion, added by means of secondary predication in the specifier position of the Voice projection (Folli & Harley, 2005: 100). Objects, instead, are generated in the specifier position of the VP since they are assumed to be arguments of the verb. Compare this below.

(3) Mittie fed the dog. (adapted from Alexiadou et al., 2015: 7)



More specifically, external arguments are introduced by the functional head Voice by means of a semantic composition rule called Event Identification. Namely, the verb is assumed to introduce an event variable and only selects

for the internal argument, whereas the external argument is introduced instead by the Voice projection. Event Identification then associates the external argument with the verb by identifying the event variables provided by the Voice projection and the verb (Martin & Schäfer, 2014: 221). Adopting standard notations for types, where *e* is the type of individuals, *s* the type of events, and *t* the type of truth values, Event Identification is a conjunction operation that identifies the two type <*s,t*> predicates of events as the same event and conjoins them. Voice thus has a lexical entry shown below, combining with a VP via Event Identification (Ausensi et al., 2020: 84-5).

(4) a. Event Identification: $f_{e,st} + g_{st} \rightarrow h_{e,st}$
b. $[\![\text{Voice}]\!]$: $\lambda x \lambda e.\text{Agent}(e) = x$

Although severing the external argument from the verb's argument structure is a widely-adopted analysis, especially in approaches that hold that verbs are created in the syntax (see Hale & Keyser, 1993, 1997, 2002; von Stechow, 1996; Marantz, 1997; Harley, 2003, 2005, 2013, 2017; Alexiadou et al., 2006, 2015; Pylkkänen, 2008; Ramchand, 2008; Mateu & Acedo-Matellán, 2012; Acedo-Matellán & Mateu, 2014; Acedo-Matellán, 2016), it has nonetheless been challenged and remains controversial (see Kiparsky, 1997; Krifka, 1999; Horvath & Siloni, 2003; Wechsler, 2005b, 2020; Bale, 2007; Ausensi et al., 2020, 2021; and see Harley & Stone, 2013 for a reply to criticism).

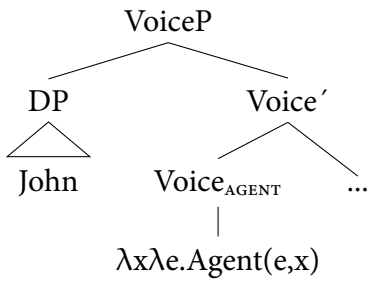
3.2.1 Flavors of Voice and *v*

Following Kratzer (1996), Alexiadou et al. (2015) have recently proposed a more fine-grained classification of the types of Voice heads available to languages. Thus, in addition to the two active and passive Voice heads in English proposed by Kratzer, i.e., $\text{Voice}_{\text{AGENT}}$ providing an Agent argument to a dynamic verb, and a $\text{Voice}_{\text{HOLDER}}$ providing a Holder argument to a non-dynamic, stative verb, Alexiadou et al. propose to include an additional $\text{Voice}_{\text{CAUSE}}$ head.[1] Such an additional $\text{Voice}_{\text{CAUSE}}$ head aims at capturing the different types of external arguments that can serve as subjects of causative

[1] Further see Pylkkänen (2008) (also Alexiadou, 2014a) for a similar claim, namely that entailments of causation and agentivity and/or intentionality must be introduced separately.

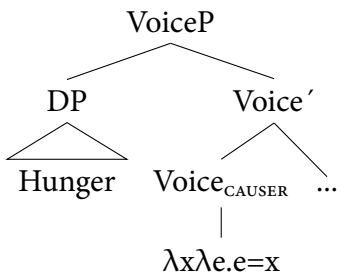
verbs such as *kill*. In this respect, Alexiadou et al. propose that examples such as *John killed Tommy* contain a $\text{Voice}_{\text{AGENT}}$, insofar as such a type of Voice head assigns, in this case, a theta-role to the argument it introduces, i.e., it must qualify as an Agent.

(5) John killed Tommy. (adapted from Alexiadou et al., 2015: 9)



In contrast, examples such as *Hunger killed Tommy* contain a $\text{Voice}_{\text{CAUSE}}$ head. In this case, such a Voice head simply introduces an argument "and relates it to the causing event instead of assigning it a role itself" (Alexiadou et al., 2015: 9). In other words, $\text{Voice}_{\text{CAUSE}}$ introduces an argument but does not impose any kind of semantic requirement on it, i.e., any type of theta-role, as it simply denotes "an identity relation between events rather than a thematic relation" (Alexiadou et al., 2015: 9). Compare this below.

(6) Hunger killed John. (adapted from Alexiadou et al., 2015: 9)



In short, in both Kratzer's and Alexiadou et al.'s approaches (and also in theories of verb meaning that assume that the external argument is introduced externally), agent entailments are assumed to be introduced by functional heads in the syntax, as they are not lexical entailments of the roots themselves, since it is the $\text{Voice}_{\text{AGENT}}$ head responsible for assigning the theta-role of Agent to the external argument.

It is important to note that such a typology of Voice is reminiscent of the so-called flavors of *v* first proposed by Folli & Harley (2005) in the Distributed Morphology tradition (Halle & Marantz, 1993), namely that the verbalizing little *v* head—responsible for introducing the external argument in approaches following Chomsky (1995)—comes in two flavors, i.e., v_{DO} and v_{CAUSE} (see also Harley, 1995; Cuervo, 2003).[2] In this respect, Folli & Harley (2005) (see also Hale & Keyser, 1993, 2002; Folli & Harley, 2007, 2008; Pylkkänen, 2008) argue that meanings related to intentionality and/or agency are also introduced templatically, by the so-called functional head v_{DO}. More specifically, Folli & Harley argue that while v_{DO} requires the external argument to be an Agent, i.e., it introduces templatic meanings of agency/intentionality, v_{CAUSE}, on the other hand, places no restrictions on the external argument. In Folli & Harley's (2005: 96) words: "These light verbs place different restrictions on their subjects and complements; in particular, v_{DO} needs an animate agent subject, while v_{CAUSE} only requires that the subject be a possible Cause".

Folli & Harley's core claim lies in the observation that in consumption verbs such as *eat*, the external argument needs to be animate, yet such an animacy restriction disappears in resultative-like constructions as in *eat the beach away*. Folli & Harley propose then that such restrictions on alternations can be accounted for if *v* actually comes in two 'flavors', each one with different semantic properties selecting for different kinds of external arguments. Compare the variable behavior of consumption verbs in the following examples (adapted from Folli & Harley, 2005: 104).

(7) a. John ate the sandwich.

[2] Broadly speaking, approaches assuming that the external argument is introduced externally to the VP by a functional head in the syntax differ in assuming whether it is the Voice head (as in Kratzer, 1996; Alexiadou et al., 2006, 2015; Harley, 2017; Schäfer, 2017; Sundaresan & McFadden, 2017, *i.a.*) or instead the little *v* head (as in Chomsky, 1995; Embick, 2004; Folli & Harley, 2008; Harley, 2013; Merchant, 2013, *i.a.*) that actually introduce such an argument. For the present purposes, what is relevant is that the locus of agent entailments is uncontroversially assumed to be outside the root, i.e., in projections in the verbal domain such as $\text{Voice}_{\text{AGENT}}$ or v_{DO}, and therefore whether the external argument is actually introduced by one head or the other does not have any consequence for the present purposes, but see D'Alessandro et al. (2017) for a general overview of the two different approaches.

b. #The sea ate the beach.
c. The sea ate the beach away.

(8) a. The carpenter carved the toy.
b. #The wind carved the beach.
c. The wind carved the beach away.

(9) a. The cowboy chewed the though beef.
b. #The washing machine chewed the laundry.
c. The washing machine chewed up the laundry.

However, under Folli & Harley's analysis and approaches that assume that external arguments are introduced by a separate layer in the syntax (e.g., by *v* as in Chomsky, 1995 or by Voice as in Kratzer, 1996 and Alexiadou et al., 2015), as they are not considered arguments of the verb itself, it remains unclear why it is the case that verbs like *murder* only allow entities that must qualify as agents as their subject, in contrast to verbs like *kill* which appear to accept any type of entity as their subject, as previously discussed in detail in Chapter 2 (further see Talmy, 1985; Dowty, 1991; Van Valin & Wilkins, 1996; Lemmens, 1998; Van Valin, 2005; Rooryck & Wyngaerd, 2011; Grano, 2016; Solstad & Bott, 2017; Ausensi, 2019a; Ausensi et al., 2020, 2021). Whereas such approaches correctly capture the facts regarding verbs such as *kill*, namely that the external argument is truly external to the verb and therefore the verb cannot impose any semantic requirement on it, they fail to capture the facts regarding verbs like *murder*.

(10) a. #John murdered Tom by accident/unintentionally.
b. #The floods murdered the inhabitants of that town.
c. #Cancer murdered every patient in that hospital.
d. #The new machine weapon murdered all the enemies.

(11) a. John killed Tom by accident/unintentionally.
b. The floods killed the inhabitants of that town.
c. Cancer killed every patient in that hospital.
d. The new machine weapon killed all the enemies.

In other words, if external arguments are introduced by a separate layer, and therefore not considered arguments of the verb, how do we account for the fact that such verbs place (strong) semantic restrictions on their external arguments? In this respect, Folli & Harley (2005: 103) themselves acknowl-

edge that positing that all external arguments are introduced externally by a functional projection in the syntax has some shortcomings since "it was exactly the apparent absence of such selectional effects that led Kratzer to propose a neo-Davidsonian approach to external arguments". Similarly, Alexiadou et al. (2015: 58) themselves also point out that "from the perspective of the Voice hypothesis, it is not immediately clear what forces the obligatory presence of the external argument" in verbal classes such as *murder* verbs, which always require the presence of the external argument, and are therefore never found in constructions which exclude it, e.g., as in the anticausative alternation (see Levin, 1993; Hale & Keyser, 1997, 2002; Levin & Rappaport Hovav, 1995; Rappaport Hovav & Levin, 2012; Schäfer, 2008; Koontz-Garboden, 2009; Rappaport Hovav, 2014b; Alexiadou et al., 2015).

(12) a. *The president assassinated. (on intended reading)
b. *The citizens massacred.
c. *The mugger murdered.
d. *The dragon slew.
e. *The population slaughtered.

In the next section (see also Chapter 5), I suggest that an explanation to such questions naturally follows if we acknowledge that well-defined classes of roots introduce templatic meanings of change or intentionality and consequently impose semantic restrictions on the event structure they associate with. In other words, if $\sqrt{\text{MURDER}}$-type roots have meanings assumed to be introduced by $\text{Voice}_{\text{AGENT}}$ or v_{DO} as part of their truth-conditional content, then it becomes clear why verbs derived from such roots place semantic requirements on the external argument. Concomitantly, in §3.5 I argue that $\sqrt{\text{MURDER}}$-type roots associate with the external argument internally, therefore providing an answer to why verbs derived from $\sqrt{\text{MURDER}}$-type roots always require the presence of the external argument and therefore never appear in constructions whose event templates do not involve such an argument (further see §5.6.2 of Chapter 5).

3.3 Agent entailments in the semantics of roots

Before laying out the analysis of $\sqrt{\text{MURDER}}$-type roots, it is important first to recall that, as briefly discussed in §1.3.4 of Chapter 1, Beavers & Koontz-

Garboden (2020) argue that what they call Result Roots (e.g., √SHATTER, √BREAK, √CRACK) come with entailments of change, i.e., they predicate a state of a unique participant but crucially require that such a state must be the result of a change. In other words, Result Roots require that for the state they name, there has to be an event which gives rise to that state. Result Roots thus contrast with what Beavers & Koontz-Garboden call Property Concept Roots (e.g., √OPEN, √WIDE, √COOL), which simply predicate a simple state of a participant. As discussed in §1.3.4, Result and Property Concept Roots have different grammatical properties, e.g., only adjectives derived from Property Concept Roots come in two types, i.e., morphologically simple (e.g., *open*) and deverbal (e.g., *opened*), whereas adjectives derived from Result Roots are always deverbal, and there is no morphologically simple form (e.g., *broken*) (further see Beavers et al., 2017). Beavers & Koontz-Garboden argue then that result and Property Concept Roots differ in the nature of the state they predicate: both classes of roots are predicates of states, but only Result Roots introduce an entailment of change that gives rise to the state they denote. Consider the different semantic denotations for such distinct classes of roots repeated below.

(13) a. $[\![\sqrt{\text{BREAK}}]\!] = \lambda x \lambda s[\textit{broken}'(x, s) \wedge \exists e'[\textit{become}'(e', s)]]$
b. $[\![\sqrt{\text{COOL}}]\!] = \lambda x \lambda s[\textit{cool}'(x, s)]$

Drawing on Beavers & Koontz-Garboden (2020) (also Koontz-Garboden & Beavers, 2017; Beavers & Koontz-Garboden, 2017b; Beavers et al., 2017; Ausensi et al., 2020; Ausensi, 2020a), I argue that √MURDER-type roots come with both entailments of change and intentionality. Namely, √MURDER-type roots predicate a state of a participant and require that (a) such a state must be the result of a change and (b) that such a change must be brought about by an intentional-type action. Roughly put, they specify that such a state, which is the result of a change, must have a cause and that it must be of a certain type. Thus, a possible denotation for √MURDER-type roots is the one proposed in (14) (to be revised in §3.5), based on Beavers & Koontz-Garboden's denotation for the roots of the √GUILLOTINE sort.[3]

[3] In the discussion to follow, I abstract away from the idiosyncratic differences between √MURDER, √SLAY, √ASSASSINATE, √SLAUGHTER and √MASSACRE, since I focus on these roots as a class.

(14) $[\![\sqrt{\text{MURDER-type}}]\!] = \lambda x \lambda s[\textit{dead'}(x, s) \wedge \exists e' \exists v[\textit{cause'}(v, e') \wedge \textit{become'}(e', s) \wedge \forall v'[\textit{cause'}(v', e') \rightarrow \textit{intentional'}(v')]]]$

Such a denotation thus predicates a state of an argument, but it specifies that it must have a cause, and that it must be of a certain type, namely of an intentional-type action. The denotation for $\sqrt{\text{MURDER}}$-type roots differs from the denotation for the roots of verbs of killing of the $\sqrt{\text{KILL}}$ sort as in (15), which also predicates a state of a unique argument that must be the result of a change but crucially it does not require that it be brought about by any specific type of cause.

(15) $[\![\sqrt{\text{KILL}}]\!] = \lambda x \lambda s[\textit{dead'}(x, s) \wedge \exists e' \exists v[\textit{cause'}(v, e') \wedge \textit{become'}(e', s)]]$

As I show, such a difference in the denotations of these two types of classes of roots heavily bears on the grammatical properties of the verbs that are derived from these classes of roots.[4] In what follows, I provide first evidence regarding the claim that $\sqrt{\text{MURDER}}$-type roots come with entailments of change. I then show that such a class of roots introduces an additional templatic meaning, namely intentionality associated with the external argument, in contrast to roots of the $\sqrt{\text{KILL}}$ sort.

Following Beavers & Koontz-Garboden, I start by considering the adjectives that are derived from $\sqrt{\text{MURDER}}$-type roots insofar as such adjectival structures contain, in most cases, event templates that are void of functional heads introducing templatic notions of change (of state). More importantly, such adjectival structures are uncontroversially assumed to be void of functional heads introducing templatic meanings of intentionality, namely there is no $\text{Voice}_{\text{AGENT}}$ head or a v_{DO} projection. Thus, we should not expect entailments of intentionality in the adjectives that are derived from $\sqrt{\text{MURDER}}$-type roots. I then show that, consonant with Result Roots, $\sqrt{\text{MURDER}}$-type

[4] I assume that roots like $\sqrt{\text{KILL}}$ also include causation in their lexical semantics, in contrast to roots like $\sqrt{\text{BREAK}}$. This is because verbs derived from roots of the $\sqrt{\text{KILL}}$ sort require that the (result) state they encode be (externally) caused, whereas the (result) state encoded by verbs derived from roots of the $\sqrt{\text{BREAK}}$ sort need not, as in *The vase broke* (cf. **The boy killed* (on intended reading)). Although I remain agnostic as to what the correct analysis for such a class of roots ultimately is, what is relevant for the present purposes is that roots of the $\sqrt{\text{KILL}}$ sort, while requiring that the state they denote be caused, do not place restrictions on such a cause, in contrast to $\sqrt{\text{MURDER}}$-type roots (further see fn. 9 in Chapter 5).

roots systematically disallow restitutive readings, which is unexpected if the roots of change of state verbs of this sort denote simple states. In other words, insofar as both Property Concept Roots such as √OPEN and Result Roots such as √BREAK are assumed to be stative, especially in approaches that take verbal decomposition to be represented in the syntax, both classes of roots should allow the same types of readings when modified with *again* (cf. §1.4 of Chapter 1). Thus, on the lowest structural attachment site of *again*, when *again* scopes over the truth-conditional content of the root, restitutive readings should ensue since both classes of roots are assumed to denote a simple state. As Beavers & Koontz-Garboden argue at length (following the initial observations by Rappaport Hovav, 2008), Result Roots systematically disallow restitutive readings, which is expected instead if such a class of roots denotes a state but crucially requires that it must be the result of a change (cf. (13)). Thus, even when *again* has low attachment, restitutive readings are predicted to be disallowed since Result Roots entail change.

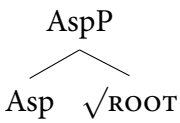
Concomitantly, as presaged in §2.4.4 of Chapter 2, I note that apart from disallowing restitutive readings, √MURDER-type roots further disallow repetitive readings that presuppose that the previous event was not carried out intentionally. In other words, such a class of roots disallow repetitive presuppositions that exclude intentionality associated with the external argument. This strongly suggests that entailments of intentionality cannot be severed from √MURDER-type roots, contra Kratzer (1996) *et seq*. √MURDER-type roots thus contrast with roots of the √KILL sort in that only the latter allow repetitive presuppositions that exclude intentionality associated with the external argument, which is naturally accounted for by the present approach insofar as only √MURDER-type roots have intentionality entailments as part of their truth-conditional content contra the Bifurcation Thesis for Roots (Embick, 2009) and Kratzer (1996) *et seq*.

3.3.1 Entailments of change in the semantics of roots

The first piece of evidence for the claim that √MURDER-type roots, just as Result Roots, have templatic notions of change as part of their meaning comes from adjectival structures. In this respect, Beavers & Koontz-Garboden take the two adjectival structures put forth by Embick (2004) as their point of departure. The first structure, given in (16), is the one that Beavers & Koontz-Garboden call 'basic states' insofar such an adjectival structure simply con-

tains an event template that creates adjectives by merging a root (taken to be stative) with adjectivizing morphology, i.e., what Embick calls the Asp head. This structure thus does not involve functional heads introducing templatic notions of change, and therefore, consistent with Embick's analysis, it does not introduce any entailment of change. This is illustrated by the fact that templatic meanings of change can be explicitly denied in this case, as illustrated below in (17) and (18) (examples based on Beavers & Koontz-Garboden, 2020).

(16) Basic states (e.g., *The red vase*) (Embick, 2004: 363)



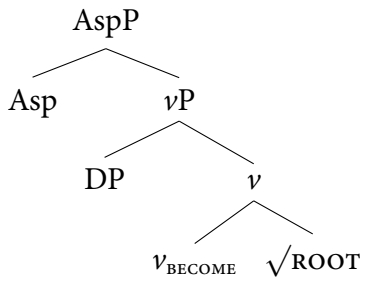
(17) a. The red vase has never been reddened.
b. The bright picture has never been brightened.
c. The cool soup has never been cooled.
d. The long trousers have never been lengthened.

(18) a. The red vase has never undergone a reddening.
b. The bright picture has never undergone a brightening.
c. The cool soup has never undergone a cooling.
d. The long trousers have never undergone a lengthening.

As Beavers & Koontz-Garboden point out, adjectives denoting basic states contrast with adjectives that denote result states, whose event template does include a functional head introducing entailments of change, namely the v_{BECOME} head, as illustrated in (19). Thus, consistent with Embick's analysis, in this case explicitly denying that a prior change has occurred results in a contradiction, as shown in (20) and (21) (examples based on Beavers & Koontz-Garboden, 2020).[5]

[5] Embick uses the functional head FIENT as the projection responsible for introducing the templatic notion of change. For expository reasons, I follow Beavers & Koontz-Garboden in making use of the head v_{BECOME}, instead of FIENT, insofar as this is probably the most assumed and widespread projection when referring to the functional head introducing entailments of change in syntactified event structures.

(19) Result states (e.g., *The reddened vase*) (Embick, 2004: 367)



(20) a. #The reddened vase has never been reddened.
b. #The brightened picture has never been brightened.
c. #The cooled soup has never been cooled.
d. #The lengthened trousers have never been lengthened.

(21) a. #The reddened vase has never undergone a reddening.
b. #The brightened picture has never undergone a brightening.
c. #The cooled soup has never undergone a cooling.
d. #The lengthened trousers have never undergone a lengthening.

Recall that the Bifurcation Thesis for Roots, and theories of event structure assuming a clear division of labor between roots and event templates, predicts that all roots of change of state verbs should lack entailments of change when the roots of such verbs are integrated into structures void of event templates introducing such meanings, e.g., in basic states as in (16). Contra the Bifurcation Thesis for Roots, Beavers & Koontz-Garboden note that Result Roots do not seem to appear in basic state structures since adjectives derived from Result Roots always introduce entailments of change. In other words, while roots such as √RED appear in both basic and result state structures, roots such as √BREAK do not appear in basic state structures, as illustrated below in (22) and (23) (examples based on Beavers & Koontz-Garboden, 2020).

(22) a. #The broken vase has never been broken.
b. #The cracked glass has never been cracked
c. #The shattered vase has never been shattered.
d. #The cooked chicken has never been cooked.

(23) a. #The broken vase has never undergone a breaking.

b. #The cracked glass has never undergone a cracking.
c. #The shattered vase has never undergone a shattering.
d. #The cooked chicken has never undergone a cooking.

In this respect, Beavers & Koontz-Garboden (2020: 20) point out that adjectives derived from Result Roots should be found in contexts where prior change is not entailed since "in any particular context the adjective could be realizing [(16)], which lacks v_{BECOME}, and therefore any entailment of change". In other words, Result Roots should be able to appear in basic state structures, i.e., in structures that do not introduce entailments of change, as such roots are considered to be stative and only acquire an entailment of change when merged with the relevant functional head. As Beavers & Koontz-Garboden note, such a prediction is not borne out insofar as Result Roots always introduce entailments of change, therefore strongly suggesting that such a meaning must be coming from the root itself.

In this vein, adjectives derived from $\sqrt{\text{MURDER}}$-type roots do not seem to be found in basic state structures either, just as Result Roots. In other words, entailments of change cannot be severed from such a class of roots, insofar as adjectives derived from $\sqrt{\text{MURDER}}$-type roots always entail change.

(24) a. #The murdered gnome has never been murdered.
b. #The assassinated king has never been assassinated.
c. #The slaughtered monsters have never been slaughtered.
d. #The massacred ogres have never been massacred.
e. #The slain dragon has never been slain.

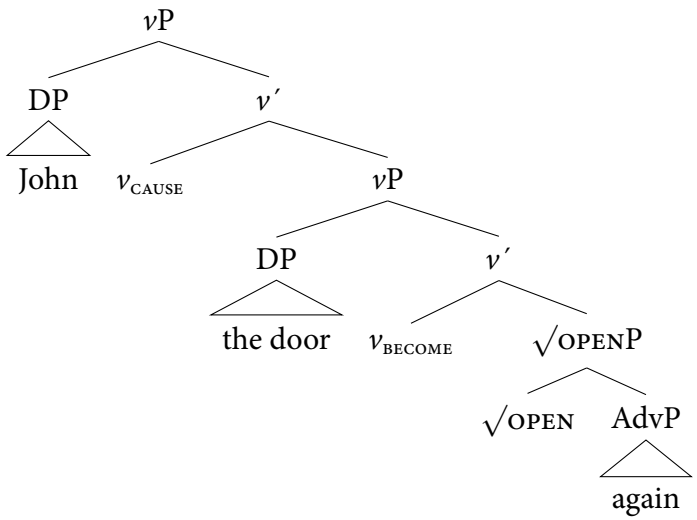
(25) a. #The murdered gnome has never undergone a murdering.
b. #The assassinated king has never undergone an assassination.
c. #The slaughtered monsters have never undergone a slaughtering.
d. #The massacred ogres have never undergone a massacre.
e. #The slain dragon has never been undergone a slaying.

The second piece of evidence, yet the most important one, relates to sublexical modification with *again*, as discussed in §1.4 of Chapter 1 and §2.4.4 of Chapter 2. In this respect, Beavers & Koontz-Garboden show that Result Roots systematically disallow restitutive readings, whereas Property Concept Roots are ambiguous between repetitive and restitutive readings depending on the structural attachment site of *again*. Such a grammatical dif-

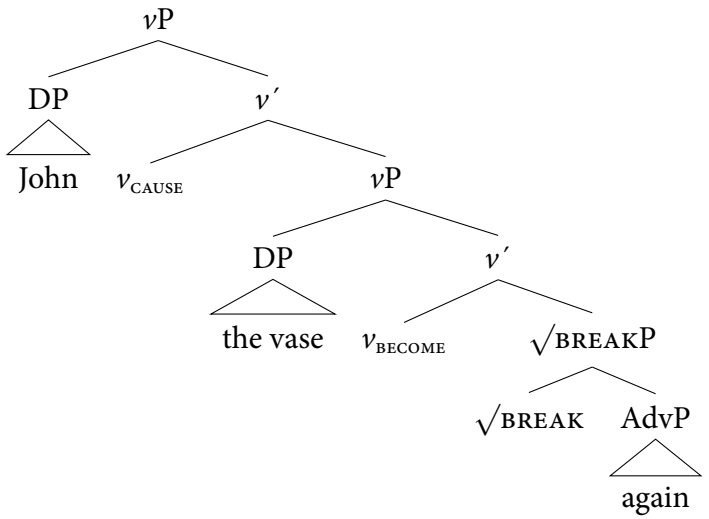
ference between these two classes of roots is rather mysterious under approaches that assume that the roots of all change of state verbs such as *break* and *open* are stative and only acquire an entailment of change when they are merged with the relevant functional head. Thus, under such approaches, Property Concept and Result Roots should allow restitutive readings when *again* has low attachment, since in this case, it only has the truth-conditional content of the root in its scope, which is taken to denote a simple state. (cf. §1.4 of Chapter 1).

In the case of Property Concept Roots such as √OPEN, *again* gives rise to restitutive and repetitive readings when placed in final sentence position. This is predicted by theories assuming that roots do not introduce templatic meanings, since on low attachment, *again* only has the truth-conditional content of the root in its scope , and therefore since Property Concept Roots predicate a simple state with no entailments of change, the reading will be restitutive. In contrast, if Result Roots introduce entailments of change, even when *again* has low attachment, restitutive readings should not ensue as the root has change as part of its meaning. Compare this below (examples adapted from Beavers & Koontz-Garboden, 2020: 84).

(26) John opened the door again. (Restitutive)



(27) John broke the vase again. (Only repetitive)



The fact that Result Roots systematically disallow restitutive readings is explicitly illustrated in contexts that force such readings, i.e., in contexts where the only possible interpretation is that of a restitutive. This is shown below, where Property Concept Roots such as √SHARP, √LONG or √LARGE are felicitous in contexts where the only possible reading is that of a restitutive one, whereas Result Roots such as √RETURN, √THAW or √MELT are not. Namely, Result Roots systematically disallow restitutive readings even in contexts that are specifically designed to allow one (examples adapted from Beavers & Koontz-Garboden, 2020: 85).

(28) a. CONTEXT: John buys a knife that was made by a process by which it was forged already sharp. John uses it until it becomes blunt. He uses a whetting stone to sharpen it.
John sharpened the knife again. (OK one sharpening)

b. CONTEXT: A film producer makes a 4 hour long film, which is significantly longer than the norm. She is pressured to reduce its length, so cuts it to be two hours. But then the director and actors protest, so she restores it to 4 hours.
The producer lengthened the film again. (OK just one lengthening)

c. CONTEXT: Kim takes a photo that is too large to use as a Face-

book profile photo. She shrinks it to a more appropriate size, but thinks it does not look good. So she restores it to its original size and puts it on her personal website instead.
Kim enlarged the photograph again. (OK just one enlarging)

(29) a. CONTEXT: A boutique store makes their shirts in the back. Sandy buys one and leaves with it, but then decides she does not want it. She goes back to the store with the shirt and exchanges it.
#Sandy returned the shirt again. (necessarily two returnings)

b. CONTEXT: Leah kills a rabbit, takes it home and skins and butchers it and then puts the fresh meat in the freezer for three days. She then takes it out and puts it on the table to thaw.
#Leah thawed the meat again. (necessarily two defrostings)

c. CONTEXT: An ice cream factory manufactures ice cream from a package of ingredients by adding water and then freezing the result. After adding the contents of the package to water and freezing it, Kim lets it melt into a liquid state.
#Kim melted the ice cream again. (necessarily two defrostings)

Beavers & Koontz-Garboden (2020: 86) further note that the claim that Result Roots have entailments of change as part of their truth-conditional content is made stronger by considering sublexical modification with *re–* prefixation. This is because, as Dowty (1979), Wechsler (1989) and Marantz (2007, 2009) claim, *re–* has been argued to only have low attachment, in contrast to *again* that can either structurally attach high, yielding repetitive readings, or it can also structurally attach low, yielding restitutive readings instead. Evidence for this comes from the fact that whereas *again* yields only repetitive, but not restitutive, readings in certain positions such as in sentence initial, *re–* always generates restitutive readings, as illustrated below (adapted from Beavers & Koontz-Garboden, 2020: 86).[6]

(30) a. Again, John opened the door. (OK Repetitive / #Restitutive)

[6] As Beavers & Koontz-Garboden (2020: 87) point out, *re–* also generates repetitive readings, but such repetitive readings only arise (pragmatically) in contexts where the repetition of the event has taken place together with the restitution of the state.

b. John again opened the door. (OK Repetitive / #Restitutive)
c. John reopened the door. (OK Restitutive / OK Repetitive)

Crucially, though, Result Roots further disallow restitutive readings even with *re–* prefixation in contexts specifically designed to allow them, in contrast to Property Concept Roots. Compare this below (adapted from Beavers & Koontz-Garboden, 2020: 87-8).

(31) a. CONTEXT: John buys a knife that was made by a process by which it was forged already sharp. John uses it until it becomes blunt. He uses a whetting stone to sharpen it.
John resharpened the knife. (OK one sharpening)
b. CONTEXT: A film producer makes a 4 hour long film, which is significantly longer than the norm. She is pressured to reduce its length, so cuts it to be two hours. But then the director and actors protest, so she restores it to 4 hours.
The producer relengthened the film. (OK just one lengthening)
c. CONTEXT: Kim takes a photo that is too large to use as a Facebook profile photo. She shrinks it to a more appropriate size, but thinks it does not look good. So she restores it to its original size and puts it on her personal website instead.
Kim reenlarged the photograph. (OK just one enlarging)

(32) a. CONTEXT: A boutique store makes their shirts in the back. Sandy buys one and leaves with it, but then decides she does not want it. She goes back to the store with the shirt and exchanges it.
#Sandy rereturned the shirt. (necessarily two returnings)
b. CONTEXT: Leah kills a rabbit, takes it home and skins and butchers it and then puts the fresh meat in the freezer for three days. She then takes it out and puts it on the table to thaw.
#Leah rethawed the meat. (necessarily two defrostings)
c. CONTEXT: An ice cream factory manufactures ice cream from a package of ingredients by adding water and then freezing the result. After adding the contents of the package to water and freezing it, Kim lets it melt into a liquid state.
#Kim remelted the ice cream. (necessarily two defrostings)

The fact that Result Roots systematically disallow restitutive readings, even

with *re–* prefixation, which has been argued to only have low attachment, is rather unexpected under the Bifurcation Thesis for Roots and theories assuming a clean division of labor between roots and event templates, insofar as both Property Concept and Result Roots are assumed to be stative and only acquire an entailment of change when merged with the relevant functional head. Instead, if Result Roots come with entailments of change, as Beavers & Koontz-Garboden argue, then it is predicted that such a class of roots will always entail change independently of event templates, and therefore that even when *again* has low attachment and even in *re–* prefixation, such roots will entail change since change is part of their truth-conditional content.

In this vein, consonsant with the claim that √MURDER-type roots introduce entailments of change, I show that such a class of roots systematically disallow restitutive readings, namely that there was a previous state of being dead which was not the result of an event of killing, thus patterning as Result Roots in this respect.[7] This is shown below with *again* modification in contexts that are specifically designed to allow restitutive readings of this sort.

(33) a. CONTEXT: A warlock creates a monster, but it is created dead. Yet, being a mystical creature, it becomes alive after two days. Seeing the danger it poses, the warlock takes a bow and shoots it dead.
#The warlock murdered the zombie again.

b. CONTEXT: A zombie that proclaimed itself as king of the zombies suddenly dies of natural causes. Yet, being the king of the zombies, it is brought back to life. A raid of strong warriors see the zombie king alone and throw their axes at it, immediately killing it.
#The raid of strong warriors assassinated the zombie king again.

[7] Beavers & Koontz-Garboden claim that the root √MURDER entails change. Here, I further show that the other roots in the √MURDER class also entail change, and therefore that Beavers & Koontz-Garboden's claim is correct. Thus, the main goal of this section is not to argue that such a class of roots comes with entailments of change, but rather that they have an additional templatic notion as part of their truth-conditional content, i.e., intentionality entailments associated with the external argument.

c. CONTEXT: A baby dragon was born dead. Yet, a powerful wizard brings it back to life. Aware of the danger that such a creature poses, a brave knight takes his sword and stabs the creature in the heart.
#The brave knight slew the baby dragon again.

d. CONTEXT: A golden dragon gives birth to three little silver dragons, but they are born dead. Devastated by the death of its babies, the golden dragon sacrifices itself bringing them back to life. Without their mother, the baby dragons are helpless and are killed by a group of warlocks after they cast a deadly spell on them.
#The group of warlocks massacred the baby dragons again.

e. CONTEXT: A group of ogres die after imbibing corrupted water. A magic ogre, however, sees the death of its friends and resurrects them. Unluckily, an elf mounted on a flying creature throws explosive artifacts at them, killing all of them instantly.
#The elf slaughtered the group of ogres again.

In addition, $\sqrt{}$MURDER-type roots further disallow restitutive readings even with *re–* prefixation, which, recall, has been argued to only have low attachment (i.e., it attaches directly to the root), and therefore to always give rise to restitutive readings.

(34) a. CONTEXT: A warlock creates a monster, but it is created dead. Yet, being a mystical creature, it becomes alive after two days. Seeing the danger it poses, the warlock takes a bow and shoots it dead.
#The warlock remurdered the zombie.

b. CONTEXT: A zombie that proclaimed itself as king of the zombies suddenly dies of natural causes. Yet, being the king of the zombies, it is brought back to life. A raid of strong warriors see the zombie king alone and throw their axes at it, immediately killing it.
#The raid of strong warriors reassassinated the zombie king.

c. CONTEXT: A baby dragon was born dead. Yet, a powerful wizard brings it back to life. Aware of the danger that such a creature poses, a brave knight takes his sword and stabs the crea-

ture in the heart.
#The brave knight reslew the baby dragon.

d. CONTEXT: A golden dragon gives birth to three little silver dragons, but are born dead. Devastated by the death of its babies, the golden dragon sacrifices itself bringing them back alive. Without their mother, the baby dragons are helpless and are killed by a group of warlocks after they cast a deadly spell on them.
#The group of warlocks remassacred the baby dragons.

e. CONTEXT: A group of ogres die after imbibing corrupted water. A magic ogre, however, sees the death of its friends and resurrects them. Unluckily, an elf mounted on a flying creature throws explosive artifacts at them, killing all of them instantly.
#The elf reslaughtered the group of ogres.

In short, roots like √OPEN only denote a simple state and therefore sublexical modifcation with *again* either generates restitutive or repetitive readings depending on its structural attachment site and *re–* prefixation always generates restitutive readings. In contrast, √MURDER-type roots pattern with Result Roots in disallowing restitutive readings, thus showing that the claim that such a class of roots introduce entailments of change independently of event templates appears to be correct.

In the next section, I argue that, in contrast to Result Roots and roots of the √KILL sort, √MURDER-type roots come with an additional templatic notion, i.e., they comprise entailments of intentionality associated with the external argument as part of their truth-conditional content, contra the Bifurcation Thesis for Roots and Kratzer (1996) *et seq*.

3.3.2 Agent entailments in the semantics of roots

In this section, I argue that entailments of intentionality associated with the external argument, i.e., a structural component of meaning that is uncontroversially assumed to be introduced by functional heads in the verbal domain, are part of the truth-conditional content of √MURDER-type roots. In other words, √MURDER-type roots entail intentionality associated with the

external argument independently of the functional heads $\text{Voice}_{\text{AGENT}}$ or v_{DO}.[8]

The first piece of evidence comes from considering event structures that are uncontroversially void of functional heads introducing entailments of intentionality, such as the adjectival structures by Embick (2004). As shown below, $\sqrt{\text{MURDER}}$-type roots entail intentionality even in event structures that do not involve functional heads of the Voice or v_{DO} sort. This strongly suggests that such entailments must be coming from the roots themselves, i.e., intentionality entailments cannot be severed from $\sqrt{\text{MURDER}}$-type roots.

(35) a. #The murdered gnome hasn't been killed intentionally.
b. #The assassinated king hasn't been killed intentionally.
c. #The slaughtered monsters haven't been killed intentionally.
d. #The massacred ogres haven't been killed intentionally.
e. #The slain dragon hasn't been killed intentionally.

(36) a. #The murdered gnome has been killed by accident.
b. #The assassinated king has been killed by accident.
c. #The slaughtered monsters have been killed by accident.
d. #The massacred ogres have been killed by accident.
e. #The slain dragon has been killed by accident.

In addition, nominal variants from $\sqrt{\text{MURDER}}$-type roots provide further evidence, since the structure of nominal variants, especially zero derived nominals (e.g., *a murder*), are claimed to be void of functional heads introducing meanings related to intentionality. In other words, even in (zero derived) nominal variants, which are assumed to lack a Voice or a v_{DO} head (see Kratzer, 2003; Alexiadou, 2009; Alexiadou et al., 2009, 2013; Borer, 2013), entailments of intentionality cannot be severed from $\sqrt{\text{MURDER}}$-type roots, thus providing further evidence in favor of the current claim, namely that such a class of roots come with entailments of intentionality independently of event templates.

(37) a. #The murder of that gnome's family was not intentional.
b. #The assassination of the former king was not intentional.
c. #The slaughter of the monsters was not intentional.
d. #The massacre of the ogres in that town was not intentional.

[8] This section is a revision and expansion of Ausensi (2020a).

(38) a. #The murder of that gnome's family was an accident.
b. #The assassination of the former king was an accident.
c. #The slaughter of the monster was an accident.
d. #The massacre of the ogres in that town was an accident.

Crucial evidence, however, comes from sublexical modification with *again* and *re–* prefixation, as discussed in detail in the previous section. Recall that in the case of Property Concept Roots, *again* generates both restitutive and repetitive readings depending on the structural height of its attachment site, i.e., restitutive readings follow from low scope, and repetitive readings follow from high scope. In this vein, if entailments of intentionality are introduced externally to the root by functional heads such as $\text{Voice}_{\text{AGENT}}$ or v_{DO}, in sentences such as *John murdered the monster again* we should expect that a presupposition where the intentionality associated with the external argument is not entailed is possible. In other words, when *again* attaches low, $\sqrt{\text{MURDER}}$-type roots should not entail intentionality associated with the external argument, since such a templatic notion is introduced higher up in the event structure by $\text{Voice}_{\text{AGENT}}$ or v_{DO} (cf. (5)).

In this respect, I note that such a prediction is certainly borne out for roots of the $\sqrt{\text{KILL}}$ sort. In this case, as discussed before in (15), such a class of roots does not introduce entailments of intentionality, and therefore *again* generates presuppositions that the event it modifies might not have been previously carried out intentionally, i.e., when it has low scope, since in this case *again* directly scopes over the truth-conditional content of the root and such a class of roots does not have intentionality as part of its meaning. This was initially illustrated by example (94) of §2.4.4 in Chapter 2, repeated below as (39), where I noted that roots of the $\sqrt{\text{KILL}}$ sort do not have intentionality as part of their truth-conditional content, therefore allowing presuppositions with *again* that exclude intentionality associated with the external argument in the previous event.

(39) John killed the monsters again.
OK John caused the monsters to become dead by intentionally killing them again.
OK John caused the monsters to become dead again by intentionally killing them but the last time they were killed by accident/unintentionally.

Further evidence comes from examples that are specifically designed to allow repetitive presuppositions that exclude intentionality associated with the external argument. One way to illustrate this is by explicitly stating that the previous killing was either unintentional or accidental or was brought about by an inanimate subject, e.g., by natural forces. This is illustrated in (40).

(40) a. CONTEXT: A monster king has been killed by a magical storm. After the monster has been brought back to life by an evil wizard, a brave knight takes his sword and stabs him in the chest until it dies.
A brave knight killed the monster king again.

b. CONTEXT: A zombie has killed itself by jumping off a cliff. After the zombie has come back to life, John takes a gun and shots it in the head, and the zombie immediately dies.
John killed the zombie again.

c. CONTEXT: A group of zombies have been killed by a toxic cloud. After they have come back to life, the citizens use a machine weapon and start shooting at them until they all die.
The citizens killed the zombies again.

d. CONTEXT: A dragon has been killed accidentally by one of its siblings. After the dragon has been reanimated, a witch casts a deadly spell on it causing it to die.
The witch killed the dragon again.

e. CONTEXT: A band of monsters have been killed accidentally by their leader. After they have come back to life, a raid of wizards fight against them until all the monsters perish.
A raid of wizards killed the band of monsters again.

Similarly, $\sqrt{\text{KILL}}$ also allows contexts that explicitly state that the agent argument caused the death of some entity by accident in the previous event, but in the asserted event the killing is intentionally carried out by the same agent argument, as in (41).

(41) a. CONTEXT: A monster king has been killed accidentally by a brave knight. After the monster has been brought back to life by an evil wizard, the brave knight takes his sword and stabs him in the chest until it dies.

The brave knight killed the monster king again.

b. CONTEXT: A zombie has been killed accidentally by John. After the zombie has come back to life, John takes a gun and shots it in the head, immediately killing it.
John killed the zombie again.

c. CONTEXT: A group of zombies have been killed accidentally by some citizens. After they have come back to life, the citizens use a machine weapon and start shooting at them until they all die.
The citizens killed the zombies again.

d. CONTEXT: A dragon has been killed accidentally by a witch. After the dragon has been reanimated, the witch casts a deadly spell on it causing it to die.
The witch killed the dragon again.

e. CONTEXT: A band of monsters have been killed accidentally by a raid of wizards. After they have come back to life, the raid of wizards fight against them until all the monsters perish.
A raid of wizards killed the band of monsters again.

Roots of the $\sqrt{\text{KILL}}$ sort thus allow repetitive presuppositions which exclude intentionality associated with the external argument. This is expected if such a class of roots does not have entailments of intentionality as part of their meaning, and therefore repetitive presuppositions including intentionality are only generated when *again* attaches high, i.e., when it takes scope over the functional heads introducing such a templatic meaning, either over Voice in Kratzer (1996) *et seq.* or over v_{DO} in Folli & Harley (2005).

In contrast, as presaged in §2.4.4 of Chapter 2, $\sqrt{\text{MURDER}}$-type roots disallow this type of repetitive presuppositions, which strongly suggests that such a class of roots introduce entailments of intentionality independently of event templates. In other words, as initially illustrated by example (93) in Chapter 2, repeated below as (42), $\sqrt{\text{MURDER}}$-type roots disallow repetitive presuppositions with *again* that exclude intentionality associated with the external argument.

(42) a. The elf murdered/assassinated the monster king again.
OK The elf caused the monster king to become dead by intentionally killing it again.
The elf caused the monster king to become dead again by in-

tentionally killing it but the last time it was killed by accident/unintentionally.

b. The knight slaughtered/massacred the monsters again.
OK The knight caused the monsters to become dead by intentionally killing them again.
The knight caused the monsters to become dead again by intentionally killing them but the last time they were killed by accident/unintentionally.

c. The warrior slew the dragon again.
OK The warrior caused the dragon to become dead by intentionally killing it again.
The warrior caused the dragon to become dead again by intentionally killing it but the last time it was killed by accident/unintentionally.

This is predicted under the present account since even when *again* has in its scope the truth-conditional content of √MURDER-type roots, such a class of roots will entail intentionality since intentionality is part of their meaning. Thus, in contrast to roots of the √KILL sort, √MURDER-type roots are not felicitous in scenarios that entail that the previous event of killing was unintentional or accidental. This is illustrated in the examples below, which are specifically designed to allow such repetitive readings.

(43) a. CONTEXT: A monster king has been killed by a magical storm. After the monster has been brought back to life by an evil wizard, a brave knight takes his sword and stabs him in the chest until it dies.
#A brave knight assassinated the monster king again.

b. CONTEXT: A zombie has killed itself by jumping off a cliff. After the zombie has come back to life, John takes a gun and shoots it in the head, and it immediately dies.
#John murdered the zombie again.

c. CONTEXT: A group of zombies have been killed by a toxic cloud. After they have come back to life, the citizens use a machine weapon and start shooting at them until they all die.
#The citizens massacred the zombies again.

d. CONTEXT: A dragon has been killed accidentally by one of its siblings. After the dragon has been reanimated, a witch casts

a deadly spell on it and the dragon immediately dies.
#The witch slew the dragon again.

e. CONTEXT: A band of monsters have been killed accidentally by their leader. After they have come back to life, a raid of wizards fight against them until all the monsters perish.
#A raid of wizards slaughtered the band of monsters again.

Further, $\sqrt{}$MURDER-type roots, in contrast to $\sqrt{}$KILL-type roots, disallow repetitive presuppositions where the agent argument caused the death of the entity denoted by the object by accident in the prior event, but in the asserted event the killing is carried out intentionally by the same agent argument. This is illustrated in (44).

(44) a. CONTEXT: A monster king has been killed accidentally by a brave knight. After being brought back to life by an evil wizard, the brave knight takes his sword and stabs him in the chest until it dies.
#The brave knight assassinated the monster king again.

b. CONTEXT: A zombie has been killed accidentally by John. After coming back to life, John takes a gun and shots it in the head, and the zombie immediately dies.
#John murdered the zombie again.

c. CONTEXT: A group of zombies have been killed accidentally by some citizens. After coming back to life, the citizens use a machine weapon and start shooting at them until they all die.
#The citizens massacred the zombies again.

d. CONTEXT: A dragon has been killed accidentally by a witch. After being reanimated, the witch casts a deadly spell on it causing it to die.
#The witch slew the dragon again.

e. CONTEXT: A band of monsters have been killed accidentally by a raid of wizards. After coming back to life, the raid of wizards fight against them until all the monsters perish.
#The raid of wizards slaughtered the band of monster again.

It is crucial to note that $\sqrt{}$MURDER-type roots only allow repetitive presuppositions that entail that the previous event of killing is carried out intentionally, as illustrated in (45).

(45) a. CONTEXT: A monster king has been killed on purpose by a brave knight. After the monster king has been brought back to life by an evil wizard, the brave knight takes his sword and stabs him in the chest until it dies.
The brave knight assassinated the monster king again.

b. CONTEXT: A zombie has been killed intentionally by John. After the zombie has come back to life, John takes a gun and shots it in the head, and it immediately dies.
John murdered the zombie again.

c. CONTEXT: A group of zombies have been killed on purpose by some citizens. After they have come back to life, the citizens use a machine weapon and start shooting at them until they all die.
The citizens massacred the zombies again.

d. CONTEXT: A dragon has been killed intentionally by a witch. After the dragon has been reanimated, the witch casts a deadly spell on it causing it to die.
The witch slew the dragon again.

e. CONTEXT: A band of monsters have been killed on purpose by a raid of wizards. After they have come back to life, the raid of wizards fight against them until all the monsters perish.
The raid of wizards slaughtered the band of monsters again.

Re– prefixation provides further evidence insofar as it has been argued to only have low attachment. In this case, when modified with *re–* prefixation, roots of the $\sqrt{\text{KILL}}$ sort allow presuppositions where intentionality associated with the external argument in the previous event is not entailed—since *re–* attaches directly to the root, and such a class of roots does not entail intentionality. In contrast, $\sqrt{\text{MURDER}}$-type roots disallow repetitive presuppositions with *re–* prefixation that do not entail that the previous event of killing was intentionally carried out. Compare this below.

(46) a. CONTEXT: A monster king has been killed by a magical storm. After the monster has been brought back to life by an evil wizard, a brave knight takes his sword and stabs him in the chest until it dies.
#A brave knight reassassinated the monster king.
A brave knight rekilled the monster king.

b. CONTEXT: A zombie kills itself by jumping off a cliff. After the zombie has come back to life, John takes a gun and shots it in the head, and it immediately dies.
#John remurdered the zombie.
John rekilled the zombie.

c. CONTEXT: A group of zombies are killed by a toxic cloud. After they have come back to life, the citizens use a machine weapon and start shooting at them until they all die.
#The citizens remassacred the zombies.
The citizens rekilled the zombies.

d. CONTEXT: A dragon is killed accidentally by one of its siblings. After the dragon has been reanimated, a witch casts a deadly spell on it causing it to die.
#The witch reslew the dragon.
The witch rekilled the dragon.

e. CONTEXT: A band of monsters are killed accidentally by their leader. After they have come back to life, a raid of wizards and knights fight against them until all the monsters perish.
#A raid of wizards reslaughtered the band of monsters.
A raid of wizards rekilled the band of monsters.

(47) a. CONTEXT: A monster king has been killed accidentally by a brave knight. After the monster has been brought back to life by an evil wizard, the brave knight takes his sword and stabs him in the chest until it dies.
#The brave knight reassassinated the monster king.
The brave knight rekilled the monster king.

b. CONTEXT: A zombie has been killed accidentally by John. After the zombie has come back to life, John takes a gun and shots it in the head, and the zombie immediately dies.
#John remurdered the zombie.
John rekilled the zombie.

c. CONTEXT: A group of zombies have been killed accidentally by some citizens. After they have come back to life, the citizens use a machine weapon and start shooting at them until they all die.
#The citizens remassacred the zombies.
The citizens rekilled the zombies.

d. CONTEXT: A dragon has been killed accidentally by a witch. After the dragon has been reanimated, the witch casts a deadly spell on it causing it to die.
#The witch reslew the dragon.
The witch rekilled the dragon.

e. CONTEXT: A band of monsters have been killed accidentally by a raid of wizards. After they have come back to life, the raid of wizards fight against them until all the monsters perish.
#The raid of wizards reslaughtered the band of monsters.
The raid of wizards rekilled the band of monsters.

As in the case of sublexical modification with *again*, $\sqrt{}$MURDER-type roots thus only allow repetitive presuppositions with *re–* prefixation where intentionality associated with the external argument is also entailed in the previous event. Compare this below.

(48) a. CONTEXT: A monster king has been killed on purpose by a brave knight. After the monster king has been brought back to life by an evil wizard, the brave knight takes his sword and stabs him in the chest until it dies.
The brave knight reassassinated the monster king.

b. CONTEXT: A zombie has been killed intentionally by John. After the zombie has come back to life, John takes a gun and shots it in the head, and it immediately dies.
John remurdered the zombie.

c. CONTEXT: A group of zombies have been killed on purpose by some citizens. After they have come back to life, the citizens use a machine weapon and start shooting at them until they all die.
The citizens remassacred the zombies.

d. CONTEXT: A dragon has been killed intentionally by a witch. After the dragon has been reanimated, the witch casts a deadly spell on it causing it to die.
The witch reslew the dragon.

e. CONTEXT: A band of monsters have been killed on purpose by a raid of wizards. After they have come back to life, the raid of wizards fight against them until all the monsters perish.
The raid of wizards reslaughtered the band of monsters.

In sum, approaches that assume that entailments of change or intentionality are introduced templatically, and not by roots, make some interesting predictions about the architecture of event structure and the nature of root meaning. It has been shown, however, that some predictions turn out to be contrary to fact in some cases, as in the present case for $\sqrt{\text{MURDER}}$-type roots. Such approaches would predict that for $\sqrt{\text{MURDER}}$-type roots a presupposed previous event that excludes intentionality should be possible, yet this is never the case. In other words, if the semantics of the functional heads $\text{Voice}_{\text{AGENT}}$ and v_{DO} are severed from $\sqrt{\text{MURDER}}$-type roots, it is rather mysterious why the readings above in which the intentionality associated with the external argument is not included in *again*'s and *re–* prefixation's presuppositions are not possible, especially in the case of *re–* prefixation, which has been argued to always attach low, i.e., directly to the root. If we assume, on the other hand, that specific classes of roots have more complex meanings than previously thought and in turn introduce templatic notions such as change and intentionality, the mysterious data such as the one above can be then naturally accounted for.

3.3.3 Agent entailments across languages

In this section, I briefly show that the truth-conditional content of $\sqrt{\text{MURDER}}$-type roots, namely that they have intentionality as part of their meaning, in contrast to roots like $\sqrt{\text{KILL}}$, is replicated across languages. This is relevant insofar as recent claims in the literature actually hold that roots are not similar across languages (see Arad, 2003; Anagnostopoulou & Samioti, 2014; Alexiadou & Lohndal, 2017), but instead, as Alexiadou & Lohndal (2017: 85-5) note, "some languages have highly general roots that can appear with a range of different meanings, whereas other languages have roots with severely restricted meanings". I show that the semantic contribution of $\sqrt{\text{MURDER}}$-type roots is not exclusive of English, insofar as the equivalent translations of such roots across different languages show the same entailments when subject to diagnostics such as *again* modification. To this end, I provide crosslinguistic data from Russian, Basque, Hungarian, Dutch, Polish and Romance languages (exemplified by Catalan in the present case) of $\sqrt{\text{KILL}}$ and $\sqrt{\text{MURDER}}$-type roots.

As the data below show, the sublexical modifier *again* of the languages under consideration cannot scope over just the result (i.e., death) to the ex-

clusion of the manner (i.e., intentionality) in the case of √MURDER-type roots. In other words, such data show that even in these languages, entailments of intentionality and the result of death are packaged together in an undecomposable root, insofar as *again* cannot have scope just over the result. Compare this below, where the translation equivalent of the root √KILL of the languages under consideration has also been provided in order to show that in this case, intentionality is not part of the meaning of such a root in these languages either, since *again* allows presuppositions that exclude such an entailment.[9]

Russian

(49) On snova umertvil monstrov.
he again slay.PFV monsters.ACC
"He slew the monsters again."
OK He caused the monsters to become dead by intentionally killing them again.
He caused the monsters to become dead by intentionally killing them again but the last time he killed them by accident/unintentionally.

(50) On snova ubil monstrov.
he again killed.PFV monsters.ACC
"He killed the monsters again."
OK He caused the monsters to become dead by intentionally killing them again.
OK He caused the monsters to become dead by intentionally killing them again but the last time he killed them by accident/unintentionally.

Basque

(51) Anek munstroak berriro akatu zituen.
ane-ERG monsters again murder did

[9] Russian data and judgments provided by Dària Serés, Basque data and judgments provided by Laura Vela-Plo, Hungarian data and judgments provided by Kata Wohlmuth, Dutch data and judgments provided by Isabella Jordanoska, and Polish data and judgments provided by Paulina Lyskawa. I am grateful to them all for their help and judgments.

"Ane murdered the monsters again."
OK Ane caused the monsters to become dead by intentionally killing them again.
Ane caused the monsters to become dead by intentionally killing them again but the last time she killed them by accident/unintentionally.

(52) Anek munstroak berriro hil zituen.
ane-ERG monsters again kill did
"Ane killed the monsters again."
OK Ane caused the monsters to become dead by intentionally killing them again.
OK Ane caused the monsters to become dead by intentionally killing them again but the last time she killed them by accident/unintentionally.

Hungarian

(53) János megint le-mészárolta a szörny-ek-et.
John again PRT-slaughter.PST.3SG the monster-PL-ACC
"John slaughtered the monsters again."
OK John caused the monsters to become dead by intentionally killing them again.
John caused the monsters to become dead by intentionally killing them again but the last time he killed them by accident/unintentionally.

(54) János megint meg-ölte a szörny-ek-et
John again PRT-kill.PST.3SG the monster-PL-ACC
"John killed the monsters again"
OK John caused the monsters to become dead by intentionally killing them again.
OK John caused the monsters to become dead by intentionally killing them again but the last time he killed them by accident/unintentionally.

Dutch

(55) Hij heeft de monsters weer vermoord.
he has def monsters again murder.PTCP

"He has murdered the monsters again."
OK He caused the monsters to become dead by intentionally killing them again.
He caused the monsters to become dead by intentionally killing them again but the last time he killed them by accident/unintentionally.

(56) Hij heeft de monsters weer gedood.
he has def monsters again kill.PTCP
"He has killed the monsters again."
OK He caused the monsters to become dead by intentionally killing them again.
OK He caused the monsters to become dead by intentionally killing them again but the last time he killed them by accident/unintentionally.

Polish

(57) Znowu zamordował potwory.
again murdered monsters
"He murdered (the) monsters again."
OK He caused the monsters to become dead by intentionally killing them again.
He caused the monsters to become dead by intentionally killing them again but the last time he killed them by accident/unintentionally.

(58) Znowu zabił potwory.
again killed monsters
"He killed (the) monsters again."
OK He caused the monsters to become dead by intentionally killing them again.
OK He caused the monsters to become dead by intentionally killing them again but the last time he killed them by accident/unintentionally.

Catalan

(59) En Joan ha assassinat els monstres un altre cop.
the Joan has murdered the monsters an other time

"Joan has murdered the monsters again."
OK Joan caused the monsters to become dead by intentionally killing them again.
Joan caused the monsters to become dead by intentionally killing them again but the last time he killed them by accident/unintentionally.

(60) En Joan ha matat els monstres un altre cop.
the Joan has killed the monsters an other time
"Joan has killed the monsters again."
OK Joan caused the monsters to become dead by intentionally killing them again.
OK Joan caused the monsters to become dead by intentionally killing them again but the last time he killed them by accident/unintentionally.

In short, it seems that √MURDER-type roots show the same behavior across languages, i.e., they have the same truth-conditional content, thus showing that some root meanings can be consistent across different languages.

3.3.4 Interim summary

In this section, I have argued that entailments of change and intentionality associated with the external argument cannot be severed from √MURDER-type roots. By analyzing the adjectives and the nominal variants that are derived from such roots as well as the different kinds of readings available with *again* and *re–* prefixation, I have argued that √MURDER-type roots entail change and intentionality independently of event templates, contra Kratzer (1996) *et seq.* and the Bifurcation Thesis for Roots. Lastly, I have shown that the truth-conditional content of √MURDER-type roots is replicated across languages, thus showing that root meanings can be similar crosslinguistically, contra recent claims in the literature. In the next section, I argue that the distinct semantics of √MURDER-type roots and roots of the √KILL sort has further grammatical consequences insofar as it heavily bears on the type of causation that is allowed by the verbs that are derived from such classes of roots.

3.4 Agent entailments and (in)direct causation

In this section, I contend that the difference in the truth-conditional content of √MURDER-type roots and roots of the √KILL sort has further grammatical consequences, namely for the type of causal relation, whether direct or indirect, that is allowed by the verbs that are derived from such classes of roots.[10] In this respect, I argue that whereas verbs derived from √MURDER-type roots entail direct causation (i.e., they disallow intermediate entities that intervene in the causal chain), verbs derived from roots of the √KILL sort do not (i.e., they allow intermediate entities to intervene). I argue that roots of the √KILL sort are thus unspecified for the type of causal relation they allow, i.e., direct or indirect. I suggest that this follows if √MURDER-type roots require that the state they denote be caused by a specific type of action, i.e., an intentional-type action, whereas roots of the √KILL sort simply require that the state they denote be caused, either directly or indirectly.[11]

3.4.1 Lexical causative verbs and periphrastic causatives

A crucial difference regarding the behavior of so-called lexical causative verbs, e.g., *kill*, *break*, *open*, and periphrastic causatives, e.g., *cause to die*, *cause to break*, *cause to open*, relates to the assumption that the former are argued to entail direct causation, whereas the latter are compatible with either indirect or direct causation.[12] This difference in the type of causal relations allowed by lexical causative verbs and periphrastic causatives has been argued for extensively and is a widely-accepted claim (Fodor, 1970; Katz, 1970; Smith, 1970; Ruwet, 1972; Shibatani, 1976; McCawley, 1978; Pinker, 1989; Levin & Rappaport Hovav, 1995; Bittner, 1999; Wolff, 2003; Rappaport Ho-

[10] This section is a revision and expansion of Ausensi (2020b).

[11] The focus of this section is on (in)direct causation and whether so-called lexical causative verbs do indeed entail direct causation or not. Causation in its general sense is thus not the focus of this section and will not be dealt with here, but see Copley & Martin (2014) for a general overview of causation in both linguistic and philosophical traditions, and more specifically see Copley & Wolff (2014) for a detailed survey of the different theories of causation proposed in the literature.

[12] In the present section, the term *lexical causative verb* is used to refer to result verbs that in their transitive variant have a causative component in their lexical semantics, i.e., *x causes y to break/open/melt* etc.

vav & Levin, 2001, 2012; Rappaport Hovav, 2014b; Levin, 2020; see also Neeleman & Van de Koot, 2012; Ilić, 2014; Ramchand, 2014a; Lyutikova & Tatevosov, 2014; Thomason, 2014; Copley & Wolff, 2014; Martin & Schäfer, 2014; Martin, 2018). Although there are different approaches to the distinction between direct and indirect causal chains, the most widely-assumed definition of direct causation is probably the one proposed by Wolff (2003: 5), which is defined as follows.[13]

> Direct causation is present between the causer and the final causee in a causal chain (1) if there are no intermediate entities at the same level of granularity as either the initial causer or final causee, or (2) if any intermediate entities that are present can be construed as an enabling condition rather than an intervening causer.

In Wolff's (2003: 6) account, an entity qualifies as an intermediary "only if it is fully independent of the causer and causee and is at the same level of granularity as that implied by the causer or causee". In this respect, Wolff (2003: 6) provides the example of a lunar eclipse that can be said to have stopped a concert by having distracted the players. In this scenario, there are many intermediaries present between the causer and the final causee in the causal chain (e.g., seeing the moon and how the musicians stop playing). Yet, Wolff notes that such intermediaries would not qualify as proper intermediaries because they are not of the same level of granularity. Wolff then concludes that despite the fact that there can be many intermediaries in an event of stopping a concert "the prediction is that the overall chain would be construed as involving only a cause and causee, without intermediaries, thus making the causal chain direct". Wolff (2003: 33-4) further illustrates the importance of granularity when considering whether certain intermediaries between the causer and the final causee actually qualify as proper intermediate entities by considering the following examples.

(61) a. William the Conqueror changed the English language (by occupying England in 1066).

[13] Further see Wolff (2003: 3-5), as well as Martin & Schäfer (2014) for a detailed overview of the different definitions of direct causation that have been proposed in the literature and the problems that such theories face.

b. Prince Charles is destroying the monarchy
(with his undignified behavior).
c. The eclipse stopped the concert
(by distracting the players).

The sentences in (61) illustrate cases of direct causation, despite the fact that they may involve many intermediaries between the causer and the final causee. Crucially, though, none of them have the same level of granularity as either the causer or final causee, and therefore the type of causal relation is still direct in Wolff's approach.

Regarding enabling conditions, Wolff (2003: 6) argues that there can be intermediaries between the causer and the final causee if they qualify as enabling conditions, i.e., an intermediary that enables a causer in the sense that "the intermediary does something that is concordant with the tendency of the causer". In this respect, a canonical case of enabling conditions are instruments. Thus, in sentences such as the ones in (62), although the instruments would qualify as intermediate entities between the causer and the final causee, they simply enable the causer to carry out the event, i.e., they do not actually cause the event, and therefore, the type of causation is still direct.

(62) a. John cut the bread with this knife.
(cf. This knife enabled John to cut the bread)
b. The thief killed the robbers with the bomb.
(cf. The bomb enabled the thief to kill the robbers)
c. Tom turned on the TV with the remote control.
(cf. The remote control enabled Tom to turn on the TV)

In short, in Wolff's account, indirect causation necessarily involves an intermediate entity (which is of the same level of granularity and does not qualify as an enabling condition) that intervenes between the causer and the final causee in a causal chain.[14]

In this vein, lexical causative verbs have been argued to disallow intermediate entities, as defined by Wolff, to intervene in the causal chain, i.e., lexical

[14] For further discussion on the notions of enabling conditions and causation, see Wolff (2003, 2007) and Wolff & Song (2003). For further discussion on the concept of granularity of an event, see Croft (1991), Bittner (1999) and Truswell (2011).

causative verbs are argued to disallow indirect causation (see Fodor, 1970; Katz, 1970; Smith, 1970; Ruwet, 1972; Shibatani, 1976; McCawley, 1978; Pinker, 1989; Levin & Rappaport Hovav, 1995; Bittner, 1999; Wolff, 2003; Rappaport Hovav & Levin, 2001, 2012; Rappaport Hovav, 2014b; Levin, 2020). This alleged restriction on lexical causative verbs can be illustrated by the famous example by Katz (1970), provided below (based on Martin, 2018).

(63) CONTEXT: A gunsmith faultily repairs the gun that a sheriff brings him for inspection. The next day, the sheriff's gun jams and he is killed when he tries to defend his town from incoming bandits.

a. The gunsmith caused the sheriff to die.
b. #The gunsmith killed the sheriff.

The example in (63) allegedly shows that lexical causative verbs cannot be used to describe scenarios in which an intermediate entity intervenes between the causer and the final causee, as only periphrastic causatives are allowed. Put differently, in (63) there is a causal chain between the event of faultily repairing the gun by the gunsmith and the sheriff's death, yet this causal relation cannot be described by lexical causative verbs since the gunsmith's faulty repair cannot be interpreted as the immediate cause of such an event, as there is an intermediate entity that actually kills the sheriff, namely the bandits, and therefore only periphrastic causatives are argued to be allowed.

In short, at least since the 1970s, it has been widely accepted that lexical causative verbs entail direct causation, i.e., they disallow intermediate entities to intervene between the causer and final causee in the causal chain, whereas periphrastic causatives are assumed to be unspecified for the type of causal relation allowed, i.e., they are compatible with both direct and indirect causation. In the next section, I briefly summarize two approaches that have recently challenged such a widely-accepted view, namely the approach by Neeleman & Van de Koot (2012) and Martin (2018).

3.4.2 Against the constraint on direct causation

Against the traditional view, Neeleman & Van de Koot (2012) argue that examples like those in (63) do not actually provide evidence that lexical causative verbs are necessarily incompatible with indirect causation, since

the relevant notion in such examples appears to be 'accountability'. In this respect, Neeleman & Van de Koot note that if we control for accountability, i.e., if the referent of the subject can be shown to have the intention to bring about the result state encoded by the lexical causative verb, then lexical causative verbs are indeed compatible with indirect causation. In order to show this, the scenario in (63) needs to be changed so that it explicitly states that the gunsmith has the intention to bring about the death of the sheriff. The example in (64) thus shows that lexical causative verbs are compatible with indirect causation if certain conditions, e.g., accountability, are controlled for.[15]

(64) CONTEXT: A gunsmith faultily repairs the gun that a sheriff brings him for inspection on purpose by intentionally adding dust to it, as the gunsmith knows that the dust will cause the gun to jam. The next day, the sheriff's gun jams and he is killed when he tries to defend his town from incoming bandits.

a. The gunsmith caused the sheriff to die.
b. The gunsmith killed the sheriff.

Neeleman & Van de Koot (2012: 27-8) provide additional examples of lexical causative verbs in which intermediate entities intervene between the causer and final causee, thus providing further evidence in favor of their claim, namely that lexical causative verbs are compatible with indirect causation, contra the traditional view. Compare this in the examples below

[15] Neeleman & Van de Koot (2012: 37) claim that the scenario in (64) can also be described using *murder*. According to them, *murder* thus does not entail direct causation either. If they are right, this would suppose a problem for the present account, insofar as I contend that *murder* verbs do entail direct causation in contrast to *kill*. While I do not share Neeleman & Van de Koot's judgments, I nonetheless acknowledge that for some speakers it is possible to use *murder* to describe scenarios that involve indirect causation. In fn. 15 of Chapter 2, I suggested that speaker variation with *murder* was due to the fact that it has a manner of action that is highly unspecified, and therefore subject to variation. For such speakers, thus, it is possible to use *murder* to express indirect causation, as in (64), and use *murder* in change of state events where the agent can be said to not have moved a muscle, and still has caused the result state. What is crucial, though, is that other *murder* verbs, i.e., *slay*, *massacre* or *slay*, which have more specific manner entailments, are not subject to such a speaker variation insofar as they systematically disallow indirect causation, i.e., they do not allow intermediate entities to intervene in the causal chain, as argued next in §3.4.3.

from Neeleman & Van de Koot (2012: 28), where the possible intermediate entities that intervene in the causal chain are provided.[16]

(65) a. The launch of new iPhone contracts in May has dramatically enlarged T-Mobile's UK market share.
availability of contract → people enter contract → improved market share.

b. As usual, a kind word with the manager opened the door to the Stardust nightclub.
someone speaks to manager → manager speaks to doorman → doorman opens door.

c. Opening bus lanes to motorcycles will redden the streets of London with cyclists' blood.
opening of bus lanes → increase of accidents → cyclists' blood on London streets.

d. A slip of the lip can sink a ship.
loose talk → information obtained by spy → spy informs foreign navy → submarine torpedoes ship.

e. Anglican Church says overpopulation may break eighth commandment.
overpopulation → poverty → theft → theft breaks eighth commandment.

f. A large fleet of fast-charging cars will melt the grid.
many electric cars on roads → many cars charging simultaneously → high electricity demand → heating of electric cables → melting of the grid.

In a similar vein, Martin (2018: 116) (drawing on Danlos, 2001) argues that lexical causative verbs do not entail direct causation, but rather trigger a "defeasible inference", which "is obtained via a Gricean reasoning through the competition of lexical causatives with the corresponding periphrastic

[16] Neeleman & Van de Koot do not consider whether the intermediate entities they suggest are of the same level of granularity than of the initial cause or the final causee, as Wolff (2003) argues. Here, I simply provide their original examples in order to illustrate their claim, but it is possible that some of these intermediate entities are not of the same level of granularity, and therefore do not involve actual cases of intermediate entities, at least according to Wolff (2003).

causatives (e.g., *cause/make*)". More specifically, Martin argues that direct causation is not an entailment of lexical causative verbs, but rather an inference, since as she notes, such an inference is defeasible. In this respect, Martin shows that indirect causation readings of lexical causative verbs such as *destroy* can be facilitated by adverbial expressions like *eventually*, *ultimately* or *at the end of the day*, as well as verbs such as *end up* or *manage*, as illustrated in the following example from Martin (2018: 110).

(66) CONTEXT: The lighthouse was built on a very sturdy foundation, designed to withstand high winds at the tower top, but the foundation sustained structural damage in an earthquake about ten years ago. Even that would have been fine, but this year, we had record-setting winds and the worst hurricane season anyone can remember, and given the prior damage, it could not take the extra strain provoked by the storms.

a. #The earthquake destroyed the lighthouse.
b. Ultimately, this earthquake destroyed the lighthouse!
c. And this earthquake eventually destroyed the lighthouse!

Similarly, Martin (2018: 111) notes that the original example by Katz (1970) in (63), repeated below as (67), drastically improves when the indirect reading is facilitated, strongly suggesting that direct causation is not an entailment of lexical causative verbs.[17]

(67) CONTEXT: A gunsmith faultily repairs the gun that a sheriff brings him for inspection. The next day, the sheriff's gun jams and he is killed when he tries to defend his town from incoming bandits.

a. #The gunsmith killed the sheriff.
b. At the end of the day, the gunsmith ended up killing the sheriff!
c. Ultimately, the gunsmith killed the sheriff!

In short, lexical causative verbs do not appear to entail direct causation,

[17] It is important to point out that in such an example, *kill* can be used to express indirect causation despite the fact that the gunsmith does not intend the sheriff to die, i.e., there is no 'accountability'.

contra the traditional view. As Neeleman & Van de Koot (2012) and Martin (2018) convincingly show, lexical causative verbs are indeed compatible with indirect causation when certain conditions are controlled for, thus showing that it is not an entailment of lexical causative verbs, but rather a (strong) defeasible inference. Evidence for this comes from the fact that indirect causation readings of lexical causative verbs are in fact possible, especially when they are facilitated by adverbial expressions such as *ultimately* or verbs like *manage*.

3.4.3 Two classes of lexical causative verbs

In this section, drawing on Neeleman & Van de Koot (2012) and Martin (2018), I argue that lexical causative verbs do not constitute a uniform class since only one class of lexical causative verbs actually entail direct causation. In this respect, I argue that the lexical causative verbs that fall under the classification of result verbs by Rappaport Hovav & Levin (2010), e.g., *break*, *kill*, *open*, entail causation, but not direct causation and therefore allow intermediate entities to intervene between the initial cause and final causee. I thus follow Martin (2018) in arguing that direct causation in lexical causative verbs is a (strong) inference, but not an entailment of this class of lexical causative verbs.

However, I depart from Neeleman & Van de Koot (2012) and Martin (2018) in arguing that lexical causative verbs that encode both a manner of action and a result state, i.e., manner-result encoding verbs, do entail direct causation, and therefore disallow intermediate entities. In order to make my case, I focus on what I have called *murder* verbs in Chapter 2. Recall that *murder* verbs encode a manner of action that brings about the result state of death of the patient, in contrast to *kill*, which only encodes a result state. I propose then that entailing direct causation is contingent on encoding a manner of action and a result state, which follows if lexical causative verbs of the *murder* sort not only encode a result state, but also a manner of action, i.e., a specific action that brings about the result state. I note that if this is correct, then we can account for the fact that lexical causative verbs of the *kill* sort do indeed permit intermediate entities, whereas lexical causative verbs of the *murder* sort do not, thus showing that lexical causative verbs are not a uniform class but instead constitute two subtypes depending on the causal relation entailed.

Before analyzing *murder* verbs and verbs of killing of the *kill* sort in the context of (in)direct causation, it is worth pointing out that the examples that Neeleman & Van de Koot (2012) provide of lexical causative verbs expressing indirect causation in (65), repeated below as (68), are all cases of canonical result verbs according to the classification by Rappaport Hovav & Levin (2010), e.g., *enlarge, open, redden* etc.

(68) a. The launch of new iPhone contracts in May has dramatically enlarged T-Mobile's UK market share.
availability of contract → people enter contract → improved market share.

b. As usual, a kind word with the manager opened the door to the Stardust nightclub.
someone speaks to manager → manager speaks to doorman → doorman opens door.

c. Opening bus lanes to motorcycles will redden the streets of London with cyclists' blood.
opening of bus lanes → increase of accidents → cyclists' blood on London streets.

d. A slip of the lip can sink a ship.
loose talk → information obtained by spy → spy informs foreign navy → submarine torpedoes ship.

e. Anglican Church says overpopulation may break eighth commandment.
overpopulation → poverty → theft → theft breaks eighth commandment.

f. A large fleet of fast-charging cars will melt the grid.
many electric cars on roads → many cars charging simultaneously → high electricity demand → heating of electric cables → melting of the grid.

Similarly, the examples Martin (2018) provides of lexical causative verbs expressing indirect readings are also cases of canonical result verbs, e.g., *kill* as in (67) or *destroy* as in (66). This is predicted by the present account, insofar as I argue that only manner-result encoding verbs entail direct causation, whereas result verbs are unspecified for the type of causal relation.

In this respect, I note that *murder* verbs, i.e., manner-result encoding verbs, do entail direct causation, as they are not compatible with indirect

causation even if the indirect causation reading is facilitated (cf., Martin, 2018). Thus, *murder* verbs systematically disallow intermediate entities that intervene between the initial cause and the final causee, contra Neeleman & Van de Koot (2012) and Martin (2018). This is illustrated below, where indirect causation readings have been facilitated, following Martin (2018), and *murder* verbs are nonetheless not acceptable.

(69) CONTEXT: John's friend, Tom, works as a bodyguard for a certain President. For some reason, John wants that President dead, so he then adds dust to Tom's gun, the President's bodyguard. The next day, there is a terrorist attack, Tom's gun jams at a critical moment and the President is assassinated by some terrorists.

a. #John eventually managed to murder the President!
b. #John eventually managed to assassinate the President!
c. #John eventually managed to slay the President!
d. #At the end of the day, John ended up murdering the President!
e. #At the end of the day, John ended up assassinating the President!
f. #At the end of the day, John ended up slaying the President!

(70) CONTEXT: John wants all the citizens of a certain city dead. He then tampers with the city's defense system, as he knows it will leave the city vulnerable. The next day, there is a terrorist attack, the city's defense system malfunctions and all the citizens are killed.

a. #John eventually managed to massacre all the citizens!
b. #John eventually managed to slaughter all the citizens!
c. #At the end of the day, John ended up massacring all the citizens!
d. #At the end of the day, John ended up slaughtering all the citizens!

Martin (2018: 110) further notes that indirect readings of lexical causative verbs are also facilitated in contexts where the change of state encoded by the lexical causative verb is not at issue. This can be expressed, for instance, by means of clefting, since, in this case "what is under issue is the responsibility of the subject's referent, and/or what the ultimate causing event is". As shown below, *murder* verbs are further incompatible with indirect causation readings even in these contexts.

(71) CONTEXT: John's friend, Tom, works as a bodyguard for a certain President. For some reason, John wants that President dead, so he then adds dust to Tom's gun, the President's bodyguard. The next day, there is a terrorist attack, Tom's gun jams at a critical moment and the President is assassinated by some terrorists.

a. #Ultimately, it was John that murdered the President!
b. #Ultimately, it was John that assassinated the President!
c. #Ultimately, it was John that slew the President!

(72) CONTEXT: John wants all the citizens of a certain city dead. He then tampers with the city's defense system, as he knows it will leave the city vulnerable. The next day, there is a terrorist attack, the city's defense system malfunctions and all the citizens are killed.

a. #Ultimately, it was John that massacred all the citizens!
b. #Ultimately, it was John that slaughtered all the citizens!

Crucially, *murder* verbs contrast with *kill*, which encodes just a result state, but not any manner of action, and is therefore compatible with indirect causation, contra the traditional view. This is illustrated below, where indirect readings have been facilitated.

(73) CONTEXT: John's friend, Tom, works as a bodyguard for a certain President. For some reason, John wants that President dead, so he then adds dust to Tom's gun, the President's bodyguard. The next day, there is a terrorist attack, Tom's gun jams at a critical moment and the President is assassinated by some terrorists.

a. John eventually managed to kill the President!
b. Ultimately, it was John that killed the President!
c. At the end of the day, John ended up killing the President!

(74) CONTEXT: John wants all the citizens of a certain city dead. He then tampers with the city's defense system, as he knows it will leave the city vulnerable. The next day, there is a terrorist attack, the city's defense system malfunctions and all the citizens are killed.

a. John eventually managed to kill all the citizens!
b. Ultimately, it was John that killed all the citizens!
c. At the end of the day, John ended up killing all the citizens!

It is crucial to note that such intermediate entities in these scenarios do not

constitute what Wolff (2003) calls enabling conditions. If this were the case, such examples would not actually show that lexical causatives of the *kill* sort are compatible with indirect causation. To this end, I make use of the only diagnostic Wolff proposes to tell whether an intermediate entity is actually an enabling condition or not, namely the *x enabled y to do z* diagnostic, as previously shown in (62). As illustrated below, such intermediate entities do not constitute enabling conditions according to the definition by Wolff, therefore showing that such scenarios involve actual cases of indirect causation.

(75) CONTEXT: John's friend, Tom, works as a bodyguard for a certain President. For some reason, John wants that President dead, so he then adds dust to Tom's gun, the President's bodyguard. The next day, there is a terrorist attack, Tom's gun jams at a critical moment and the President is assassinated by some terrorists.

a. John eventually managed to kill the President!
b. ≠ The terrorists enabled John to kill the President.

(76) CONTEXT: John wants all the citizens of a certain city dead. He then tampers with the city's defense system, as he knows it will leave the city vulnerable. The next day, there is a terrorist attack, the city's defense system malfunctions and all the citizens are killed.

a. John eventually managed to kill all the citizens!
b. ≠ The terrorists enabled John to kill the citizens.

Canonical result verbs such as *kill* do not entail direct causation, but simply causation, in the sense that the state they encode must be simply caused, yet not necessarily directly. Manner-result verbs, on the other hand, necessarily entail direct causation since the state they encode must be caused by a specific type of action. Thus, I suggest that the difference between the two classes of lexical causative verbs result from the different semantics of the roots from which those lexical causative verbs are derived, repeated below (the denotation of $\sqrt{\text{MURDER}}$-type roots is to be revised in §3.5).

(77) a. $[\![\sqrt{\text{MURDER}}\text{-type}]\!] = \lambda x \lambda s[\textit{dead'}(x, s) \wedge \exists e' \exists v[\textit{cause'}(v, e') \wedge \textit{become'}(e', s) \wedge \forall v'[\textit{cause'}(v', e') \rightarrow \textit{intentional'}(v')]]]$

b. $[\![\sqrt{\text{KILL}}]\!] = \lambda x \lambda s[\textit{dead'}(x, s) \wedge \exists e' \exists v[\textit{cause'}(v, e') \wedge \textit{become'}(e', s)]]$

As argued in §3.3, the roots of lexical causative verbs of the *kill* sort only

require that the state they encode be caused (either directly or indirectly), whether the roots of lexical causative verbs of the *murder* sort require that the state they encode be caused by a specific type of action, i.e., an intentional-type action.

In short, I propose that lexical causative verbs that are derived from roots that denote states, but crucially impose manner restrictions on how such states are caused necessarily entail direct causation. Further evidence for this claim comes from *manner-of-killing* verbs by Beavers & Koontz-Garboden (2012), which recall, as discussed in Chapter 2, are argued to encode a manner of action that gives rise to a result state, presumably death. As shown below, such verbs seem to entail direct causation as well, insofar as they disallow indirect causation readings even in contexts that facilitate them.

(78) CONTEXT: John wants a prisoner dead, so he sets up an electric chair just for that prisoner and keeps a remote control that can ultimately stop electrocution. His friend, Tom, takes the prisoner and sits him down on the chair and turns on the electric chair immediately killing the prisoner, as John did not stop it.

a. #John eventually managed to electrocute the prisoner!
b. #Ultimately, it was John that electrocuted the prisoner!
c. #At the end of the day, John ended up electrocuting the prisoner!

(79) CONTEXT: John wants a prisoner dead, so he sets up a guillotine just for that prisoner and keeps a remote control that can ultimately stop the guillotining by preventing the blade from being released. His friend, Tom, takes the prisoner and puts his head on the guillotine and then releases the blade immediately killing the prisoner, as John did not stop it.

a. #John eventually managed to guillotine the prisoner!
b. #Ultimately, it was John that guillotined the prisoner!
c. #At the end of the day, John ended up guillotining the prisoner!

In contrast, the same scenarios can indeed be described using *kill*, therefore showing that such a verb only entails causation, in contrast to *manner-of-killing* verbs. Compare this below.

(80) CONTEXT: John wants a prisoner dead, so he sets up an electric

chair just for that prisoner and keeps a remote control that can ultimately stop electrocution. His friend, Tom, takes the prisoner and sits him down on the chair and turns on the electric chair immediately killing the prisoner, as John did not stop it.

a. John eventually managed to kill the prisoner!
b. Ultimately, it was John that killed the prisoner!
c. At the end of the day, John ended up killing the prisoner!

(81) CONTEXT: John wants a prisoner dead, so he sets up a guillotine just for that prisoner and keeps a remote control that can ultimately stop the guillotining by stopping the blade. His friend, Tom, takes the prisoner and puts his head on the guillotine and then releases the blade immediately killing the prisoner, as John did not stop it.

a. John eventually managed to kill the prisoner!
b. Ultimately, it was John that killed the prisoner!
c. At the end of the day, John ended up killing the prisoner!

This different behavior of *manner-of-killing* verbs and *kill* is expected under the present account, insofar as the roots of *manner-of-killing* verbs also restrict the cause that can bring about the state they encode, e.g., it must be a guillotining-type of action in the case of $\sqrt{\text{GUILLOTINE}}$, as illustrated below (from Beavers & Koontz-Garboden, 2020: 201).

(82) $[\![\sqrt{\text{GUILLOTINE}}]\!] = \lambda x \lambda s[\textit{dead'}(x, s) \wedge \exists e' \exists v[\textit{cause'}(v, e') \wedge \textit{become'}(e', s) \wedge \forall v'[\textit{cause'}(v', e') \rightarrow \textit{guillotining'}(v')]]]$

Concomitantly, it is worth pointing out that the causal relation in resultative constructions such as *hammer the metal flat*, in which the manner of action encoded by the verb brings about the state denoted by the result phrase, has been argued to be direct as well. Namely, resultative constructions have been argued to pattern with lexical causatives in disallowing intermediate entities that intervene between the initial cause and the final causee (Dowty, 1979; Jackendoff, 1990; Pustejovsky, 1991; Carrier & Randall, 1992; Goldberg, 1995; Rappaport Hovav & Levin, 1998, 2001; Bittner, 1999; Levin & Rappaport Hovav, 1999; Kratzer, 2005; Levin, 2020). In this respect, Levin (2020) has recently argued that resultative constructions as those depicted below require that the causal relation be 'tight', i.e., direct. Compare this below (examples from Levin, 2020).

(83) a. John kicked the door open.
OK John's foot makes contact with the door causing it to open.
John kicked a ball which hits the door causing it to open.
b. John pushed the door open.
OK John pushed on the door causing it to open.
John pushes a button which sets a mechanism in operation that opens the door.

The fact that resultative constructions are argued to entail direct causation can be captured by the present account since intermediate entities are argued to be disallowed in causal relations where a result state is brought about by a specific manner of action (i.e., cause the door to become open (= result) by means of kicking or pushing (= manner) in (83)). Thus, whereas in resultative constructions there are two different predicates that contribute a manner and a result respectively (cf. §2.4.4 of Chapter 2), in manner-result encoding verbs the manner and the result are contributed by a single predicate, and are therefore expected to disallow intermediate entities as well.

In short, in this section I have argued that lexical causative verbs encoding just a result state are in fact unspecified for the type of causation allowed, therefore being compatible with indirect causation, especially when such a reading is facilitated, contra the traditional view. In contrast, lexical causative verbs encoding a manner of action that gives rise to a result state entail direct causation, contra Neeleman & Van de Koot (2012) and Martin (2018). I have thus shown that lexical causative verbs are not a uniform class according to the type of causal relation they allow. By doing so, I have provided novel evidence that further supports the existence of the manner-result verb class, insofar as canonical result verbs and manner-result encoding verbs further differ in the type of causation entailed.

3.5 Unsevering the external argument

I finish the present chapter by arguing that $\sqrt{\text{MURDER}}$-type roots do not only entail intentionality associated with the external argument, but must also represent the agent argument in their lexical semantics.[18] The main piece

[18] The material in this section has appeared in the *Proceedings of the Linguistic Society of America* 5(1) as Ausensi et al. (2020).

of evidence in favor of such a claim comes from sublexical modification with *again* and the kinds of repetitive presuppositions available with different classes of roots. More specifically, the point of departure is what Bale (2007) calls *subjectless presuppositions*, namely repetitive presuppositions in which the presupposed previous event need not have been carried out by the same agent argument than the asserted event. Following Ausensi et al. (2020), I show that *again* yields different repetitive presuppositions depending on whether the root actually represents the agent argument internally within its lexical semantics. Namely, √MURDER-type roots systematically disallow subjectless presuppositions, in contrast to roots of the √KILL type, which freely allow them, strongly suggesting that, at least for some classes of roots, the agent argument needs to be represented in their truth-conditional content, contra Kratzer (1996) *et seq*.

3.5.1 Subjectless presuppositions

Bale (2007) argues in favor of a more nuanced view regarding the introduction of the external argument. To this end, Bale differentiates between nonstative transitive verbs such as *hit* and stative transitive verbs such as *love*, and argues that only in the former class of verbs the external argument is introduced externally to the verb, i.e., by a projection such as Voice. Bale bases his analysis on what he calls *subjectless presuppositions*, i.e., a type of repetitive presuppositions in which the presupposed previous event is of the same type but the agent argument can be different than that of the asserted event, as illustrated by the examples below (from Bale, 2007: 464).

(84) CONTEXT: Seymour's dryer broke. He called a repairwoman who simply hit the dryer until it started working. The dryer broke down two days later. So ...

a. Seymour hit the dryer again.
b. #Again Seymour hit the dryer.
c. The dryer was hit again.

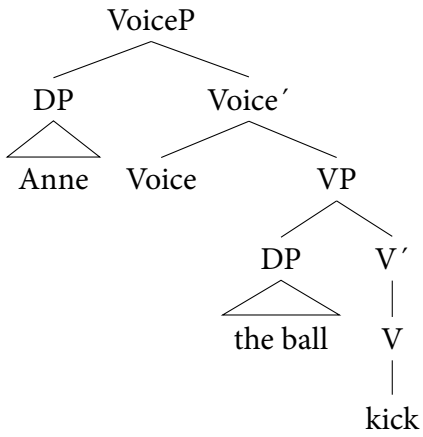
(85) CONTEXT: Brendan kicked the soccer ball towards the net, but it didn't quite make it. So ...

a. Anne kicked it again.
b. #Again Anne kicked it.
c. It was kicked again.

When *again* is placed in sentence initial, as in the (b) examples, it necessarily attaches to the Voice projection, and therefore the context needs to involve the same agent in the asserted and previous events in order to satisfy *again*'s presupposition, hence their infelicity. The (a) and (c) examples, on the other hand, are felicitous in these contexts strongly suggesting that there is a constituent for *again* to attach to before it combines with the Voice projection and therefore the asserted and previous events need not contain the same agent argument (Ausensi et al., 2020: 7).

The availability of subjectless pressuppositions in the case of nonstative transitive verbs like *kick* is predicted by Kratzer (1996), insofar as *again* can attach to the VP below the Voice projection introducing the external argument, and therefore the presupposition only makes reference to the event denoted by the verb and the internal argument (cf. (86)). This predicts that a prior event with a distinct agent argument is possible, as in (84) and (85).

(86) Anne kicked the ball. (based on Alexiadou et al., 2015: 7)



Bale, however, notes that stative transitive verbs like *love* and *hate* and intransitive verbs like *run* and *arrive* do not permit subjectless presuppositions. This is rather unexpected if the external argument in both verb classes is introduced externally, as Kratzer's approach would suggest. Compare this below (examples from Bale, 2007: 469, 471).

(87) CONTEXT: Seymour's mother loved Frank although she was the only one who did. After a while she no longer cared for Frank. However, Seymour became attached to the man, and developed strong feel-

ings for him after his mother's love subsided. So ...

a. #Seymour loved Frank again.
b. Frank was loved again.
c. #Again Seymour loved Frank.

(88) CONTEXT: Seymour's sister hated George. But she seemed to be the only one who did. After a while George worked his charm on her and the hatred subsided. After a few months, Seymour realized that George's charm was all an act. Underneath, he was pure evil. So ...

a. #Seymour hated George again.
b. George was hated again.
c. #Again Seymour hated George.

(89) CONTEXT: Last week, Jon's wife ran all morning. Then after she got home, Jon was able to do some exercise. So ...

a. #Jon ran again.
b. #Again Jon ran.

(90) CONTEXT: Seymour's wife was the first person ever to arrive at the new airport. Then a week later ...

a. #Seymour arrived again.
b. #Again Seymour arrived.

Bale thus concludes that nonstative transitive verbs give rise to subjectless presuppositions insofar as there is a position to which *again* can attach that crucially excludes the external argument. Stative transitive and intransitive verbs, on the other hand, do not appear to have such a position, and therefore the VP *again* attaches to must contain both the verb and the internal argument as well as the external argument, and therefore will not give rise to subjectless presuppositions.

In terms of semantic types, these facts suggest that nonstative transitive verbs, e.g., *hit*, are functions from individuals to predicates of events and the external argument is introduced externally, whereas stative transitive verbs, e.g., *love*, are functions from individuals to individuals to predicates of events, taking both the internal and external arguments as semantic arguments. Lastly, intransitive verbs, e.g., *run*, are functions from individuals to predicates of events, and take their unique internal or external argument as semantic arguments, as illustrated below (from Ausensi et al., 2020: 86).

(91) a. $[\![\sqrt{\text{HIT}}]\!] = \lambda x \lambda e.\text{HIT}(e) \wedge \text{THEME}(e) = x$
b. $[\![\sqrt{\text{LOVE}}]\!] = \lambda y \lambda x \lambda e.\text{LOVE}(e) \wedge \text{EXPERIENCER}(e) = x \wedge \text{THEME}(e) = y$
c. $[\![\sqrt{\text{RUN}}]\!] = \lambda x \lambda e.\text{RUN}(e) \wedge \text{AGENT}(e) = x$

3.5.2 Agents in the semantics of roots

In the previous section, I briefly summarized Bale's proposal regarding the fact that nonstative transitive verbs associate with the external argument differently from stative transitive and intransitive verbs. Here, I contend that nonstative transitive verbs do not constitute a uniform class with regard to how they associate with the external argument. Namely, although Bale argues that nonstative transitive verbs associate with the external argument externally, as per Kratzer (1996), therefore allowing subjectless presuppositions, there is a class of nonstative verbal roots, namely what I have called $\sqrt{\text{MURDER}}$-type roots, that associate with the external argument internally instead of externally.[19]

The first piece of evidence for the fact that $\sqrt{\text{MURDER}}$-type roots, in contrast to roots of the $\sqrt{\text{KILL}}$ sort, associate with the external argument internally rather than externally, comes from the fact that only roots of the $\sqrt{\text{KILL}}$ sort allow for their external argument to be inanimate, as well as unintentional causers (cf., *John unintentionally/The bomb killed the zombies*) whereas $\sqrt{\text{MURDER}}$-type roots disallow them (cf., *#John unintentionally/#The bomb murdered the zombies*), as discussed in detail in Chapter 2. The account by Kratzer (1996) explains the lack of semantic restrictions on the external argument in the case of roots of the $\sqrt{\text{KILL}}$ sort, insofar as the external argument is introduced externally and therefore the verb cannot impose semantic restrictions on it. Yet, Kratzer's approach leaves unexplained the facts about $\sqrt{\text{MURDER}}$-type roots, as they impose semantic requirements on the external argument (as observed by Folli & Harley, 2005 and Alexiadou et al., 2015).

Concomitantly, as discussed in detail in §2.4.4 of Chapter 2 and §3.3.2, roots of the $\sqrt{\text{KILL}}$ sort allow repetitive presuppositions where the presup-

[19] Further see Smith & Yu (submitted) for the claim that even intransitive verbs do not appear to constitute a uniform class with regard to how they associate with the external argument.

posed prior event need not have been carried out intentionally. Namely, such a class of roots allow repetitive readings where the prior event can be brought about unintentionally, accidentally or by inanimate causers, whereas √MURDER-type roots systematically disallow this type of repetitive presuppositions. Further compare this distinct behavior of these root classes with regard to *again* modification in the examples below, adapted from Ausensi et al. (2020: 87) (but see §3.3.2 for a complete account of this phenomenon).

(92) Noah killed the monsters again.

a. OK He caused the monsters to become dead by intentionally killing them again.
b. OK He caused the monsters to become dead by intentionally killing them again but last time they were killed unintentionally/by accident.
c. OK He caused the monsters to become dead by intentionally killing them again but last time they were killed by the bomb/by the explosion/by the gun.
d. OK He caused the monsters to become dead by intentionally killing them again but last time they killed themselves by jumping off a cliff.

(93) Noah murdered/slaughtered/slew/massacred the monsters again.

a. OK He caused the monsters to become dead by intentionally killing them again.
b. # He caused the monsters to become dead by intentionally killing them again but last time they were killed unintentionally/by accident.
c. # He caused the monsters to become dead by intentionally killing them again but last time they were killed by the bomb/by the explosion/by the gun.
d. # He caused the monsters to become dead by intentionally killing them again but last time they killed themselves by jumping off a cliff.

As discussed in detail in §2.4.4 of Chapter 2 and §3.3.2, such contrasts strongly suggest that entailments of intentionality must be encoded within √MURDER-type roots, but not within roots of the √KILL sort, insofar as repetitive presuppositions with *again* can exclude entailments of intentionality only in the

latter class of roots, but not in the former.

The second piece of evidence, but crucially the most important one, comes from subjectless presuppositions. Namely, the contrast between nonstative transitive and stative transitive and intransitive verbs (namely that only the former allow subjectless presuppositions) also holds for √MURDER-type and √KILL-type roots, i.e., while verbs derived from these root classes are nonstative transitive verbs, only √KILL-type roots allow subjectless presuppositions, whereas √MURDER-type roots systematically reject them. This strongly suggests that such classes of roots associate with the external argument rather differently. According to Bale (2007), as well as Kratzer (1996), both classes of verbs derived from these roots are nonstative transitive verbs and are therefore expected to allow subjectless presuppositions, since they should contain a position where *again* can attach to that excludes the external argument. Yet, this only holds for √KILL-type roots. Compare this below.

(94) a. CONTEXT: In a Hollywood monster movie, Seymour's father killed the zombie. But, being a Hollywood movie, of course it came back to life. But in the end ...
Seymour killed the zombie again.
Seymour's father killed the zombie again.

b. CONTEXT: In a Hollywood monster movie, Seymour's father murdered/slew the zombie. But, being a Hollywood movie, of course it came back to life. But in the end ...
#Seymour murdered/slew the zombie again.
Seymour's father murdered/slew the zombie again.

(95) a. CONTEXT: In a Hollywood monster movie, Seymour's father killed the zombies. But, being a Hollywood movie, of course they came back to life. But in the end ...
Seymour killed the zombies again.
Seymour's father killed the zombies again.

b. CONTEXT: In a Hollywood monster movie, Seymour's father massacred/slaughtered the zombies. But, being a Hollywood movie, of course they came back to life. But in the end ...
#Seymour massacred/slaughtered the zombies again.
Seymour's father massacred/slaughtered the zombies again.

The availability of subjectless presuppositions for √KILL-type roots is predicted by Kratzer and Bale, insofar as *again* attaches to the VP before combining with the Voice head that introduces the external argument. The fact that √MURDER-type roots disallow subjectless presuppositions is rather unexpected insofar as the same attachment site of *again*, excluding the external argument, should also be available for √MURDER-type roots, insofar as verbs derived from this class of roots are nonstative transitive verbs, just like *kill*.

In short, √MURDER-type roots entail intentionality associated with the external argument, but crucially also require representation of the agent argument in their lexical semantics. An important caveat, however, is in place before proceeding any further. While √MURDER-type roots entail intentionality associated with the external argument, such an entailment only seems to apply to the intention of the agent when bringing about the event of killing. In other words, although √MURDER-type roots entail that the agent argument has the intention to bring about the event denoted by the root, the entity that eventually holds the result state of death need not be the same as the entity intended by the agent. This is illustrated in the following example where the entity denoted by the subject had the intention of killing some monsters, but ended up killing some other entities instead.

(96) CONTEXT: Noah wanted to kill the monsters using a bow and arrow. But he's such a bad shot that he shot the arrow at the humans instead of the monsters. So ...
Noah murdered the humans instead.

In light of the data such as the above and the contrasts regarding the availability of subjectless presuppositions, the semantic denotation for √MURDER-type roots needs to be revised. I follow Ausensi et al. (2020: 90) in assuming that √MURDER-type roots represent the agent argument and, crucially, the entailment of intentionality is encoded as a modal relation between an entity and a proposition such that for all worlds compatible with the entity's intentions, the entity is the causer of the causing event resulting in a result state of death. A revised denotation for √MURDER-type roots is given below, where world variables have been omitted for clarity reasons.

(97) $[\![\sqrt{\text{MURDER-type}}]\!] = \lambda x \lambda y \lambda s[\textit{dead}(x, s) \wedge \exists e \exists e'[\textit{cause'}(e, e') \wedge \textit{become'}(e', s) \wedge \forall v[\textit{cause}(v, e') \rightarrow \textit{causer}(y, v) \wedge \exists z[\textit{intend}(y)(\textit{cause}(v, v') \wedge \textit{become'}(v', s') \wedge \textit{dead}(z, s')]]]]$

The crucial difference between √MURDER-type and √KILL-type roots, whose semantic denotation is repeated below, relates to the fact that only √MURDER-type roots represent the agent argument, as well as a modal *intend* relation. Such a modal relation has a result state that is predicated of an existentially quantified entity, yet it may be distinct from the entity in the world of evaluation, thus accounting for examples such as those in (96). In other words, the modal *intend* relation captures the fact that the actual entity that dies as a result of an event of the *murdering* type may not actually be the entity that the agent argument initially intended to kill.

(98) $[\![\sqrt{\text{KILL}}]\!] = \lambda x \lambda s[dead'(x, s) \wedge \exists e' \exists v[cause'(v, e') \wedge become'(e', s)]]$

Such a crucial difference in the lexical semantic representation of √KILL-type and √MURDER-type roots straightforwardly accounts for the difference in the types of repetitive presuppositions as well as entailments of intentionality. In the case of √KILL-type roots, *again* can attach after the root has combined with the entity that the state of being dead is predicated of. Insofar as √KILL-type roots do not entail intentionality or represent the agent argument, there is not an intentionality requirement and, crucially, the agent argument need not be the same. On the other hand, √MURDER-type roots only combine with *again* when both the entity that the state of being dead is predicated of as well as the entity that causes such a state have combined with the root. In addition, insofar as the constituent that *again* attaches to contains the modal *intend* relation, the presupposed previous event will therefore have been caused by the same entity as the asserted event, and such an entity will have intended to cause the presupposed previous event.[20]

[20] See Ausensi et al. (2021) as well as Chapter 6 for how the class of √MURDER roots are to be treated in the syntax, i.e., whether external arguments are nonetheless introduced templatically in the syntax by projections such as Voice even if the root requires the representation of the agent argument in their lexical entries. Roughly put, Ausensi et al. (2021) propose that in the case of √MURDER-type roots, functional heads like *v* and Voice are to be interpreted expletively insofar as the meaning for the entire structure is provided solely by the root. See Chapter 6 and Ausensi et al. (2021) for details.

3.5.3 Towards a typology of roots

In this section, I briefly discuss other types of roots that have been argued to restrict the type of cause to a specific type, as well as roots that also entail intentionality, in order to analyze whether the requirement of representing the agent argument in the lexical entries of some roots correlates with either entailing intentionality or restricting the type of cause to a specific type of action.

The first class of roots to consider in this respect involves what Beavers & Koontz-Garboden (2012) call *manner-of-killing* verbs, i.e., *guillotine*, *electrocute*, *hang*, *drown* and *crucify*. The roots of *manner-of-killing* verbs are similar to the roots of *murder* verbs in requiring that the cause that brings about the state the root denotes must be of a certain type, e.g., of a guillotining-type action. Consider the denotation Beavers & Koontz-Garboden give for the roots of *manner-of-killing* verbs, repeated below.

(99) $[\![\sqrt{\text{GUILLOTINE}}]\!] = \lambda x \lambda s[\mathit{dead}'(x, s) \wedge \exists e' \exists v[\mathit{cause}'(v, e') \wedge \mathit{become}'(e', s) \wedge \forall v'[\mathit{cause}'(v', e') \rightarrow \mathit{guillotining}'(v')]]]$

The roots of *manner-of-killing* verbs predicate a state of a unique argument but require that such a state must be caused, and that such a cause must be of a certain type, e.g., of a guillotining-type action. Such a semantic denotation does not represent the agent argument, but simply requires that the state the root denotes be caused by a guillotining-type action. Thus, the roots of *manner-of-killing* verbs should allow subjectless presuppositions and only require that the presupposed previous event be of the same kind as the asserted one, e.g., of a guillotining type. Insofar as such roots do not entail intentionality either, they should not require that the previous event is carried out intentionally, and therefore are expected to give rise to repetitive presuppositions with *again* that exclude intentionality associated with the external argument. As illustrated by the examples below, all these predictions appear to be borne out.

(100) a. CONTEXT: John guillotined the zombie. The zombie came back to life and reattached its head. So ...
Mary guillotined the zombie again.

b. CONTEXT: The zombie was guillotined by the blade by accident. It came back to life and reattached its head. So ...

Mary guillotined the zombie again.

c. CONTEXT: Mary hanged the zombie to escape from it. It came back to life after it was released from the rope. So ...
#Mary guillotined the zombie again.

(101) a. CONTEXT: John drowned the zombie. The zombie came back to life after a few minutes. So ...
Mary drowned the zombie again.

b. CONTEXT: The zombie was drowned by the waters. It came back to life after a few minutes. So ...
Mary drowned it again.

c. CONTEXT: Mary hanged the zombie to escape from it. It came back to life after it was released from the rope. So ...
#Mary drowned the zombie again.

Another class that is worth considering involves the roots of what I called *manner-of-stealing* verbs in Chapter 2. As I argued in detail in §2.4.3, such a class of verbs entail intentionality, yet they allow subjectless presuppositions, as illustrated in (102).

(102) a. CONTEXT: John mugged Tim in the park. Tim kept walking, and ...
Mary mugged him again.

b. CONTEXT: John robbed Tim in the park. Tim kept walking, and ...
Mary robbed him again.

The availability of subjectless presuppositions with the roots of *manner-of-stealing* verbs shows that this class of roots does not represent the agent argument internally, despite entailing intentionality. This strongly suggests then that entailing intentionality does not correlate with representing the external argument internally.

In short, in this section I have argued that certain classes of roots associate with the external argument differently. As it has been discussed, only $\sqrt{\text{MURDER}}$-type roots require the representation of the agent argument in their lexical entry and therefore associate with the external argument internally, rather than externally. Such a class of roots thus contrasts with the roots of *manner-of-stealing* verbs in that they do not represent the agent argument in their lexical entries, despite entailing intentionality associated

with the external argument. Similarly, the roots of *manner-of-killing* verbs do not entail intentionality associated with the external argument or represent the agent argument in their lexical entries, despite requiring that the cause that brings about the state the root denotes must be of a certain type. Last, the roots of verbs of killing of the √KILL sort do not entail intentionality, represent the agent argument in their lexical entry or impose semantic restrictions on the type of cause that can bring about the state the root names. Thus, this shows that it is possible to isolate distinct root classes depending on the parameters of representing the agent argument in the lexical entry of the root and entailing intentionality.

3.6 Conclusion

In the present chapter, I have argued that √MURDER-type roots come with entailments of change and intentionality, i.e., they comprise as part of their truth-conditional content meanings that under theories of event structure are argued to be introduced templatically by projections such as Voice or little *v*.

By making use of sublexical modification with *again* and *re–* prefixation, I have shown that √MURDER-type roots systematically disallow restitutive readings, as well as repetitive presuppositions that exclude intentionality associated with the external argument. The unavailability of such presuppositions is unexpected under the Bifurcation Thesis for Roots and theories of event structure that assume a clear division of labor between roots and event templates. Namely, such theories of event structure predict that sublexical modification with √MURDER-type roots should give rise to restitutive readings and repetitive presuppositions that exclude intentionality. In other words, in the case of *again*, when it attaches low, such a modifier should give rise to restitutive readings and readings that exclude intentionality associated with the external argument since in this case *again* has the truth-conditional content of the root in its scope and the root is assumed to denote a simple state without entailments of change or intentionality, as these structural components of meaning are assumed to be introduced higher up in the event structure. Similarly, *re–* prefixation should give rise to presuppositions where entailments of change and intentionality are not entailed, insofar as it has been argued to attach directly to the root.

I have proposed that such differences in the types of readings available

with sublexical modifiers follow if √MURDER-type roots entail change and intentionality, and therefore even when sublexical modifiers scope directly over the truth-conditional content of the root, such roots will disallow presuppositions that exclude change and intentionality since change and intentionality are part of their meaning. In this respect, as I have shown, only roots of the √KILL sort allow repetitive presuppositions that exclude intentionality, which is predicted by the present account as such roots do not come with templatic meanings of intentionality. Concomitantly, I have argued that the differences in the semantic denotations of √MURDER-type roots and roots of the √KILL sort have further grammatical consequences for the type of causal relation entailed by the verbs that are derived from such roots. Namely, only verbs derived from √MURDER-type roots entail direct causation, whereas verbs derived from roots of the √KILL sort are instead unspecified for the type of causal relation they allow.

Last, I have argued that √MURDER-type roots do not only entail change and intentionality associated with the external argument, but further require representation of the agent argument in their lexical semantics, i.e., they associate with the external argument internally rather than externally. By doing so, I provided evidence contra the widely-accepted assumption that external arguments are not arguments of the verb itself, as they are argued to be introduced by functional projections in the syntax (cf. Kratzer, 1996 *et seq*). Concomitantly, by making use of distinct types of repetitive presuppositions with *again*, I was able to isolate distinct classes of roots that differ in the parameters of representing the external argument internally within their lexical semantics and entailing intentionality.

In short, I have provided evidence that argues against the prevalent view that holds that entailments of intentionality associated with the external argument and the external argument are structurally introduced by functional heads in the syntax (cf. Kratzer, 1996; Folli & Harley, 2005; Pylkkänen, 2008; Alexiadou et al., 2015, *i.a.*).

Part II

The architecture of event structure

Chapter 4

Roots and the expression of resultativity

Contents

4.1 Introduction

The term *resultatives*, i.e., what Halliday (1967) originally called *resultative attributes*, refer to those constructions in which a result state—understood as in Rappaport Hovav & Levin (2010), e.g., *be flat* after an event of *flattening* (see Chapter 2)—is generally brought about by the action denoted by the verb. Namely, examples of resultative constructions such as *Tom pounded the dough flat* entail that *the dough* becomes *flat* as a consequence of the action denoted by the verb, i.e., the *pounding* caused *the dough* to achieve a state that did not hold before the event (for a general overview on resultative constructions see Green, 1972; Dowty, 1979; Randall, 1983; Nedjalkov, 1988; Goldberg, 1991; Pustejovsky, 1991; Carrier & Randall, 1992; Tenny, 1994; Levin & Rappaport Hovav, 1995, 2005; von Stechow, 1995; Washio, 1997; Mateu, 2002, 2005, 2012; Boas, 2003; Rothstein, 2004; Goldberg & Jackendoff, 2004; Beavers et al., 2010; Beavers, 2011b, 2012; Levin & Rappaport Hovav, 2019. For syntactic approaches to resultatives see Simpson, 1983; Hoekstra, 1984, 1988; Bresnan & Zaenen, 1990; Mateu, 2005, 2012; Ausensi, to appeara; Ausensi & Bigolin, under reviewa. In contrast, for approaches that rely on semantic notions to analyze resultatives see Van Valin, 1990, Goldberg, 1991, 1995, Jackendoff, 1997, Wechsler, 1997, 2005b; Wunderlich, 1997; Rappaport Hovav & Levin, 2001; Broccias, 2004; Kratzer, 2005; Levinson, 2010; Beavers, 2011b; Ausensi, 2019b, to appearc; Levin, 2020). The result state is typically expressed by APs (e.g., *John wiped the table clean*) or PPs (e.g., *The toddler broke the vase into pieces*), but it can also be expressed by particles (e.g., *I broke a piece off*) and NPs (e.g., *I painted the car a pale shade of yellow* (Simpson, 1983: 142)).[1] In resultative constructions, thus, the verb and the result phrase combine and form a complex predicate that can be (descriptively) paraphrased as *x causes y to become z by doing w*.[2]

[1] Many authors have pointed out that not all types of APs are accepted as result phrases. For instance, consider the contrast between *John wiped the table clean* and *?John wiped the table dirty*. In this respect, see Green (1972), Dowty (1979), Tortora (1998), Boas (2003), Embick (2004) for a general overview and see Wechsler (2005a) for an approach that captures the distinct types of adjectives that can serve as result phrases of resultative constructions.

[2] For a general overview of the different types of resultative constructions found in English see Rappaport Hovav & Levin (2001) and Beavers (2012). I set aside the nature of the distinct types of resultative constructions insofar as the focus of the present chapter

In the present chapter, I explore the division of labor between roots and event templates with regard to the expression of resultativity. In particular, I focus on a widely-accepted restriction involving resultative constructions in English, namely, the claim that there can only be one result state predicated in a single clause (see Tenny, 1987, 1994; Goldberg, 1991, 1995; Levin & Rappaport Hovav, 1995; Tortora, 1998; Rappaport Hovav, 2008, 2014a; Beavers & Koontz-Garboden, 2017a; Ausensi, 2019a, to appearc, to appeara; Ausensi & Bigolin, under reviewa). In particular, examples such as **John wiped the table clean dry* (cf. *John wiped the table clean/dry*) have been argued to be out insofar as they involve two result states being predicated of the same entity, i.e., there are two result phrases denoting distinct result states predicated of *the table*. In this respect, I provide naturally-occurring data that challenge such a widely-accepted restriction on resultative constructions. More specifically, I focus on result verbs (cf. Rappaport Hovav & Levin, 2010; Chapter 2), and the types of result phrases they combine with. Contra Rappaport Hovav & Levin (2010), I show that result verbs can combine with result phrases denoting distinct result states than the one encoded by the verb, e.g., *Sailor finishes his beer [...] steps on it, crushing it flat* (cf. §2.4.1.3 of Chapter 2). The data I provide thus show that semantically two result states can be predicated of the same entity in a single clause, namely, the result state encoded by the result verb and the one denoted by the result phrase, contra the widely-assumed (semantic) constraint restricting the expression of result states. By analyzing such data, I propose that the grammatical restriction on the number of result states that can be predicated in a single clause is a (syntactic) restriction regarding the architecture of event structure, i.e., structurally there can only be one overt predicate denoting a result state (either a change of state or location) in a single clause. I argue that this restriction naturally follows from the architecture of the event structure as assumed in the present dissertation. Namely, the verbalizing little *v* head can only select for one result predicate as its complement. In particular, in examples of the *crush something flat* type, I contend that the roots of result verbs, despite semantically encoding a result state, join the syntactic derivation as modifiers to the verbalizing little *v* head, and it is the

is not on resultative constructions *per se*, but rather on widely-assumed constraints that restrict the expression of result states in a single clause.

result phrases that are selected as the result predicates joining the syntactic derivation as the complement of *v*. Thus, these examples, despite semantically involving two distinct result states, are predicted to be well-formed by the present structural account since structurally there is only one result state predicated in the same event structure.

The present chapter is structured as follows. In §4.2, I give an overview of the widely-accepted (semantic) restriction regarding the number of result states that can be predicated in a single clause, which has been given different formulations over the years. In §4.3, I lay out the present syntactic analysis of resultatives in English. Namely, I argue that there is a restriction regarding the expression of result states which follows from the architecture of event structure, i.e., structurally there can only be one result state predicated in a single clause. By doing so, I show how data that are challenging for approaches that rely on semantic notions to analyze the expression of resultativity in English are naturally accounted for by the present structural account. In §4.4, I provide data that at first blush appear to violate the current claim that the verbalizing little *v* head selects for one result predicate as its complement. Namely, these data involve examples such as *A guard shot him dead off his horse* (Cappelle, 2005: 252) which apparently involve the realization of two distinct result predicates, i.e., the AP *dead* denoting a change of state and the PP *off his horse* denoting a change of location. I argue that despite appearances, examples of this type adhere to the present claim that the little *v* head selects for one result predicate as its complement since the PP *off his horse* denoting an apparent additional result state is argued to involve a type of novel secondary predication of the depictive type called 'low depictive' (Acedo-Matellán et al., to appear), which joins the syntactic derivation through a low applicative head. §4.5 concludes the present chapter.

4.2 The restriction(s) on result states

An important body of work analyzing the expression of resultativity in English argues that there can only be one result state predicated in a single clause (Tenny, 1987, 1994; Goldberg, 1991, 1995; Levin & Rappaport Hovav, 1995; Tortora, 1998; Rappaport Hovav, 2008, 2014a; Beavers & Koontz-Garboden, 2017a; Ausensi, 2019b, to appearc; Iwata, 2020, *i.a*). This restriction is apparently supported by the fact that two distinct result states, i.e.,

two distinct changes of state denoted by two APs (1) or a change of location denoted by a path PP and a change of state denoted by an AP (2), predicated in a single clause do not appear to be possible, as illustrated below.

(1) a. *Jonas beat the man bloody unconscious.
b. Jonas beat the man bloody.
c. Jonas beat the man unconscious.

(2) a. *Martha hammered the metal into the ground flat.
b. Martha hammered the metal into the ground.
c. Martha hammered the metal flat.

In this respect, Tenny (1987: 190) originally proposed that "there may be at most one 'delimiting' associated with a verb phrase". In particular, an eventuality is argued to be delimited if the verb is inherently limited, and therefore provides a delimiter by itself (3), or if it contains a result phrase (4), which acts in turn as a delimiter providing a bound to the eventuality (cf. Vendler, 1957; Dowty, 1979; Kearns, 2000). Compare this below.[3]

(3) a. John died in 3 minutes/#for 3 minutes.
b. John broke the vase in 3 minutes/#for 3 minutes.

(4) a. John wiped the table clean in 3 minutes/#for 3 minutes.
(cf. John wiped the table for 3 minutes)
b. John beat the man unconscious in 3 minutes/#for 3 minutes.
(cf. John beat the man for 3 minutes)

Over the years, what has come to be known as Tenny's (1987) Generalization (cf. Giannakidou & Merchant, 1999; Kratzer, 2005) has been formulated in different ways by distinct authors. For instance, Tenny (1994) proposed the Single Delimiting Constraint, whereby a clause can be delimited only once, as discussed above. Similarly, Tortora (1998) proposed the Further Specification Constraint after observing that directed motion verbs of the *arrive* type (e.g., *fall, come, return*, see Levin, 1993; Levin & Rappaport Hovav,

[3] See Levin & Rappaport Hovav (1995) and Tortora (1998) for discussion why Tenny's proposal is problematic on different grounds. Namely, there are verbs which are not inherently delimited, e.g., *The plane ascended for hours*, and yet cannot be combined with result phrases that would delimit the event as in **She ascended sick* (Goldberg, 1991: 371).

1995; Rappaport Hovav, 2014a) permit result phrases but only if they further specify the change of location encoded by the verb as in *John arrived in Barcelona* (further see Levin & Rappaport Hovav, 1995; Matsumoto, 2006), so that in this case, there is only one result state being predicated of the same entity, with the PP further modifying the change encoded by the verb. Last, in Ausensi (to appearc) (see also Ausensi, 2019b), I proposed the One Scale per Entity Constraint which states that there can be more than one result state predicated in the same clause as long as the result states are not predicated of the same entity. In §4.2.2, I discuss this constraint in more detail. First, I turn to discuss the most influential formulation of Tenny's Generalization, i.e., the Unique Path Constraint by Goldberg (1991).

4.2.1 The Unique Path Constraint

Among the different formulations of the so-called Tenny's (1987) Generalization, the Unique Path Constraint by Goldberg (1991) (see also Goldberg, 1995), as defined in (5), is possibly the most well-known constraint when it comes to the semantic restriction regarding the number of result states that can be predicated in a single clause.

(5) The Unique Path Constraint: if an argument X refers to a physical object, then more than one distinct path [= one result state, JA] cannot be predicated of X within a single clause. (Goldberg, 1991: 368)

Such a semantic restriction can be illustrated by the following examples (from Goldberg, 1991: 368, 370), as they are argued to be ungrammatical on the basis of the Unique Path Constraint. Namely, these examples involve two result phrases denoting distinct result states—a change of state (e.g., *black and blue* (6-a)) and a change of location (e.g., *out of the room* (6-a))—predicated of the same entity in the same clause.

(6) a. *Sam kicked Bill black and blue out of the room.
b. *He wiped the table dry clean.
c. *Sam tickled Chris off her chair silly.

Concomitantly, verbs that encode a change of state or location, i.e., result verbs (see Rappaport Hovav & Levin, 2010; Chapter 2), are argued to disallow result phrases that introduce distinct result states than the one encoded by the verb (see also Rappaport Hovav, 2008, 2014a), as discussed in detail

in §2.4.1.3 of Chapter 2. Namely, the following examples are claimed to be ungrammatical since the verbs encode either a change of location (e.g., *fall*) or a change of state (e.g., *break*), whereas the result phrases denote a distinct result state than the one encoded by the verb. Thus, the examples in (7) and (8) are also ruled out on the basis of the Unique Path Constraint, insofar as the result verbs and the result phrases denote two distinct result states predicated of the same entity in the same clause.[4]

(7) a. *She carried John giddy. (Simpson, 1983: 147)
b. *Bill broke the vase worthless. (Jackendoff, 1990: 240)
c. *The vase fell broken. (Rappaport Hovav, 2014a: 23)

(8) a. *The box arrived open. (on intended reading)[5]
b. *Jill took the child ill.
c. *She ascended sick. (Goldberg, 1991: 371)

Yet, there are some examples that at first blush appear to violate such a widely-accepted (semantic) restriction as they involve combinations of result verbs and PPs denoting a distinct result state, i.e., a change of location, as illustrated in (9) (examples (9-a) and (9-b) from Levin & Rappaport Hovav, 1995: 60).

(9) a. The cook cracked the eggs into the glass.
b. Daphne shelled the peas onto the table.
c. He broke the walnuts into the bowl. (Goldberg, 1991: 376)

In relation to these examples, it is important to note that the Unique Path

[4] Recall that, as extensively discussed in §2.4.1.3 of Chapter 2, result verbs are argued to permit result phrases but only if the result phrase further specifies the result state encoded by the verb, as in *John froze the soup solid* or *John arrived in Barcelona*. In this case, it is argued that there is only one 'actual' result state and the restriction on the number of result states is not violated (see Tortora, 1998; Rappaport Hovav & Levin, 2010). Such combinations of result verbs and result phrases will not be taken into consideration in the present chapter insofar as the result phrases do not constitute a distinct result state and therefore do not violate the Unique Path Constraint.

[5] The examples in (8) are possible if the states denoted by the APs are interpreted as depictive predications. Namely, (8-a) is possible on the reading that *the box* was open when it arrived, not that it opened as a result of arriving, which would be the resultative interpretation.

Constraint as defined in (5) does not constrain the number of result states per clause, but rather the number of result states that can be predicated of *a single entity* in the same clause. As a matter of fact, Levin & Rappaport Hovav (1995) themselves suggest that examples of the type in (9) are possible since the two distinct result states are predicated of distinct entities, i.e., in (9-a) the eggshells break, whereas the contents move. This led Levin & Rappaport Hovav (1995: 60) to suggest that "the restriction [= one result state per clause, JA] may be that only one change per entity may be expressed in a single clause". In this vein, drawing on Levin & Rappaport Hovav (1995), Beavers & Koontz-Garboden (2017a) have recently argued that two distinct result states are possible if they are predicated of distinct entities, as illustrated below.

(10) a. The skiers skied the trail clean of snow.
b. The skiers skied their skies to pieces.
c. The skiers skied their toes raw.
(Beavers & Koontz-Garboden, 2017a: 866)

Beavers & Koontz-Garboden (2017a) argue that these examples are possible insofar as the two distinct result states, i.e., the one encoded by the main verb and the one denoted by the result phrase, are being predicated of distinct entities. For instance, in the example *The skiers skied the trail clean of snow*, the entity denoted by the subject (i.e., *The skiers*) undergo the change of location encoded by the verb, whereas the entity denoted by the object (i.e., *the trail*) undergo the change of state denoted by the result phrase.[6]

4.2.2 The One Scale per Entity Constraint

In Ausensi (to appearc) (see also Ausensi, 2019b), I argued in favor of a more nuanced view of the Unique Path Constraint. Drawing on Levin & Rappaport Hovav (1995) and Beavers & Koontz-Garboden (2017a), I proposed the One Scale per Entity Constraint—where a scalar change is understood as a result state (see §2.2.1 of Chapter 2; cf. Rappaport Hovav & Levin, 2010)—,

[6] In contrast to Rappaport Hovav & Levin (2010) and Rappaport Hovav (2014a), Beavers & Koontz-Garboden (2017a) analyze verbs of the *ski* sort as verbs encoding result states. Here, I remain agnostic regarding Beavers & Koontz-Garboden's analysis of this verb class and the examples in (10) are just provided to illustrate their argumentation.

defined as follows.

(11) One Scale per Entity Constraint: only one distinct scale of change can be predicated of a single entity per clause. More than one distinct scale of change however can be predicated in a single clause if the distinct scalar changes [= result states, JA] the scales denote are not predicated of the same entity.[7] (Ausensi, to appearc)

In particular, I proposed this formulation of Tenny's (1994) Generalization when analyzing the *way*-construction in English, e.g., *John talked his way into the party* (see Levin & Rapoport, 1988; Jackendoff, 1990, 1992, 1997; Marantz, 1992; Tenny, 1994; Goldberg, 1995, 1996; Israel, 1996; Salkoff, 1998; Mateu, 2002; Kuno & Takami, 2004; Nakajima, 2005; Mondorf, 2011; Szczesniak, 2013; Perek, 2018). In English, the *way*-construction is characterized by consisting of a verb which takes as its complement an NP comprised of a possessive determiner, which is coreferential with the subject, and the noun *way*.[8] The NP headed by *way* is followed by a directional phrase (which is usually a PP, but can also be an adverb) describing a path, both metaphorical (12) and physical (13), usually created by the action that the verb denotes. More importantly, though, semantically, the interpretation of this construction entails that the entity denoted by the subject traverses this path—it undergoes a change of location—as illustrated in (12) and (13) (examples adapted from Ausensi, to appearc).[9]

[7] As I note in Ausensi (to appearc), the One Scale per Entity Constraint should not be taken to be incompatible with the Unique Path Constraint by Goldberg (1991), but rather as a reformulation of the Unique Path Constraint regarding the number of scalar changes that can be predicated per entity within a single clause. See Ausensi (to appearc) for details.

[8] It is important to point out that the NP headed by *way* in this construction is a clear case of a nonselected object (Levin & Rappaport Hovav, 1995), i.e., an object that is not subcategorized by the verb. As Mateu (2002) notes, it is actually the directional phrase that requires the realization of the NP as the direct object, not the verb, as shown in (i):

(i) a. Nikko danced his way *(into the theater).
b. Sally elbowed her way *(through the crowd).

[9] In English, the *way*-construction has been taken as a diagnostic to tell unaccusative and unergative verbs apart, since, allegedly, only unergative verbs are claimed to permit it (Marantz, 1992; Levin, 1993; Levin & Rappaport Hovav, 1995), as illustrated below.

(12) a. Sam worked her way to the top, #but she didn't get to the top.
b. Ron built his way to success, #but he didn't achieve success.

(13) a. The teen talked his way into the party, #but he didn't get in.
b. Jonas fought his way out of the jungle, #but he didn't get out.

In the context of the *way*-construction in English, I argued that examples of the type in (14) are ungrammatical due to the fact that two distinct result states are being predicated of the same entity. For instance, (14-a) entails that the entity denoted by the subject both burns and ends up on the ground, i.e., the result state denoted by the construction and the verb are being predicated of the same entity (examples (14-a) and (14-b) from Goldberg, 1996: 45).

(14) a. *The wood burns its way to the ground.
b. *The butter melted its way off the turkey.

(i) a. *The flower bloomed its way to a prize. (Levin, 1993: 99)
b. *They disappeared their way off the stage. (Levin, 1993: 99)
c. *She arrived her way to the front of the line. (Levin & Rappaport Hovav, 1995: 148)

In Ausensi (2019a, to appearc), assuming a lexical semantics approach along the lines of Rappaport Hovav & Levin (1998), I argued that the *way*-construction in English is not actually sensitive to unaccusativity, but more specifically to result states predicated of the entity denoted by the subject. I noted that within the unaccusative verb class, most unaccusative verbs already encode a result state (i.e., a change of state or location) predicated of the entity denoted by the subject (e.g., *die*, *arrive*, *disappear*, *bloom*). Thus, integrating this type of unaccusative verbs in the *way*-construction would entail that the entity denoted by the subject is undergoing two simultaneous changes (of state/location) at once, the one described by the construction and the one encoded by the verb, which has been argued to not be grammatically possible. I argued that this explains the ungrammaticality of the examples in (i): unaccusativity is not what prevents unaccusative verbs of the *die* sort from appearing in the *way*-construction, but the fact that these verbs encode result states which are predicated of the entity denoted by their subject. I argued this is borne out by the fact that unaccusative verbs that do not encode result states predicated of their subject referent are permitted, e.g., *roll*, *whirl*, *slid*.

(ii) a. The snow storm known as Winter Storm Santa has whirled its way across the Mid-Atlantic.
b. I slid my way up to the top and when I got there, I could see.
c. Our 8,000 ton ship rolled its way down the English Channel to the Atlantic. (Ausensi, to appearc)

c. *The window broke its way into the room.
(Jackendoff, 1992: 213)
d. *The soup cooled its way to room temperature.
(Levin & Rappaport Hovav, 1995: 173)

In this vein, I noted that the same result verbs are found in the *way*-construction when the result state encoded by the verb is predicated of an object that is not given syntactic expression, but it is semantically implicit. In this case, the restriction with regard to the number of result states that can be predicated of the same entity, i.e., the One Scale per Entity Constraint, is not violated, since the two distinct result states, i.e., the one encoded by the verb and the one denoted by the construction, are predicated of distinct entities.

(15) a. William T. Sherman burned his way through Georgia and then did more damage in the Carolinas.
b. For perhaps an hour the ray melted its way into the solid rock.
c. The snow must've frozen so hard during the night that he could not break his way out.
d. The brew cooled its way down her throat as she cast her eyes around the bar.
(Ausensi, 2019b: 85-6)

Namely, in (15) the result state denoted by the *way*-construction is predicated of the subject referent, whereas the result state encoded by the verb is predicated of the unexpressed, but semantically implicit, object. More specifically, by *unexpressed objects* I mean the objects that, while not being syntactically expressed (as the object position is occupied by the nonselected NP headed by *way*), are still semantically implicit as they undergo the changes of state encoded by the main verb, as illustrated in (16).[10]

(16) a. Theatre's annual summer melodrama is about a harsh Victorian Duke who has killed his way to power, #but nobody was killed/#but nobody died.
b. Yet, once more, while he broke his way among the branches,

[10] This is in line with Goldberg's (1991: 509) claim that result verbs are still causative verbs and with Rappaport Hovav's (2017: 96) argument that result verbs "maintain [their] truth-conditional content as a result root" when they are integrated into this construction.

the traveller lost his friend, #but the branches didn't break/#but nothing was broken.

c. The dragons might simply burn their way out of the netting, #but the netting might not be burned/#but nothing might be burned.
(Ausensi, 2019b: 85)

In short, in Ausensi (2019a, to appearc), I argued that the One Scale per Entity Constraint correctly predicts that the examples of the type in (14) are out since two distinct result states are being predicated of the same entity. Likewise, I noted that the One Scale per Entity Constraint predicts that examples in (15) are well-formed since in this case the two distinct result states are not predicated of the same entity. Namely, the referents of the subject undergo the result state denoted by the *way*-construction, whereas the result states encoded by the verbs are predicated of the unexpressed, but semantically implicit, objects.

4.2.3 Towards a structural account

In the previous section, I briefly discussed several approaches that have relied on semantic notions in order to capture the ungrammaticality of examples of the **wipe the table clean dry* sort. In particular, in previous work of mine (Ausensi, to appearc), I proposed to recast the Unique Path Constraint into a formulation that allows for the expression of multiple result states in a single clause as long as they are not predicated of the same entity. In this respect, I showed how the One Scale per Entity Constraint is capable of accounting for data that have challenged previous (semantic) approaches. Namely, examples of the *break the eggs into the glass* type and *break one's way out* are predicted to be well-formed by the One Scale per Entity Constraint since, despite involving two distinct result states, the result states are predicated of different entities (cf. the contrasts in (14) and (15)).

In this section, I note, however, that this more nuanced view of the Unique Path Constraint also runs into problems, since there appear to be examples of result verbs and result phrases in which the two distinct result states, e.g., a change of state encoded by the verb and a change of location denoted by the result phrase, are predicated of the same entity, as in *The sun*

melted the chocolate onto the carpet (Goldberg & Jackendoff, 2004: 551).[11] In other words, recasting the restriction on result states into a semantic restriction regarding the number of result states that can be predicated of the same entity also makes false predictions in light of the naturally-occurring data that I provide in (17) and (18). These examples involve result verbs and path PPs (i.e., PPs denoting changes of location) (17), as well as result verbs combined with APs (18), in which the result state that the PPs and APs denote is distinct from the result state encoded by the verb and yet are predicated of the same entity. Compare this below.[12]

(17) a. Your [...] cooked bacon might be overcooked and the cheese might melt out of the hamburger. (GloWbE)
b. It essentially has some of the carbon burned out of the surface layer. (GloWbE)
c. A lot of the water sprayed onto the ship had frozen onto the steel. (GloWbE)
d. This time I didn't melt the chocolate into the custard mixture. (GloWbE)

(18) a. Sailor finishes his beer [...] steps on it, crushing it flat. (COCA)
b. Frankie was pulling a lever that wound his cables in and crushed it tighter. (COCA)
c. All-news channels are now splitting the niche smaller and smaller. (GloWbE)
d. Huebner picked a nit from behind his ear and squished it dead. (COCA)

Although similar examples have been observed in the literature at least since Goldberg (1991) and Levin & Rappaport Hovav (1995), e.g., *He broke the*

[11] In Ausensi (to appearc), I acknowledge the existence of examples of the *melt the chocolate onto the carpet* type and suggest, following Yasuhara (2013), that these examples would not constitute a counterexample to the One Scale per Entity Constraint since the two result states, i.e., the change of state denoted by *melt* and the change of location denoted by the PP, do not actually constitute two different result states, but a single one (i.e., the change of location by the PP is a further specification of the result state encoded by the verb). Although this might explain that example, such an explanation runs into problems in light of the examples in (17) and (18).

[12] I am indebted to Josep M. Fontana for drawing my attention to the examples in (18).

eggs into the glass, the examples in (17) and (18) are critically different in the sense that the two distinct result states are predicated of the same entity, therefore challenging the Unique Path Constraint and related semantic constraints such as the One Scale per Entity Constraint. In contrast, Levin & Rappaport Hovav (1995) note that examples of the *break the eggs into the glass* type are possible since the two distinct result states are predicated of distinct entities, namely, the eggshells break and the contents move, and therefore do not violate the semantic restriction on result states, as previously discussed in §4.2.1.

In the next section, drawing on the data in (17) and (18), I argue that semantically there can be more than one distinct result state in a single clause, as well as more than one result state predicated of the same entity, contra Goldberg (1991, 1995), Levin & Rappaport Hovav (1995), Beavers & Koontz-Garboden (2017a), Ausensi (2019b, to appearc), *i.a.* Yet, I contend that structurally the examples of the type in (17) and (18) only involve the realization of one result predicate, which is selected as the complement of little *v*. Thus, although these examples semantically denote that two distinct result states are being predicated of the same entity, they are predicted to be well-formed by the present account insofar as structurally there is only one result state, denoted by the result predicate that joins the syntactic derivation as the complement of the verbalizing little *v* head. In particular, as briefly mentioned before, I propose that in (17) and (18) the roots of the result verbs, despite semantically encoding a result state (as per Rappaport Hovav & Levin, 2010), are integrated into the event structure as modifiers to *v* (cf. Embick, 2004; McIntyre, 2004; Harley, 2005) and are therefore structurally interpreted as providing the manner of action that brings about the result state (cf. Mateu & Acedo-Matellán, 2012, Chapter 5).

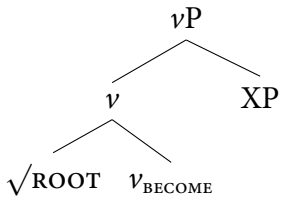
4.3 A restriction on the architecture of event structure

In this section, I lay out the present account regarding the division of labor between roots and event templates with regard to the expression of resultativity and propose that the grammatical restriction on the number of result states that can be predicated in a single clause is a (syntactic) restriction regarding the architecture of event structure, i.e., there can only be one overt result predicate per clause. This naturally follows from the theory adopted in the present dissertation since little *v* can only select for one complement

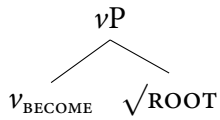
denoting a result state. As I discuss in §4.3.2, the current structural approach makes welcome predictions, and crucially it naturally accounts for data that have challenged previous semantic approaches.[13]

Before proceeding any further, it is import to recall that, as discussed in detail in §1.4 of Chapter 1 (see also Chapter 5), following Embick (2004); McIntyre (2004); Harley (2005); Mateu (2005, 2012); Den Dikken (2010); Mateu & Acedo-Matellán (2012), I assume that roots can be structurally interpreted as manner or result depending on how they associate with the event structure. Namely, in structural terms, roots can acquire a structural manner or result interpretation regardless of their lexical entailments. In other words, a root that can be said to have result entailments as part of its truth-conditional content (cf. Chapter 2) can in principle be merged as a modifier to *v* (but see Chapter 5 for a more nuanced view) and be then structurally interpreted as providing the manner of the event, as it will be discussed in detail in this section.[14] More specifically, following Embick (2004: 370-2), I assume that roots adjoined to v_{BECOME} through Direct Merge create a complex head where the root is structurally interpreted as providing the manner with which a result state is brought about. In contrast, roots in the complement position of v_{BECOME} are interpreted as the state that comes about after the event is over.

(19) Manner specification



(20) Result specification



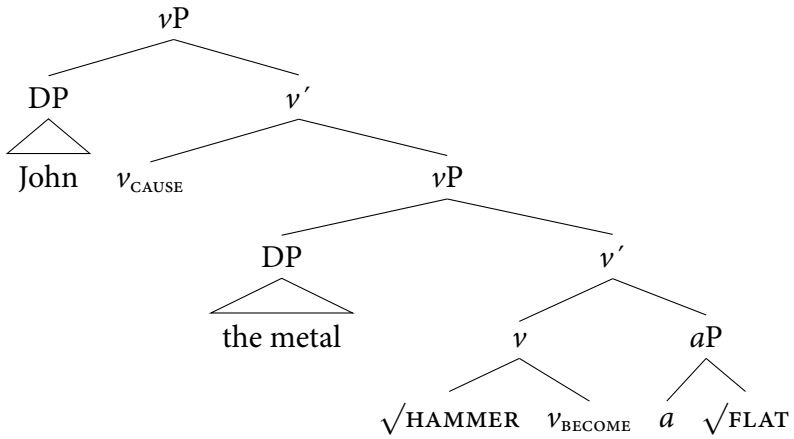
In this vein, a resultative construction of the *hammer the metal flat* type involves what is usually known as a Complex Predicate (McIntyre, 2004; Mateu, 2012), represented in (21) (further see Embick, 2004). Complex Predicates generally involve two distinct roots which are integrated into the event

[13] This section is a revision and expansion of Ausensi (to appeara).

[14] Though see §5.4.6 of Chapter 5 for further discussion regarding the importance of telling apart the lexical and structural nature of manner and result

structure as modifiers and complements of the verbalizing little *v* head denoting manner and result meaning components respectively.

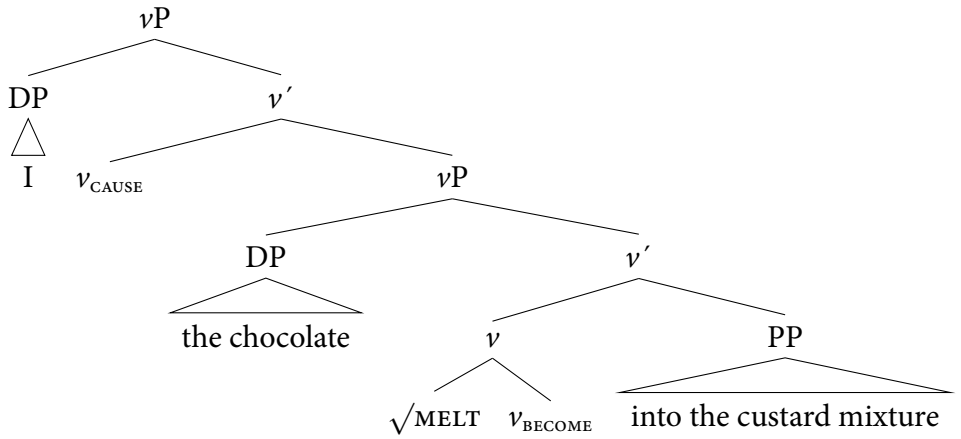
(21) John hammered the metal flat. (≈ cause the metal to become flat by hammering)



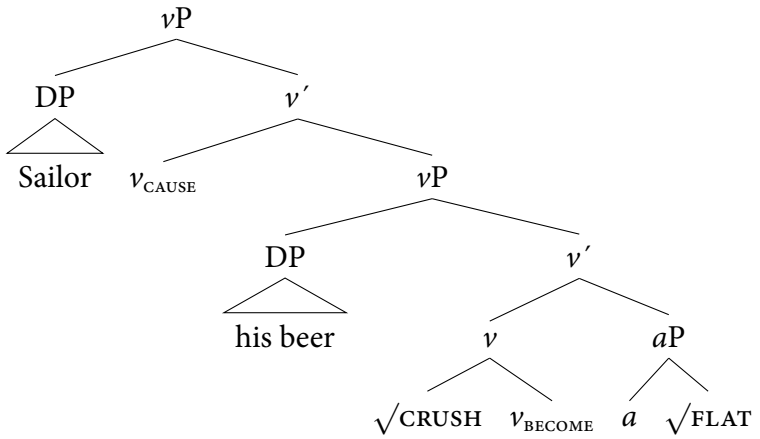
Having provided a brief recap of the theory of event structure entertained, I first analyze the transitive instances of the data under discussion, e.g., *All-news channels are now splitting the niche smaller and smaller*. I propose that the transitive variants of the constructions under discussion are cases of so-called transitive complex events (McIntyre, 2004; Embick, 2004; Mateu, 2012) in which the verb (semantically) encodes a result state (e.g., *John crushed his beer flat*). These examples thus contrast with canonical cases of Complex Predicates in which the main verb encodes a manner of action, not a result state, as in *pound the dough flat* or *beat the man unconscious* (21) (see Acedo-Matellán & Mateu, 2014).

In these transitive variants, I thus propose that verbal roots are merged as modifiers to *v*, as they describe—while semantically encoding a result state—the manner with which the causer brings about the result (e.g., *John crushed his beer flat* ≈ *John caused his beer to become flat by crushing*). Structurally, however, the result state is denoted by a result phrase, not by the verb itself. In this case, little *v* selects for one result predicate as its complement, i.e., either a path PP denoting a change of location as in (22) or an AP, as in (23) denoting a change of state. Compare this below.

(22) This time I didn't melt the chocolate into the custard mixture. (≈ cause the chocolate to be in the custard mixture by melting)



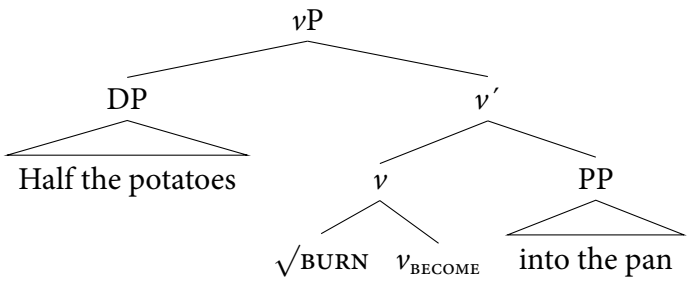
(23) Sailor crushed his beer flat. (≈ cause the beer to become flat by crushing)



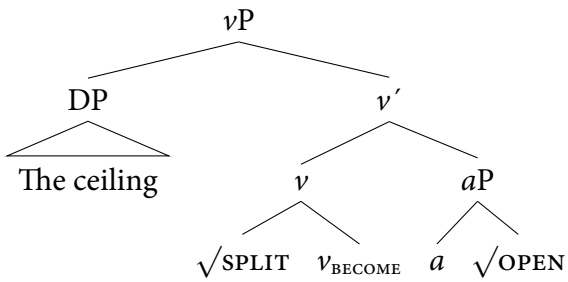
Regarding the intransitive instances of the data under discussion (e.g., *The ceiling split open* (COCA)), I propose that they are cases of intransitive complex events of change of state, where the verbal root also merges as a modifier to *v*. As in transitive complex events, the verbal roots, while semantically encoding a result state, also describe the manner with which a theme achieves a result state, which is structurally denoted by a result phrase (e.g., *The ceiling split open* ≈ *The ceiling became open by splitting*). The little *v* head selects

for one result predicate as its complement, either a path PP (24), describing a change of location, or an AP, describing a change of state (25), as in the transitive examples. Compare this below.

(24) Half the potatoes burned into the pan. (≈ get into the pan by burning)



(25) The ceiling split open. (≈ become open by splitting)



In short, I propose that in the examples of the type in (17)-(18), the roots of result verbs, while semantically encoding a result state, are integrated into the event structure as modifiers to *v* describing the manner (of action) that brings about the result state, which is structurally denoted by result phrases, i.e., the path PPs and APs which are integrated into the event structure as complements of *v*.[15]

[15] Conjoined resultatives as in coordination of constituents are of course possible (see Tenny, 1994), as illustrated by the examples below (Jaume Mateu p.c.).

(i) a. Rinsing the lens thoroughly and wiping it clean and dry is the main second stage of cleansing. (GBooks)
b. UMWA national board member Chris Evans [...] was beaten bloody and un-

Goldberg (1991: 371), however, provides some examples that apparently involve the realization of two overt result predicates, i.e., an AP (e.g., *flat*) and a PP (e.g., *into a pancake-like state*), as in (26). These examples thus appear to be counterexamples to the current structural approach insofar as they appear to contain two result predicates being selected as the complements of *v*.

(26) a. He pounded the dough flat into a pancake-like state.
b. The liquid froze solid into a crusty mass.

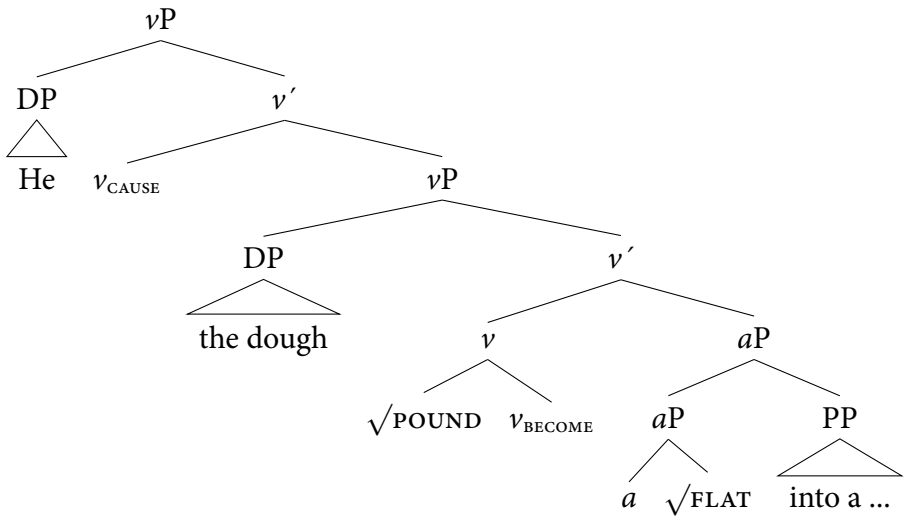
I note, however, that, despite appearances, the PPs in these examples do not actually denote a distinct result state than the one denoted by the AP. In other words, the PP in these cases is a property PP as it denotes a change of state—not a change of location—that is a further specification of the change of state denoted by the AP. Namely, *into a pancake-like state* in (26-a) simply provides further details about the result state of *being flat* (cf. Rappaport Hovav & Levin, 2010; Beavers, 2011b; Beavers & Koontz-Garboden, 2017a; §2.4.1.2). In particular, recall that I have proposed that little *v* can only select for one result predicate as its complement, and in these examples, the property PPs do not appear to join the syntactic derivation as complements of *v*, but rather as adjuncts. Evidence for this comes from the word ordering restriction this type of examples displays (further see Matushansky et al., 2012), as illustrated below.

(27) a. *He pounded the dough into a pancake-like state flat.
b. *The liquid froze into a crusty mass solid.

In other words, examples of this sort only involve the realization of one complement, which is selected by *v* as the result predicate, namely the APs. The property PPs, on the other hand, join the syntactic derivation as adjuncts to the resultative layer denoting a state that is a further specification of the result state denoted by the APs.

conscious with rifle butts. (GBooks)
c. He still wandered on, out of the little high valley, over its edge, and down the slopes beyond. (*The Hobbit*, ch. 6, J.R.R Tolkien)

(28) He pounded the dough flat into a pancake-like state.



In sum, examples of the type in (26) do not challenge the present account since, under closer examination, they involve the realization of one result predicate. Namely, in these examples, the property PPs join the syntactic derivation in the form of adjuncts denoting states that are a further specification of the result state, which is structurally denoted by the result predicate, i.e., the APs.

4.3.1 Evidence from sublexical modification

In the previous section, I analyzed examples of the type in (17) and (18) as involving Complex Predicates (cf. McIntyre, 2004; Mateu, 2012) in which the roots of result verbs, despite semantically encoding a result state, are integrated into the event structure as modifiers to *v*, whereas it is another root (e.g., *Sailor [...] crushed his beer flat*) or a PP (e.g., *I didn't melt the chocolate into the custard mixture*) which are integrated as complements of *v* denoting the structural result state. This analysis thus makes the prediction that sublexical modification with *again* (cf. §1.4) should be able to modify the result state to the exclusion of the manner, generating in turn restitutive readings (see §2.4.4 of Chapter 2).

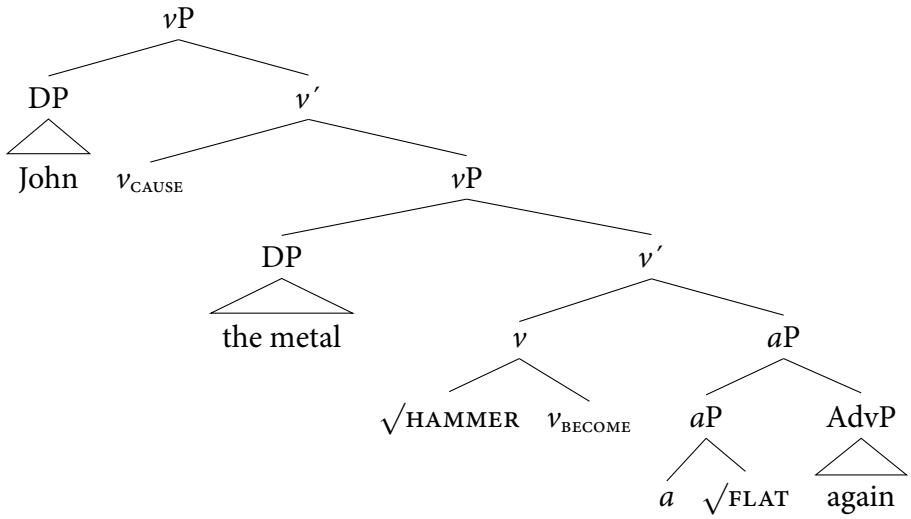
Recapping the discussion in §2.4.4 of Chapter 2, recall that Beck & Snyder (2001) and Beck & Johnson (2004) (see also Marantz, 2007; Beavers & Koontz-Garboden, 2020) convincingly show that in resultative construc-

tions involving Complex Predicates, sublexical modification with *again* can scope over just the result state, excluding the manner. This is predicted by the present event structural approach since manner and result meanings are contributed by two different predicates and therefore *again* should be able to produce a restitutive reading when targeting the result state to the exclusion of the manner, which is contributed higher up in the structure by another predicate outside the scope of *again*. In particular, as discussed in §2.4.4, resultative constructions such as *hammer the metal flat* type allow a restitutive reading that relates to the restoring of a previous state of flatness that held of *the metal* in a previous event. The availability of restitutive readings is expected since manner and result meanings are contributed by two distinct roots (i.e, $\sqrt{\text{HAMMER}}$ and $\sqrt{\text{FLAT}}$ respectively) and therefore *again* can scope over the result to the exclusion of the manner.

(29) Mary made a sheet of metal that is flat, but it later accidentally became bent. Fortunately, John hammered the metal flat again. (Beavers & Koontz-Garboden, 2012: 357)

In particular, the reading in (29) is restitutive as the metal need not have been hammered in a previous stage or even flattened (Beavers & Koontz-Garboden, 2012: 357), as *again* is scoping over the result (30).

(30) John hammered the metal flat again (and it was flat before).

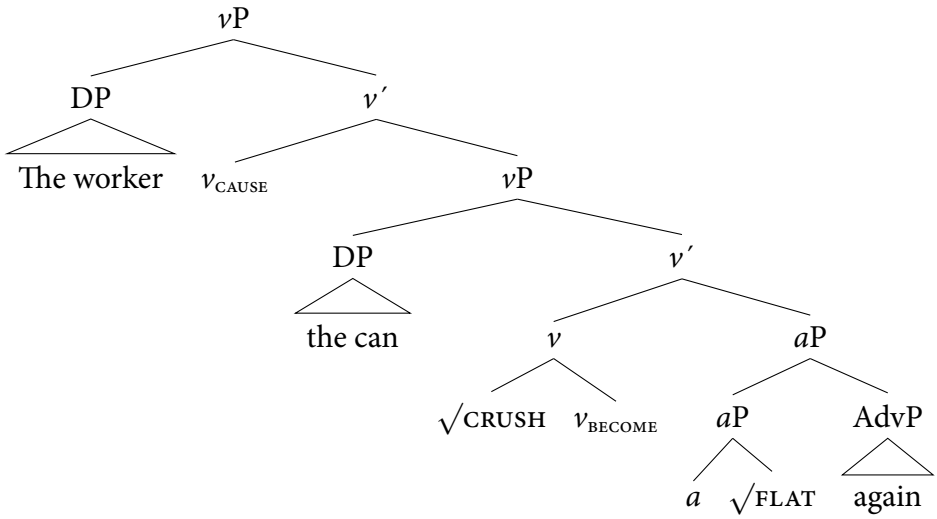


I note below that, just like Complex Predicates where the verbal root encodes a manner of action (e.g., *hammer*), Complex Predicates involving verbal roots that semantically encode a result state also generate restitutive readings when *again* takes scope exclusively over the result state denoted by a result phrase. Thus, the availability of restitutive readings excluding the manner of action provides strong evidence that the verbal roots join the syntactic derivation as modifiers to *v*, despite semantically encoding a result state. In other words, when the roots of result verbs are adjoined to *v* as modifiers, the manner (of action) component is outside the scope of *again* when it attaches low. Thus, in this case *again* generates restitutive readings that relate to the restoring of a previous state crucially to the exclusion of the manner of action described by the verbal root. Consider this below.

(31) A factory makes beer cans that are flat by default, but they are later bent. At a later process, workers crush the beer cans flat again.

Similar to (29), the reading in (31) is thus restitutive, insofar as the beer cans do not need to have been crushed in a previous stage, or even flattened (as they were created flat). This is captured by the fact that *again* can scope over the result state to the exclusion of the manner, which is contributed by the root of the result verb outside the scope of *again*.

(32) The worker crushed the can flat again (and it was flat before).

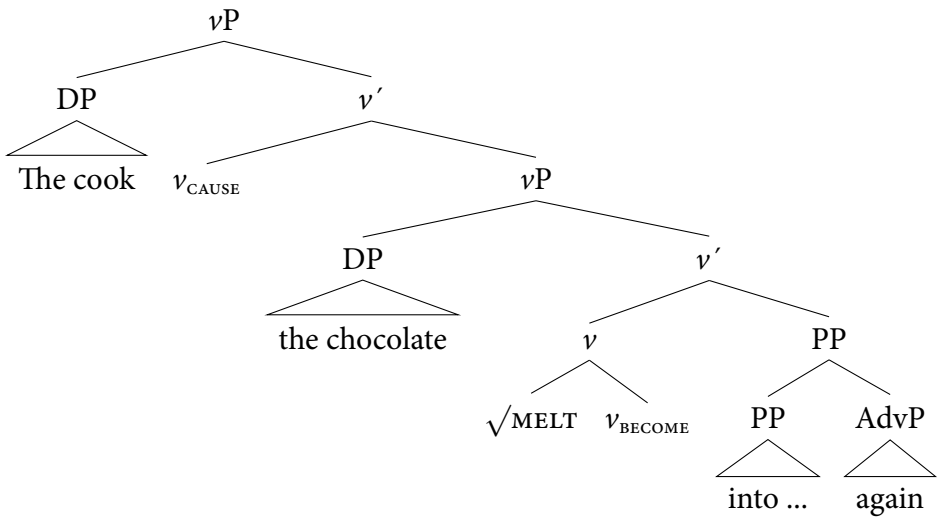


Complex Predicates involving roots that semantically encode a result state in which the result state is denoted by a path PP, instead of an AP as in (31), also generate a restitutive reading that relates to the restoring of a state of being in some location that held in a previous stage, as illustrated in (33).

(33) A chef makes dark chocolate in a bowl by mixing the ingredients there. The chocolate mix is then removed from the bowl and put on the counter to solidify. Later, the chef melts the solid chocolate into the bowl again to perfect the result.

Namely, the reading in (33) is restitutive too, i.e., that of being located in the bowl again, since the chocolate need not have been placed in the bowl before (it was made there) or even melted. In this case, *again* scopes over the state of being in a location to the exclusion of the manner, which is contributed by the root of the result verb outside the scope of *again*.

(34) The chef melted the chocolate into the bowl again (and it was in the bowl before).



In sum, sublexical modification with *again* has provided compelling evidence in favor of the present claim that the roots of result verbs, despite semantically encoding a result state, are integrated into the event structure as modifiers to little *v* denoting the manner of action that brings about the result state, which is structurally denoted by result phrases, i.e., APs or PPs.

4.3.2 Welcome predictions

In this section, I show that the structural account entertained in the present chapter is capable of providing a natural explanation for data that have challenged previous approaches relying on semantic notions (Goldberg, 1991; Levin & Rappaport Hovav, 1995; Rappaport Hovav, 2008; Beavers & Koontz-Garboden, 2017a; Ausensi, 2019b, to appearc, *i.a.*).

I start by considering the examples in (6) again, which are repeated below as (35). This type of examples are naturally accounted for in the present approach insofar as they involve two overt realizations of a result predicate selected as the complement of *v*, and are therefore predicted to be ungrammatical. Namely, there are two overt result predicates, e.g., an AP and a path PP (35-a) or two APs (35-b), which has been argued not to be grammatically possible, insofar as little *v* selects for one result predicate as its complement.[16]

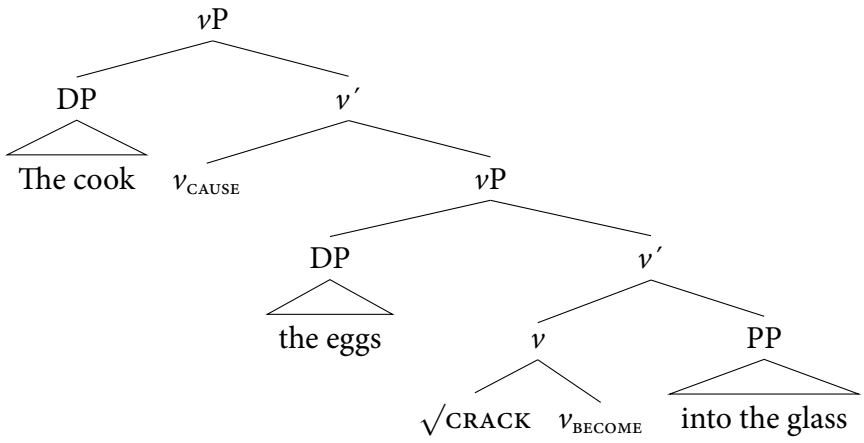
[16] The attentive reader might have noticed that the present structural account predicts examples of the sort in (7) (e.g., **She carried John giddy*) and (8) (e.g., **The box arrived open*) to be possible on the resultative interpretation, yet they do not appear to be. I suggest that the ungrammaticality of these examples might be conceptual in nature, as it is not possible to establish a causal relation that links the action denoted by the verb and the result by the AP/PP. In particular, the ungrammaticality of these examples may be due to clashes between the semantic content of the root and the functional structure the root is merged with (see Borer, 2003, 2005a,b; Acquaviva, 2008, 2014; Mateu & Acedo-Matellán, 2012; Acedo-Matellán & Mateu, 2014). How exactly the semantic content of roots can determine the different structures roots can occur in is still a matter of debate and an active area of current research (see Borer, 2005b, 2013; Alexiadou et al., 2014; Beavers & Koontz-Garboden, 2020). For instance, in Chapter 5, I argue that not all roots of result verbs can be merged as modifiers to *v*, i.e., only the roots of result verbs that come with entailments of change themselves (e.g., $\sqrt{\text{BREAK}}$) can be modifiers to *v*, while the roots of result verbs that denote pure states with no eventive properties do not appear to be able to function as modifiers, as they are always integrated into the event structure as complements of *v*. I speculate that a possible explanation to the ungrammaticality of the examples in (7) and (8) could also be found by analyzing the semantics of the distinct roots involved, especially in examples that include verbs of directed motion such as *arrive*, *fall*, *leave* (cf. **The box arrived open*). What is important for the present purposes is that naturally-occurring examples as those provided in (17)-(18) show that it is grammatically possible to combine result verbs and path PPs/APs denoting result states distinct from the one encoded by the verb, contra the Unique Path Constraint and related formulations that rely on semantic notions, e.g., the One Scale per Entity Constraint.

(35) a. *Sam kicked Bill black and blue out of the room.
b. *He wiped the table dry clean.
c. *Sam tickled Chris off her chair silly.

The challenging data for previous semantic approaches in (9), repeated below as (36), are also naturally accounted for in the present analysis. Namely, I contend that the verbal roots merge as modifiers to *v*, whereas it is the path PP that denotes the structural result (i.e., *cause the eggs to be in the glass by cracking*), as illustrated below.

(36) a. The cook cracked the eggs into the glass.
b. Daphne shelled the peas onto the table.
c. He broke the walnuts into the bowl.

(37) The cook cracked the eggs into the glass.



The present structural account also makes a number of welcome predictions. First, it predicts that (in)transitive complex events—where the verb semantically encodes a result state (e.g., *break*)—can only involve either a path PP or an AP as result predicates, but never both at the same time. As shown by the data below, such a prediction appears to be borne out.

(38) a. *John broke the eggs into the bowl open.
b. John broke the eggs into the bowl.
c. John broke the eggs open.

(39) a. *The eggs broke into the glass into the bowl.

b. The eggs broke into the glass.
c. The eggs broke into the bowl.

Second, the present approach predicts that events where the verb encodes a manner of action (e.g., *hammer*, *wipe*, *push*), as in *hammer the metal flat*, can only involve either a path PP or an AP as result predicates, but never both. In this case, the verbal root, e.g., $\sqrt{\text{HAMMER}}$, also merges as a modifier to little *v*, which selects for one result state predicate as its complement (cf. (21)).

(40) a. *Tam laughed himself silly faint.
b. Tam laughed himself silly.
c. Tam laughed himself faint.

(41) a. *Sam hammered the metal into the ground flat.
b. Sam hammered the metal into the ground.
c. Sam hammered the metal flat.

4.3.3 Interim summary

In this section, I have explored the division of labor between roots and event templates with respect to the expression of resultativity. In particular, I have argued that there is a restriction in the architecture of event structure regarding resultative predicates. Namely, there can be more than one semantic result state, but only one structural result state can be predicated in the same event structure. Such a restriction follows from the fact that the verbalizing little *v* head can only select for one result predicate as its complement. By doing so, I have provided a syntactic approach to the Unique Path Constraint that is capable of accounting for examples that violate the Unique Path Constraint and related (similar) formulations such as the One Scale per Entity Constraint relying on semantic notions to analyze the expression of resultativity in English. More specifically, examples that are challenging for semantic formulations of Tenny's (1987) Generalization have been shown to be naturally accounted for by the syntactic approach as entertained in the present dissertation. First, examples of the **wipe the table clean dry* type (6) have been argued to be ungrammatical insofar as they involve the realization of two overt result predicates. Namely, such examples are predicted to be out by the present account since the verbalizing little *v* head can only select for one result predicate as its complement. Second, examples of the *crack the eggs into the glass* type (9), which are challenging for the Unique Path Con-

straint and related semantic constraints, are also naturally accounted for by the present account since they involve the realization of one result predicate selected as the complement of *v*, with the verbal root being merged as a modifier to *v*. Third, examples that at first blush appear to involve two overt result predicates as in *pound the dough flat into a pancake-state like* (26) have been argued to adhere to the present claim that little *v* selects for one result predicate since the PP *into a pancake-state like* has been argued to join the syntactic derivation in the form of an adjunct denoting a state that further specifies the result state denoted by the result predicate, e.g., the AP *flat*. Evidence from word order restrictions these examples display strongly argues in favor of the claim that examples of the type in (26) only involve the realization of one result predicate, i.e., the AP, with the PP being realized as an adjunct to the resultative layer. Fourth, I have provided examples that semantically involve that the same entity achieves two distinct result states, e.g., *crush the beer flat*, therefore violating the Unique Path Constraint and related semantic constraints such as the One Scale per Entity Constraint. In this respect, I have argued that if the Unique Path Constraint is given a structural account, examples of the type in (17) and (18) can be shown to only involve the realization of one result state, and therefore do not violate the present claim that the verbalizing little *v* head can only select for one result predicate as its complement. In other words, although examples of the *crush the beer flat* type semantically involve that the same entity is undergoing two distinct changes (of state/location) simultaneously, structurally they only involve the realization of one result state and are therefore predicted to be well-formed by the present approach.

4.4 A novel class of depictive predication

In this section, I analyze a set of examples that at first glance appears to violate the present claim that the verbalizing little *v* head can only select for one result predicate as its complement.[17] These examples, illustrated below in (42), apparently involve the realization of two overt result predicates, i.e.,

[17] The material in this section comes from Ausensi & Bigolin (under reviewa).

an AP denoting a change of state and a PP denoting a change of location.[18]

(42) a. A guard shot him dead off his horse. (Cappelle, 2005: 252)
b. Schumacher's forearm connected with Battiston's face, removing two teeth and knocking him unconscious to the ground. (GloWbE)
c. They spotted a man waiting in ambush in a tree. J.B. was quick on the draw and shot him dead out of the tree! (Web)
d. A man has been shot dead to the ground by police in Westminster. (Web)

It is important to note that examples of the type in (42) are critically different from the ones in (26), i.e., *He pounded the dough flat into a pancake-like state*, in the sense that there is not a semantic relation between the states denoted by the APs and PPs. Namely, while the PPs in examples of the type in (26) have been shown to denote a state that is a further specification of the result state named by the APs (i.e., *into a pancake-like state* further specifies the state of *flat*), and therefore join the syntactic derivation as adjuncts to the resultative layer, it is rather difficult to posit that the same semantic relation is involved in examples of the type in (42) insofar as the APs and PPs denote distinct result states, i.e., the former denote changes of state (e.g., *dead*) and the latter changes of location (e.g., *off his horse*).

In this section, noting a parallelism with secondary predication of the depictive type, e.g., *He froze the meat raw*, in which the states denoted by the main verb and the secondary predicate are independent of each other (i.e., *freeze* encodes a state along a property scale of *frozenness*, whereas the depictive *raw* along a scale of *rawness*), the path PPs in examples of the type in (42) are argued not to be realizations of result predicates or adjuncts to the resultative layer along the lines of (26). Namely, they involve a novel type of secondary predication of the depictive type that colleagues and I in joint work (Acedo-Matellán et al., to appear) called low depictives. In particular, low depictives are introduced by a low applicative head that we dubbed Dep_s, adopting a modified version of the theory of depictives as put forth by Pylkkänen (2008). Before laying out the analysis of the examples in (42), I

[18] This type of examples was first observed by Cappelle (2005), but have gone largely unanalyzed in the literature (though see Iwata, 2020).

first provide the theoretical backdrop necessary for their analysis.

4.4.1 Introducing low depictives

In Acedo-Matellán et al. (to appear), we argued that apparent cases of adjectival resultative constructions in Old Romance (see Troberg & Burnett, 2017; Troberg, 2019 for Old French), as illustrated below for Old Spanish, do not constitute actual cases of (adjectival) resultative constructions of the type found in satellite-framed languages such as English (cf. *John shot the man dead*).[19] In contrast, we argued that these Old Romance constructions involve a type of secondary predication that we dubbed low depictive. In doing so, we showed that Old Romance languages adhered to Talmy's (1991; 2000) class of canonical verb-framed languages (further see Klipple, 1997; Mateu & Rigau, 2002, 2010; Acedo-Matellán, 2016; Bigolin & Ausensi, 2021).[20]

These Old Spanish constructions are illustrated in (43) (from Acedo-Matellán et al., to appear) and involve result verbs as their main predicate encoding a change of location, e.g., *derribar/derrocar* 'knock down', and what at first blush appears to be a result phrase, e.g., an AP denoting a change of state such as *muerto* 'dead' or *tollido* 'crippled'.

(43) a. *los derriba mortalmente*
ACC.M.3PL knock-down.PRS.3SG deadly
feridos.
hurt.PTCP.M.3PL
Lit. 'He knocks them down deadly injured.' (Anonymous, *Crónica Troyana* [BNM I733], 1490)

b. *y derribó muerto Héctor al*
and knock-down.PFV.3SG die.PTCP.M.3SG Héctor DOM=the
cruel Anpimaco.
cruel Anpimaco

[19] The material in this subsection has appeared in *Theory, data and practice. Selected papers from the 49th Linguistic Symposium on Romance Languages* as Acedo-Matellán et al. (to appear).

[20] See Acedo-Matellán et al. (to appear) for a detailed account regarding the claim that such Old Romance constructions do not constitute actual cases of adjectival resultative constructions of the satellite-framed type. In this section, I focus on the novel class of depictives we laid out.

Lit. 'And Héctor knocked the cruel Anpimaco down dead.' (Juan de Mena, *Homero romanzado*, 1442)

c. *tollidos los derribó de los*
cripple.PTCP.M.PL ACC.M.3PL knock-down.PFV.3SG of the
cavallos en el campo.
horses in the field
Lit. 'He knocked them down crippled off the horses in the field.' (Garci Rodríguez de Montalvo, *Amadís de Gaula* [Books I and II], 1482-1492)

In Acedo-Matellán et al. (to appear), we noted that examples of this Old Spanish construction entail that the referent of the object only becomes dead when the event denoted by the main verb, i.e., *derribar* 'knock down', ends. Namely, in (43-b), Anpimaco is not dead when Héctor begins the event of knocking him down. A crucial property of these constructions thus relates to the fact that the state denoted by the APs, e.g., *muerto* 'dead', necessarily overlaps with the result state encoded by the main verb, i.e., *derribar* 'knock down'. These Old Spanish constructions are therefore critically different from standard depictive secondary predications (cf. Rapoport, 1983; Geuder, 2000; Rothstein, 2000; Pylkkänen, 2008) since in this type of secondary predication the state that is denoted by the depictive predicate necessarily holds for the entirety of the event denoted by the main predicate.

(44) a. John froze the meat raw.
b. They burned the bandit alive.
c. She painted the door open.

Namely, in standard depictive predications as illustrated in (44), it is understood that the referents of the objects, i.e., *the meat*, *the bandit* and *the door* are *raw*, *alive* and *open*, respectively, when the events denoted by the main verbs start and finish. In Acedo-Matellán et al., we drew on this crucial difference between standard depictives and the Old Spanish constructions of the type in (43) in order to build our analysis of low depictives, which we based on the analysis of secondary predication as put forth by Pylkkänen (2008). In what follows, I briefly overview Pylkkänen's account of secondary predications of the depictive type before introducing low depictives.

4.4.1.1 Depictive secondary predications

Arguing against small clause analyses of depictives (cf. Williams, 1980), Pylkkänen (2008) proposes a complex predicate account that involves a functional head called Dep which combines with the secondary and the main predicate. Pylkkänen's account aims at capturing the fact that, in standard depictives, the state denoted by the depictive necessarily overlaps with the event denoted by the main verb, as discussed above for (44). The semantic denotation Pylkkänen gives for the functional head Dep is provided in (45), which is in turn adopted from Geuder (2000).

(45) $\lambda f_{<e,<s,t>>}.\lambda x.\lambda e.\ (\exists s)\ f(s, x)\ \&\ e \circ s$

In particular, the functional head Dep takes three arguments, namely a predicate of states, an entity and an event. Dep thus involves the existential binding of the state that holds of the entity. The overlapping of the event and the state is captured by means of the $\circ$ operator (Acedo-Matellán et al., to appear). Putting all the pieces together, a depictive predication in English adopting Pylkkänen's approach is represented as follows (see Pylkkänen, 2008: 24-5 for further details).

(46) Sue saw Peter tired.

a. $\lambda x.\lambda e.$ seeing (e) & agent (e, Sue) & theme (e, Peter) & $(\exists s)$ tired (s) & in (Peter, s) & $e \circ s$.

b. [Sue [Voice [Peter [see [DepP tired Dep]]]]]
(Acedo-Matellán et al., to appear)

In (46), Dep combines with the depictive predicate, i.e., *tired*, creating a predicate that denotes a state which is temporally associated with the event denoted by the main verb. The constituent DepP then combines with the main predicate, i.e., the verb *see*, by means of Predicate Modification, since they have the same type, namely $<e,<s,t>>$. Last, Pylkkänen's account involves the merging of the internal argument saturating the entity argument. The overlapping function $\circ$ makes it possible that the state denoted by the depictive predication, i.e., that of being tired, temporally overlaps with the event denoted by the main predicate, i.e., that of seeing (Acedo-Matellán et al., to appear).

Importantly, in order to provide evidence for the Dep functional projection in secondary predications of the depictive type, Pylkkänen notes that

languages like Finnish appear to have specific morphology for adjectives in depictive secondary predications (cf. the essive marking in (47-b)).

(47) Finnish (from Pylkkänen, 2008: 24)

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

b. *Sö-i-n tomaati-n raaka-**na**.*
eat-PST-1SG tomato-ACC raw-ESS
'I ate a tomato raw.'

4.4.1.2 Back to low depictives

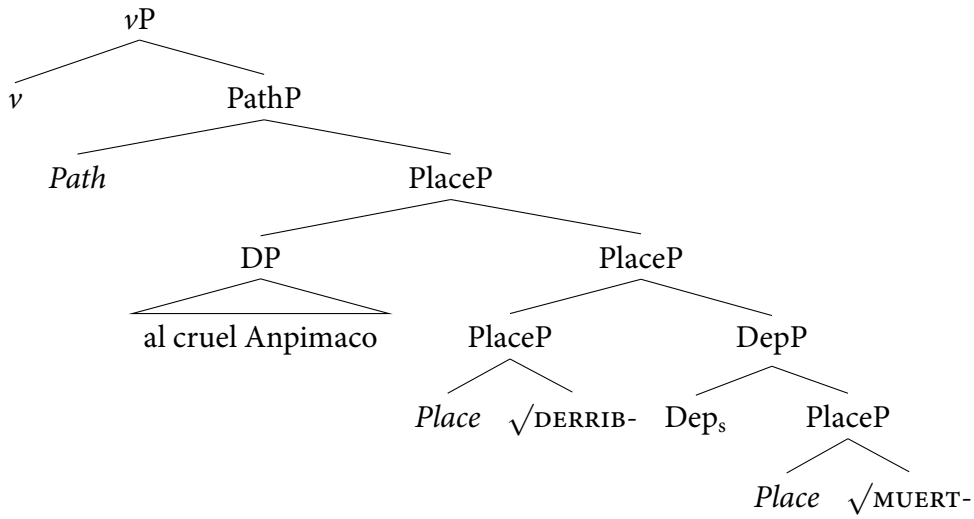
In Acedo-Matellán et al. (to appear), we adapted Pylkkänen's (2008) account of depictive secondary predication by proposing a modified version of the functional head Dep which we dubbed Dep_s and defined as in (48), in order to analyze the pecularities of the Old Spanish constructions of the type in (43).

(48) $\lambda f_{<s,<s,t>>}.\lambda x.\lambda s_1.\ (\exists s_2)\ f(s_2, x)\ \&\ s_1 \circ s_2$
(Acedo-Matellán et al., to appear)

In contrast to the original Dep head as put forth by Pylkkänen (2008), Dep_s is linked to a projection denoting a (result) state, rather than to a projection denoting an event as in standard depictive secondary predication (cf. (45)). Such a modification of the Dep head captures the fact that, in Old Romance adjectival constructions of the type in (43), the state denoted by the secondary predicate, e.g., *muerto* 'dead' or *tollido* 'crippled', only holds of a participant after the event described by the main predicate, i.e., the *knocking down*, is over, as previously discussed. Consider this in the example below (from Acedo-Matellán et al., to appear), where a VoiceP projection introducing the external argument, i.e., *Héctor*, has been omitted for expository purposes.[21]

[21] The theory of argument/event structure we adopted in Acedo-Matellán et al. (to appear) is based on the neoconstructionist theory as developed in Acedo-Matellán (2016), which is in turn heir of Hale & Keyser (1993, 2002); Mateu (2002), where the basic functional heads that build argument relations are *v*, which denotes an eventuality, and *p*, denot-

(49) *y derribó muerto Héctor al cruel*
and knock-down.PFV.3SG die.PTCP.M.3SG Héctor DOM=the cruel
Anpimaco.
Anpimaco
Lit. 'And Héctor knocked the cruel Anpimaco down dead.' (Juan de Mena, *Homero romanzado*, 1442)



In particular, in (49), Dep$_s$ first takes a secondary predicate as its complement (e.g., *muerto*) and combines it with the projection denoting the result state (to be identified by √DERRIB-). This way, the state introduced by the secondary predicate is understood as overlapping with the state resulting from the event (i.e., the syntactic result state). The subject of the resultative predication (i.e., the specifier of PlaceP) becomes the third argument of Dep$_s$, and is interpreted as the entity about which the result state and the secondary predicate simultaneously start to hold. In this way, low depictives denote states that are temporally linked with the state denoted by a result predicate crucially to the exclusion of the event that brings about the result.

ing a spatial relation. In this neoconstructionist approach, *p* comes in two types, i.e., Place, encoding a location/state, and Path, which encodes a change of location/state (further see Mateu, 2002, 2012; Acedo-Matellán, 2010, 2016).

4.4.2 Building low depictives in English

I propose that in examples of the type in (42), e.g., *A guard shot him dead off his horse*, which at first blush appear to involve the realization of two result phrases, i.e., the AP *dead* and the path PP *off his horse*, the PPs do not involve the realization of a syntactic result state or an adjunct to the resultative layer along the lines of (26), but rather a secondary predication of the low depictive type as put forth by Acedo-Matellán et al. (to appear).

As discussed in detail in the previous section, low depictives join the syntactic derivation in the form of a low applicative head called Dep_s, which introduces a state that holds after the event denoted by the main predicate is over. Namely, in the example *A guard shot him dead off his horse*, Dep_s connects the state of *being off the horse* with the projection that denotes the result state, i.e., the result phrase *dead* denoting the result state of *being dead*, which is brought about in turn by the event denoted by the main predicate, i.e., the *shooting*. Additional examples of the type in (42) are provided in (50).

(50) a. I once had seen him attacked by a group that battered him bloody to the ground. (Web)
b. Five eagles were knocked dead to the ground in this fashion. (GBooks)
c. They would dig these huge holes and tell our men to stand by them as they shot them dead into the grave. (Web)
d. Amelia Boynton, tear-gassed and clubbed unconscious to the ground during the first charge. (COCA, *apud* Iwata, 2020)

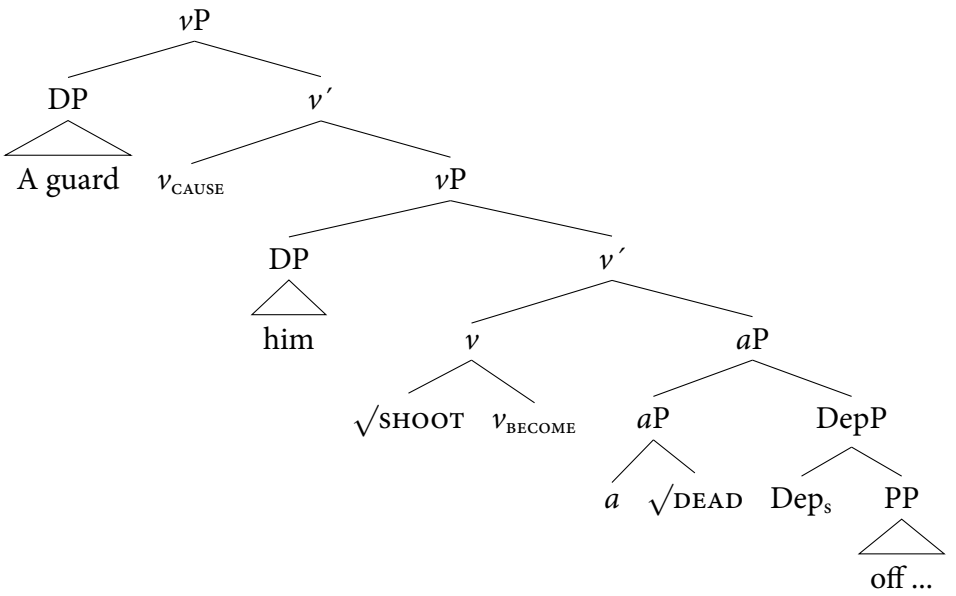
In particular, in this type of examples, the states that are denoted by the PPs temporally overlap with the result states denoted by the result predicates, i.e., the APs. Namely, as illustrated in (51) for the example *A guard shot him dead off his horse*, the result state of *being dead* and the state of *being off his horse* simultaneously hold of the object referent crucially to the exclusion of the event denoted by the main predicate, i.e., the *shooting*.[22]

In contrast to examples of the type in (26), e.g., *freeze solid into a crusty*

[22] In the sense that the result state is realized in the complement position of *v*, to the exclusion of *v*.

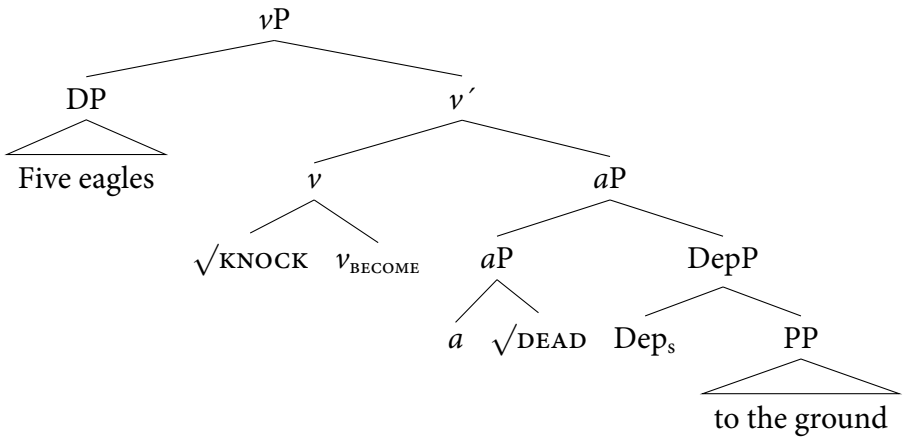
mass—where the PP is taken to denote a state that is a further specification of the result state denoted by the AP—no direct semantic relation is expected to hold in (42) and (50) between the two distinct states denoted by the APs and PPs under a low depictive analysis. Thus, the state denoted by the low depictive predication is not to be considered a further specification of the result state denoted by the APs insofar as the result phrases—the APs—and the low depictives—the PPs—introduce two distinct states that are unrelated to one another.[23] Drawing on the analysis for the Old Spanish constructions that we put forth in Acedo-Matellán et al. (to appear) (cf. (49)), I propose the following structure for the examples of the type in (42) and (50).

(51) A guard shot him dead off his horse.



[23] Of course, although no semantic relation along the lines of (26) is involved in low depictive predications, the states denoted by the result phrases and the low depictive predications are nonetheless expected to be pragmatically compatible with each other, in the same way that in standard resultative constructions of the *hammer the metal flat* type, the result state denoted by the AP needs to be pragmatically compatible with the action that the main verb denotes.

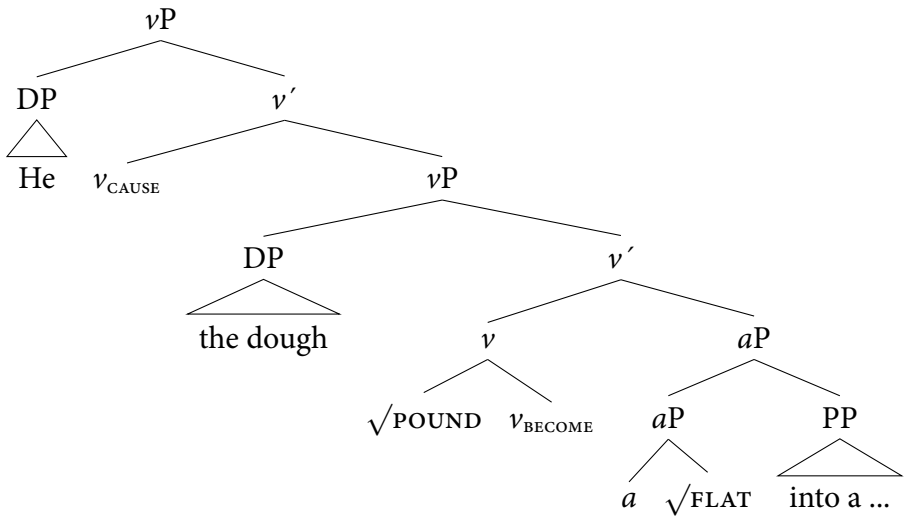
(52) Five eagles were knocked dead to the ground in this fashion.



The secondary predicate *off his horse* in (51) and *to the ground* in (52) are the first arguments taken by Dep_s. The second arguments are the result states denoted by the result predicates selected as the complement of *v*, i.e., the APs *dead*. The third and last arguments Dep_s takes are the specifiers of the *v*Ps, i.e., the arguments *him* in (51) and *five eagles* in (52). These examples thus involve a result state denoted by a result predicate, i.e., the APs *dead* as the complements of *v*, that holds of an argument as the result of the event denoted by the main predicate, i.e., the *shooting* and *knocking* respectively, and crucially temporally overlaps with the states denoted by the low depictives, i.e., the states denoted by the PPs *off his horse* and *to the ground*.

It is important to note that examples involving low depictive predications further contrast with examples of the type in (26), e.g., *pound the dough flat into a pancake-like state*, in that they do not involve word ordering restrictions between the APs and the PPs (cf. (27), e.g., **pound the dough into a pancake-like state flat*). This is a welcome fact since in (26) the PP denotes a state that is a further specification of the result state denoted by the result predicate, the AP, and therefore the PP joins the syntactic derivation as an adjunct to the resultative layer, as illustrated in (28), repeated below as (53).

(53) He pounded the dough flat into a pancake-like state.[24]



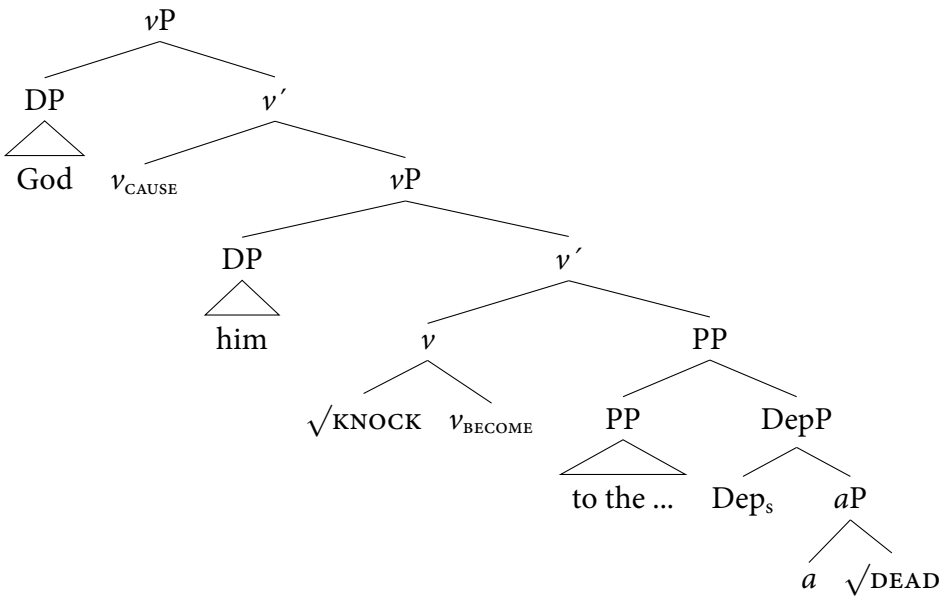
In the examples at stake, on the other hand, the APs and the PPs denote states that are unconnected to one another, as previously discussed. Thus, in contrast to the examples in (26), under a low depictive analysis, the AP is expected to be able to join the syntactic derivation in the form of a low depictive and the path PP merged as the complement of the verbalizing little *v* head instead of the AP realizing the syntactic result state and the PP the low depictive, as it was the case in (42) and (50). This is actually borne out as naturally-occurring examples involving this structure are attested.[25]

[24] Note that the difference between examples of the type in (53) and examples involving low depictive predications such as (52) is not to be related to the structural relation between the APs and the PPs/DepPs but rather on the semantics imposed by the Dep_s head, cf. (48).

[25] The attentive reader might ask what prevents the second phrase in result predicates like **wipe the table dry clean* or **laugh oneself silly faint* to be realized as a low depictive. I speculate that these combinations are not possible since in order for a low depictive predication to hold, the state denoted by the low depictive phrase must be (pragmatically) compatible and an expected outcome from the result state denoted by the main predication. Namely, examples of *shoot somebody dead off his horse* are possible on a low depictive reading insofar as the low depictive *off his horse* denotes a state that is a natural (and expected) consequence from the event of *shooting him dead*. In contrast, it is hard to see how such a relation can be said to hold from an event of *wiping a table dry clean* or *laugh oneself silly faint* where the APs denote states that are unconnected to each other in the sense that the second AP is not a state that holds as a consequence of the main predication, therefore making it difficult to

(54) a. He was working as a helper to the drum runner, stepping back struck an electric wire with his shoulder and was knocked to the ground dead. (GBooks)
b. God hit him with a lightning bolt and knocked him to the ground dead as a doorknob. (GBooks)
c. [...] a death beam that causes them to merely be knocked to the ground dead. (Web)

(55) God knocked him to the ground dead.



In these examples, in contrast to (42) and (50), the secondary predicate *dead* is the first argument taken by Dep_s. The second one is the result state denoted by the result predicate which is selected as the complement of *v*, i.e., the PP *to the ground*. As in (42) and (50), the object *him* in the specifier

establish a relation that would allow for a low depictive predication. Concomitantly, I also believe that there might be an independent reason preventing the combination of two simultaneous APs, since this combination does not appear to be possible outside the domain of resultativity either:

(i) a. *John is intelligent handsome. (cf. John is intelligent/handsome)
b. *John arrived tired sleepy. (cf. John arrived tired/sleepy)

position of the *v*P is the last argument taken by Dep_s.

Concomitantly, it is worth pointing out that examples involving this structure, i.e., the path PP realized as the result predicate and the AP as the low depictive, show an ambiguity related to the possibility of attributing the AP a high or a low depictive interpretation. In particular, in the example below, it is possible to have a high depictive interpretation that the state of *being dead* holds for the entirety of the event, i.e., the referent of the object was dead when the event denoted by the main predicate began and finished (cf. (44)). In contrast, a low depictive interpretation follows if the state of *being dead* is only associated with the state denoted by the result predicate, i.e., when both states temporally overlap. Compare this below.

(56) God knocked him to the ground dead.

a. He was dead during the event of knocking him to the ground. (= High depictive)

b. He was dead only after the event of knocking him to the ground. (= Low depictive)

Namely, the possibility of having a high or low depictive interpretation is a welcome fact that is accounted for by the present account since it follows from the fact that there are two possible structures when it comes to depictive secondary predication, i.e., only low depictive predications are embedded under the resultative layer, whereas high depictive ones are not (cf. Pylkkänen, 2008), and they therefore differ in the interpretations they yield.

This structural ambiguity, however, is not available when the depictive secondary predicate is realized by a PP headed by *to* (e.g., *knock them bloody to the ground*). I suggest that this is because PPs headed by *to* typically denote states which start to hold at the end of an event, not states that hold for the whole duration of the event. Thus, only a low depictive interpretation is compatible with the semantics of *to*, but not the interpretation associated with high depictives, since high depictives introduce a state that holds for the entirety of the event. From this it follows then that PPs headed by *to* should not be attested in structures involving a high depictive configuration and in turn that only PPs involving locative Ps, e.g., *in, at, on*, are possible on a high depictive configuration (58) (Ausensi & Bigolin, under reviewa). As illustrated by the examples below, this appears to be borne out.

(57) He knocked them bloody to the ground.
  a. They end up on the ground as a result of being knocked bloody. (OK Low Depictive)
  b. They are on the ground during the knocking event. (# High Depictive)

(58) With his bow from the top of the hill, John shot the knight dead in the castle.
  a. The knight ends up in the castle as a result of being shot dead. (# Low Depictive)
  b. The knight is in the castle during the shooting event. (OK High Depictive)

In the next section, I turn to discuss the role of Ps of the *to* sort in secondary predication of the low depictive type in more detail.

4.4.2.1 Stativity and low depictives

It is important to note that the low depictive head we put forth in Acedo-Matellán et al. (to appear), defined as in (48), repeated below as (59), imposes a stativity requirement on the complement it takes, i.e., it needs to be interpreted as stative.

(59) $\lambda f_{<s,<s,t>>}.\lambda x.\lambda s_1.\ (\exists s_2)\ f(s_2, x)\ \&\ s_1 \circ s_2.$

Consequently, analyzing PPs headed by *to* (e.g., *to the ground*), which are generally assumed to involve a transition, as being selected as the complement of the Dep_s head (cf. (52)), as in the examples in (50), repeated below as (60), leads to the (nontrivial) assumption that this type of PPs is lexicalizing a state, rather than a transition when the PPs are taken as the complements of the low depictive head.

(60) a. I once had seen him attacked by a group that battered him bloody to the ground. (Web)
  b. Five eagles were knocked dead to the ground in this fashion. (GBooks)
  c. They would dig these huge holes and tell our men to stand by them as they shot them dead into the grave. (Web)
  d. Amelia Boynton, tear-gassed and clubbed unconscious to the

ground during the first charge. (COCA, *apud* Iwata, 2020)

This analysis of PPs headed by *to* as lexicalizing a state to the exclusion of the transition would then go against the widespread assumption that this type of PPs inherently involves a transition, which would in turn make them incompatible with the state reading that is imposed by the semantics of the Dep_s head (59). In this respect, I follow Ausensi & Bigolin (under reviewa) in claiming that *to*-PPs are not to be analyzed as lexicalizing a transition, but instead as lexicalizing a state, i.e., that of being in some location, to the exclusion of the transition, which is taken to be read off the syntactic structure, as discussed below. Although this analysis is not that widespread, it has been proposed before, an important case being Ramchand (2008). Before laying out the analysis of *to*-PPs, I first provide a brief overview of the theory of event structure developed in Ramchand (2008).

Roughly put, Ramchand's (2008) theory of event structure involves three projections. Namely, the first one is what she calls the *init(iation)*P, which introduces the initiator of the event. The second one relates to the projection called *proc(ess)*P that introduces the undergoer of the event and the process. The third and last one relates to the projection that introduces the result of the event and the resultee, i.e., what she calls the *res(ult)*P. In particular, consider Ramchand's (2008: 45) description of these three projections in her theory of event structure.

> The *res* head in the first-phase syntax is interpreted as building a state description that has a particular 'holder' in its specifier position. [...] When the *res*P is selected by a process-introducing head, *proc*, the holder of the state is then the holder of a 'result'. [...] the process-introducing head *proc* [...] takes an argument in its specifier position that is interpreted as the undergoer of the process, and a state description in its complement position that is interpreted as the result state.

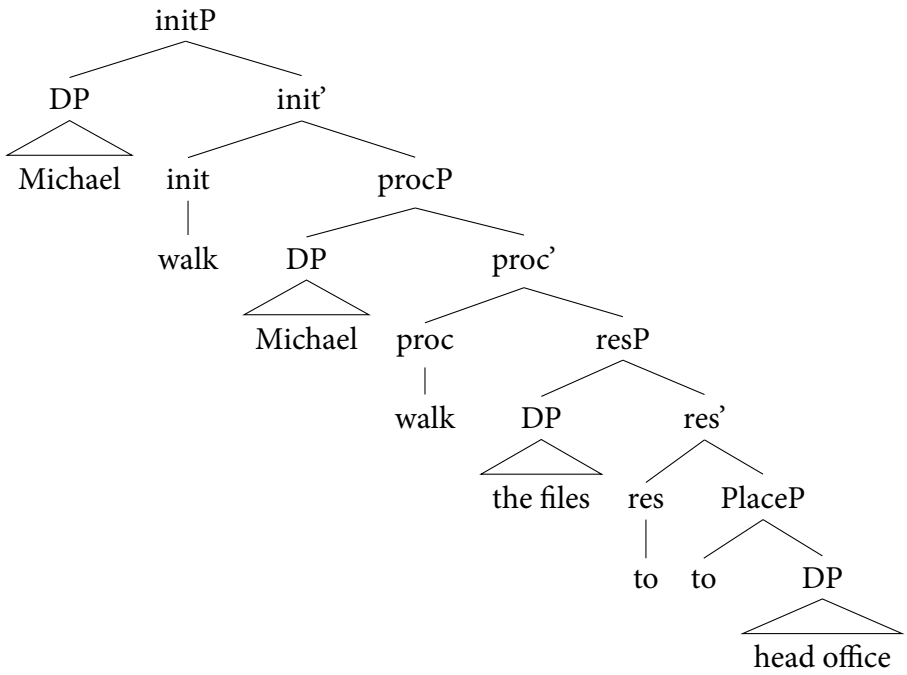
For the present purposes, it is important then to consider the denotation that Ramchand gives for the *res* head, as defined below.

(61) $[\![\text{res}]\!] = \lambda P \lambda x \lambda e[P(e) \,\&\, \textit{res}'(e) \,\&\, \text{State}(e) \,\&\, \text{Subject}\,(x,e)]$

In particular, the *res* head introduces a state crucially to the exclusion of the eventuality itself. This is important for the present purposes insofar as Ram-

chand takes the *to* P to lexicalize the *res* head when *to*-PPs are involved in resultative predicates, therefore making evident the inherent stative reading that is associated with PPs headed by *to* under this analysis (Ausensi & Bigolin, under reviewa). Consider this below.

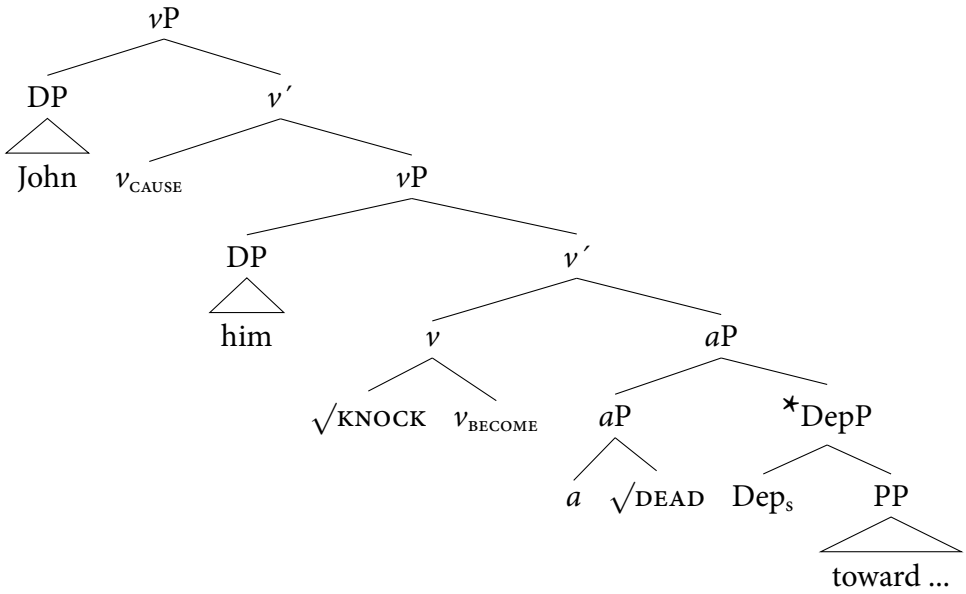
(62) Michael walked the files to head office. (Ramchand, 2008: 118)



Ramchand (2008: 119) herself acknowledges that her analysis of Ps of the *to* type substantially differs from well-established analyses available in the literature (cf. Jackendoff, 1983; Zwarts, 2005, *i.a.*) in that *to*-Ps are not an instantiation of a Path head, but instead of a head that "obligatorily combines with a dynamic verbal extended projection".

Assuming that Ramchand is right in her analysis, a prediction that follows regarding low depictives is that PPs that do involve the realization of a Path component, e.g., PPs headed by Ps of the *toward* type, are not expected to be realized as the complement of the Dep_s head. In other words, *toward*-type Ps' inherent dinamicity should make them incompatible with the stativity requirement imposed by the low depictive head. As illustrated by the example below, this prediction appears to be borne out.

(63) ??John knocked him dead toward the ground.



In particular, Ramchand's analysis of *to*-PPs is compatible with a low depictive reading insofar as these PPs, under her analysis, are taken to introduce a state that holds of an entity after the event denoted by the main predicate is over, i.e., they are interpreted as introducing states to the exclusion of the transitions bringing about these states. To the extent that a low depictive predicate introduces a state which is intended to hold of an entity after the event of transition is over, *to*-PPs meet the requirement to be able to lexicalize low depictive predications (Ausensi & Bigolin, under reviewa).[26]

[26] There is yet another and final set of examples that we analyzed in Ausensi & Bigolin (under reviewa) not fully discussed here (yet see (68)-(69)) which involves cases where a particle and an AP introduce two distinct result states as in the following examples.

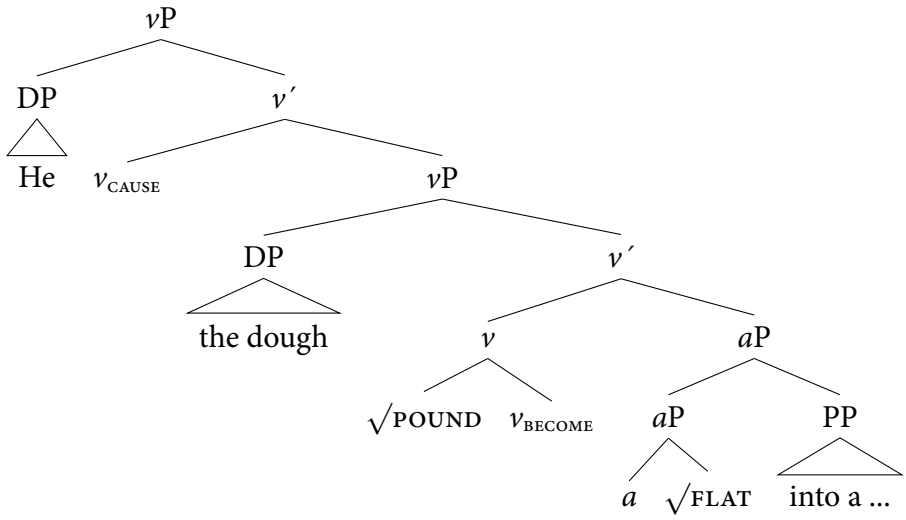
(i) a. A tractor comes along and knocks him down dead. (Cappelle, 2005: 252)
b. In a fight between an officer and a warrior, the warrior was shot down dead. (GBooks)
c. One of the more drunken young warriors was trying to take a musket from a soldier to look at it, and he was knocked down unconscious. (GBooks)

In these examples, the AP is taken to join the syntactic derivation in the form of a low depictive, whereas it is the particle that realizes the result predicate. These examples are

4.4.2.2 Welcome predictions

In this section, I discuss some additional predictions from the present structural account (cf. §4.3.2). First, it predicts that resultative constructions that involve verbal roots adjoined to *v* which semantically encode a result state, as in (17)-(18) (e.g., *Flared gas [...] is directly burnt into the atmosphere* (Web)) should be able to co-occur with low adjunct modifiers targeting the result state, as in examples of the type in (26), repeated below as (64).

(64) He pounded the dough flat into a pancake-like state.

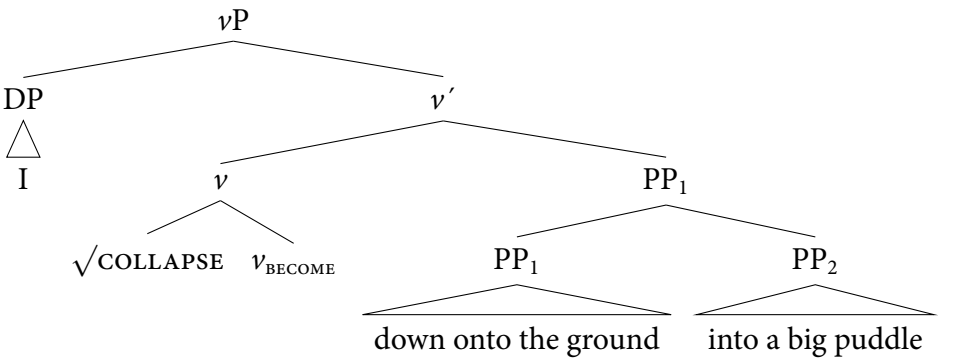


This prediction appears to be borne out as illustrated by the example in (65), in which the verbal root √COLLAPSE, which can be said to semantically encode a result state, is merged as a modifier to *v*, as it provides the manner with which the change of location event is achieved, whereas the path PP *into a big puddle* is taken to be the realization of the low adjunct modifier targeting the result state, denoted by the result predicate *down onto the ground*, merged as the complement of *v*.[27]

somewhat more complex in that they show strict word ordering restrictions, i.e., the particle must precede the APs, e.g., **The warrior was shot dead down*. See Ausensi & Bigolin (under reviewa) for discussion.

[27] I follow Svenonius (2010) in analyzing the particle as part of the extended projection of the path PP. See Svenonius (2010) and Ausensi & Bigolin (under reviewa) for further

(65) I collapsed down onto the ground into a big puddle.[28] (Web)



In particular, the low adjunct modifiers, i.e., *into a pancake-like state* in (64) and *into a big puddle* in (65), are taken to provide further specification about the result state denoted by the result predicates selected as the complement of *v*, i.e., the AP *flat* in (64) and the PP *down onto the ground* in (65). In other words, the states denoted by the AP and property PP in (64) and the two path PPs in (65) are semantically connected to one another, the latter being a further specification of the former, in contrast to examples involving low depictive predications (cf. (42)) where the state denoted by the low depictive is unconnected to the state denoted by the result predicate (cf. *A guard shot him dead off the horse*).

Second, the present approach predicts that a resultative construction involving a verbal root that semantically encodes a result state adjoined to *v* as providing the manner of the event should be able to co-occur with a low depictive predication (cf. (42)-(50)). As illustrated by the examples below, this prediction appears to be borne out.

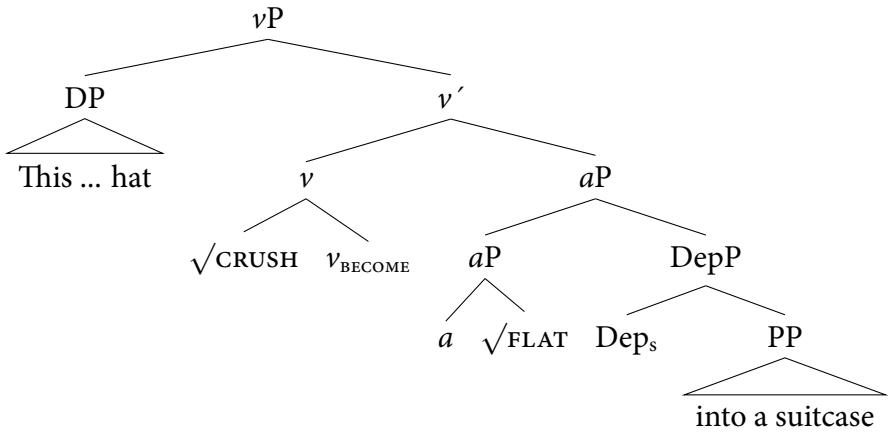
(66) a. This crisp, lightweight wool hat is great for travel because it can be crushed flat into a suitcase. (Web)
b. Aluminum cans are crushed flat into a bale. (Web)
c. [...] and then crack it [= an egg, JA] open into the glass to reveal it is a real egg. (Web)

discussion.

[28] The PP_2 *into a big puddle* is taken thus to provide further specification about the result state that is denoted by the result predicate, i.e., the PP_1 *down onto the ground*.

In this configuration, the verbal root that is merged as a modifier to *v* (i.e., √CRUSH in (66-a) and (66-b) and √CRACK in (66-c)) provides the manner of action to a change of state event whose result state is realized by an AP (i.e., *flat* or *open* in (66)) which are merged as the complements of *v*, together with the co-occurrence of an additional predicate realizing a low depictive predication, i.e., *into a suitcase* in (66-a), *into a bale* in (66-b) and *into the glass* in (66-c).

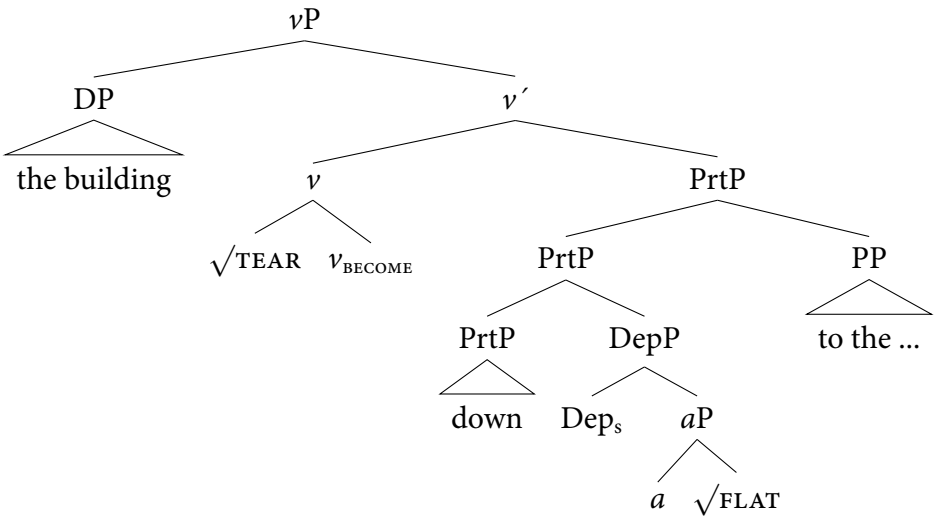
(67) This crisp, lightweight wool hat is great for travel because it can be crushed flat into a suitcase.



Namely, the secondary predicate *into a suitcase* is the first argument taken by Dep_s. The second one is the result state denoted by the result predicate which is selected as the complement of *v*, i.e., the AP *flat*. As in (42) and (50), the argument *this hat* in the specifier position of the *v*P is the last argument taken by Dep_s. The low depictive predication *into a suitcase* thus denotes a state that temporally overlaps with the state denoted by the result predicate, that of *being flat*.

Last, a third prediction relates to the possibility of having a resultative configuration with a verbal root that semantically encodes a result state adjoined to *v* co-occurring with both a low adjunct modifier of the sort in (26), e.g., *He pounded the dough flat into a pancake-like state*, and a low depictive predication. An example illustrating this configuration is provided below.

(68) A couple of rough carpenters could probably tear the building down flat to the ground in a day or so.[29] (Web)



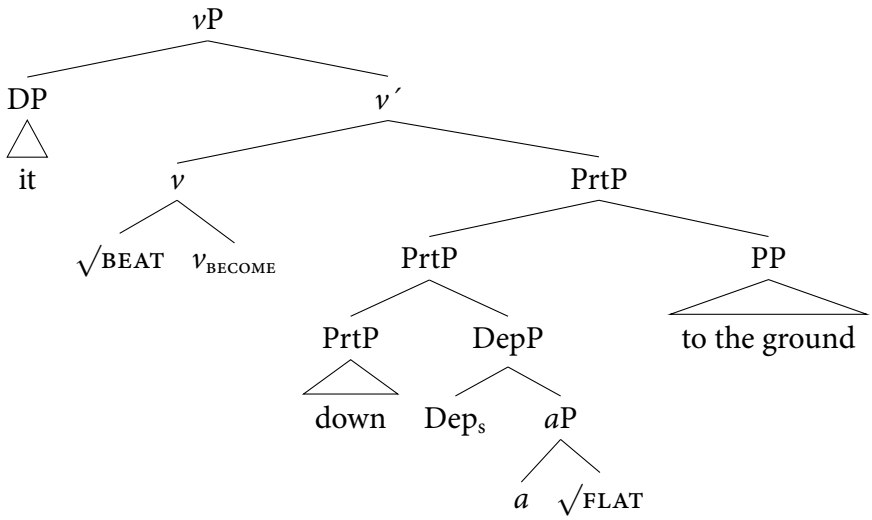
Namely, in (68) the particle *down* is the realization of the result predicate complement of *v*, whereas the AP *flat* joins the syntactic derivation as a low depictive denoting a state that temporally overlaps with the state denoted by the result predicate. The PP *to the ground* is a low adjunct targeting the result state denoted by the particle as it provides further specification about it along the lines of *He pounded the dough flat into a pancake-like state* (26).

On a related note, it is important to point out that the verbal root which is merged as a modifier to *v* need not semantically encode a result state, but simply a manner of action. Namely, the fact that a verbal root can semantically encode a result state does not result in any structural difference between examples involving verbal roots that encode instead a manner of carrying out the event, as in (69).

(69) a. It struck it, and beat it down flat to the ground. (Web)
b. Butt it down flat to the ground. (Web)

[29] Note that I simply make use of the label P(a)rt(icle)P (following Zeller, 2001) in a descriptive, nontheoretical way and do not engage in the discussion regarding the status of particles such as *down*, since it does not have any consequences for the present purposes. For discussion on the nature of particles, see Zeller (2001); Den Dikken (2010); Svenonius (2010), among others.

(70) It struck it, and beat it down flat to the ground.



In particular, in both cases, i.e., in (68) and (69), the verbal root is taken to be adjoined to *v* and is therefore structurally interpreted as providing the manner of the event, regardless of whether it semantically encodes a result state or a manner of action.[30]

4.5 Conclusion

In the present chapter, I have argued that there is a restriction regarding the architecture of event structure that it only allows for the expression of one structural result state per clause. In particular, I have proposed a syntactic account of the Unique Path Constraint which has been proven to be capable of accounting for different complex resultative predications which would challenge the Unique Path Constraint if it is exclusively understood as a semantic restriction imposing constraints on the expression of resultativity in English. In this respect, I have argued that semantically the same clause can involve more than one result state predicated of the same entity contra Goldberg (1991) *et seq.*, yet structurally one clause can only involve

[30] The examples of the type in (65)-(69) were first introduced and discussed in detail as welcome predictions of the syntactic account we developed in Ausensi & Bigolin (under reviewa).

the overt realization of one result predicate.

More specifically, by looking at the types of result phrases that result verbs can combine with, I have argued that, contra Rappaport Hovav & Levin (2010), verbal roots that semantically encode result states, e.g., √SPLIT, can be integrated into the event structure as modifiers to the little *v* head, and are therefore structurally interpreted as providing the manner of action that brings about the structural result state, which is denoted by a result predicate merged as the complement of *v*, e.g., *The ceiling split open*. Thus, although these examples semantically involve that two distinct result states are predicated of the same entity, i.e., the result state encoded by the verbal root and the one by the result phrase, and therefore violate the Unique Path Constraint as originally formulated by Goldberg (1991), they have been argued to be well-formed by the present account insofar as structurally there is only one result state being realized, i.e, the one denoted by the result predicate selected as the complement of *v*.

Further, I have analyzed a type of examples that appears to violate the present claim that the little *v* head can only select for one result predicate as its complement, e.g., *The liquid froze solid into a crusty mass*. As discussed in detail, at first blush these examples appear to violate the present claim since they seem to involve the realization of two result predicates, i.e., the AP *solid* and the PP *into a crusty mass*. Under close examination, however, these examples have been argued to involve the realization of one result predicate, i.e., the AP *solid*, with the property PP *into a crusty mass* joining the syntactic derivation in the form of an adjunct to the resultative layer. In particular, this type of property PPs has been shown to display adjunct properties such as strict word ordering restrictions (cf. **The liquid froze into a crusty mass solid*), which is a welcome fact since PPs of the *into a crusty mass* type have been shown to simply provide further specification about the result state denoted by the result predicate.

Last, I have analyzed a set of examples that involves the realization of two apparent result phrases, i.e, an AP and a path PP as in *A guard shot him dead off his horse*. At first sight, these examples challenge the present structural account since the APs and PPs appear to be realizations of two result phrases, i.e., the APs denote a change of state and the path PPs a change of location unconnected to each other (i.e., one is not a further specification of the other). Following previous work of mine with colleagues (Acedo-Matellán et al., to appear; Ausensi & Bigolin, under reviewa), I have argued,

however, that this type of examples does not violate the present claim that the verbalizing little *v* head selects for one result predicate as its complement insofar as examples of the *He shot him dead off the horse* sort have been argued to involve a type of secondary predication of the depictive type that we dubbed low depictive in Acedo-Matellán et al. (to appear). As discussed in detail, low depictives involve states which are temporally linked with the state denoted by a result predicate after the event denoted by the main predicate is over, in contrast to standard depictive predications where the state denoted by the secondary predicate holds of an argument both when the event denoted by the main predicate begins and finishes (cf. *He froze the meat raw*).

In the present chapter, I have thus provided evidence that argues against Manner/Result Complementarity the way it is intended in Rappaport Hovav & Levin (2010) (see also Rappaport Hovav & Levin, 1998). In particular, the present chapter argues against Rappaport Hovav & Levin's claim that verbal roots encoding manners of action are integrated into the event structure differently than verbal roots encoding result states. Namely, Rappaport Hovav & Levin contend that manner roots are integrated as modifiers, whereas result roots instead are always integrated as complements (cf. Chapter 2). In this chapter, I have preliminarily shown that verbal roots which semantically encode a result state can indeed be merged as modifiers to *v* when a result predicate, which denotes the structural result state, is merged as the complement of *v*. In Chapter 5, I turn to discuss this in more detail as I explore the syntactic distribution of roots and their association patterns with the event structure.

Chapter 5

Roots and their syntactic distribution

Contents

5.1 Introduction

An important challenge for event structural theories which take verb meanings to consist of an event structure that decomposes into event templates and roots relates to successfully accounting for the syntactic distribution of roots, since not all classes of roots seem to appear in the same event templates, i.e., in the same syntactic contexts (cf. §1.3 of Chapter 1). In this respect, as discussed in §2.2 of Chapter 2, Rappaport Hovav & Levin (1998, 2010) influentially proposed that the lexicalization of a manner or result component by the root determines how roots are associated with the event structure, i.e., so-called manner roots are modifiers of an ACT operator, whereas result roots are complements of a BECOME operator. This predicts then that result roots are always associated with the event structure as complements and consequently that result verbs, in contrast to manner verbs, will have distinct argument structure and realization patterns. For instance, Rappaport Hovav & Levin predict that only manner verbs should permit nonselected objects (cf. *John scrubbed his hands raw* vs. **John broke his hands bloody*), since in nonselected object constructions, the verbal root is taken to be associated with the event structure as an event modifier as it provides the manner of the event that brings about a result state denoted by a result phrase (e.g., in *John scrubbed his hands raw* the *scrubbing* brings about the result state of *being raw*). Yet, there are data that challenge Rappaport Hovav & Levin's approach to event structure, since there is a class of result roots that can indeed be associated with the event structure as event modifiers. For instance, examples such as *With a few slices of her claws, she tore him free* (GBooks) involve cases of nonselected object constructions (i.e., the object referent *him* does not become *torn* as it is not subcategorized by the verb) with result verbs such as *tear*, yet the root of *tear* does not appear to be associated with the event structure as a complement, but rather as an event modifier as it provides the manner of the event that brings about the result state of *being free* (i.e., the *tearing* causes the object referent to become *free*).

Other influential approaches to event structure, in contrast, hold that roots are actually devoid of any grammatical information that can be grammatically relevant in determining their syntactic distribution (Borer, 2003, 2005b, 2013; Acquaviva, 2008, 2014; Mateu & Acedo-Matellán, 2012; Acedo-Matellán & Mateu, 2014, *i.a.*). These approaches thus predict that any root

can in principle appear in any event template and consequently that the surface verbs have similar argument structure and realization patterns. However, there are also data that show that there are classes of roots which are not indifferent to syntactic distribution. Namely, the roots of deadjectival result verbs such as *open* do not appear to be associated with the event structure as event modifiers, but always as complements, contra what one would expect under these approaches. In this respect, examples of nonselected object constructions with deadjectival result verbs such as *open* as in **The kid opened the ball into the garden* cannot mean that the *opening* causes *the ball* to end up in the garden, i.e., the root of *open* cannot provide the manner of the event as it cannot function as an event modifier. These data strongly suggest that not all classes of roots can appear in the same event templates, i.e., not all classes of roots are actually indifferent to syntactic distribution.

In this chapter, I focus on the syntactic distribution of roots, i.e., how roots are associated with the event structure, and in turn on the argument structure patterns of the surface verbs. In this respect, I note that the two main approaches to event structure do not successfully capture the syntactic distribution of roots since they either undergenerate or overgenerate, as briefly observed. In particular, I provide data that show that result verbs enjoy a certain degree of elasticity, contra what one would expect under Rappaport Hovav & Levin's (1998; 2010) approach, yet there are cases of lack of verbal elasticity, which strongly suggest that root distribution is not completely unconstrained, as syntactic approaches such as Borer (2005b); Acedo-Matellán & Mateu (2014) hold. In order to account for the data that challenge these two approaches to event structure, I propose that the semantics that distinct classes of roots have (cf. Chapter 3) can determine how roots are associated with the event structure and in turn the argument structure of the surface verbs. Namely, the semantics of roots must be compatible with the semantics of the event structure. Consequently, cases of ungrammaticality are argued to result from clashes between the semantics of roots and the semantics of the event structure. I propose thus that an event structural approach that takes the distinct semantics that root classes have into consideration is actually necessary if one's goal is to successfully account for the distinct argument realization and structure patterns of what at first blush appear to be the same class of verbs.

The present chapter is organized as follows. In §5.2, I provide an overview of the two influential approaches to event structure which have proposed

different ways to account for the syntactic distribution of roots. I note that neither approach successfully captures in which syntactic contexts distinct classes of roots appear. In §5.3, I provide a brief overview of Rappaport Hovav & Levin's claim that result and manner verbs differ in argument structure and realization patterns and show why such an approach to event and argument structure is problematic. In §5.4, I argue against Rappaport Hovav & Levin's claim that the lexicalization of a manner or result component by the root determines the syntactic distribution of roots in the event structure and in turn the argument structure and realization patterns of the surface verbs. In §5.5, I provide evidence against approaches that hold that root distribution in the event structure is actually unconstrained. In this respect, I note that a class of roots never appears as event modifiers, but always as complements, contra what one would expect under these approaches. In §5.6, I propose that an event structural approach that takes the semantics of distinct classes of roots into consideration is necessary in order to account for the syntactic distribution of roots in the event structure and in turn the argument structure and realization patterns of the surface verbs. §5.7 concludes the present chapter.[1]

5.2 The syntactic distribution of roots

Within event structural theories of verb meaning (cf. §1.2.2 of Chapter 1), there are two main influential approaches that have proposed different ways to account for the syntactic distribution of roots. Namely, what Rappaport Hovav (2017) has called Free Distribution approaches (hereafter, FD) and Grammatically Relevant Ontological Categories approaches (hereafter, GROC) (cf. §1.3 of Chapter 1).

The FD approach is prominently represented by the work of Arad (2003, 2005); Borer (2003, 2005b, 2013); Acquaviva (2008, 2014); Harley (2009); Mateu & Acedo-Matellán (2012); Acedo-Matellán & Mateu (2014); Dunbar & Wellwood (2016). On this view, roots are indifferent to syntactic distribution, i.e., in principle any root can appear in any syntactic context. For instance, Borer (2013: 403-417, 436-470) holds that roots are phonological indices without any content insofar as content is only introduced

[1] This chapter is a revision and expansion of Ausensi (to appearb).

when roots appear together with some specific grammatical context. Similarly, Acedo-Matellán & Mateu (2014) (also Borer, 2005b; Mateu & Acedo-Matellán, 2012) argue that any root can appear in any context, yet cases of apparent ungrammaticalities are simply incompatibilities between the semantics introduced by the event templates and the conceptual content of the root. FD approaches thus strongly reject the idea that roots can have content that is grammatically relevant, i.e., content that can determine root distribution, since on this view, roots are not constrained in terms of the syntactic structures they can be associated with. Under these approaches, roots are argued to acquire a semantic interpretation depending on the event templates roots are associated with (Acedo-Matellán & Mateu, 2014: 18). Thus, FD approaches hold that the semantics of the event structure is solely determined by the event templates and roots simply fill in real-world details about the event (cf. §1.3.5 of Chapter 1).

The GROC approach, on the other hand, is adopted in Marantz (1997); Rappaport Hovav & Levin (1998); Harley & Noyer (2000); Reinhart (2002); Embick (2004); Harley (2005); Alexiadou et al. (2006); Ramchand (2008), among many others (cf. §1.3.2 of Chapter 1).[2] Under these approaches, roots fall into grammatically relevant semantic classes defined by their ontological type. The ontological type is argued to determine syntactic distribution, i.e., how roots are associated with the event structure. In this vein, as discussed in §2.2 of Chapter 2, Rappaport Hovav & Levin (1998, 2010) influentially propose that roots fall into two broad semantic classes, i.e., manner and result. Manner roots, e.g., *wipe*, encode manners of carrying out an action and are therefore argued to be associated with the event structure as modifiers of the so-called ACT operator (1), notated via subscripts. Result roots, e.g., *break*, on the other hand, encode states and are therefore argued to be associated with the event structure as complements of the BECOME operator (2).

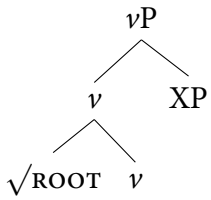
[2] Under Ramchand's (2008) approach, roots come instead with specific features that constrain the event templates they can appear in. Although Ramchand does not classify roots into semantic classes as Rappaport Hovav & Levin do, her approach is still in the spirit of GROC approaches since it is some grammatically relevant specification of the root that determines what event templates roots appear in.

(1) a. John wiped.
b. [John ACT <*WIPE*>]

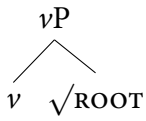
(2) a. The vase broke.
b. [The vase BECOME <*BREAK*>]

Following Rappaport Hovav & Levin (1998, 2010), Alexiadou et al. (2006, 2015) (see also Embick 2004; Harley 2005) adapt this ontological-type classification in the Distributed Morphology tradition (Halle & Marantz 1993) whereby roots are merged as modifiers or complements of verbalizing heads in the verbal domain. In the spirit of Rappaport Hovav & Levin (1998), Alexiadou et al. (2015) thus propose that manner roots are merged as modifiers to the verbalizing little *v* head through direct merge (3) (see Embick 2004; McIntyre 2004; Harley 2005; Mateu 2012), whereas result roots instead are merged as complements of the little *v* head (4) (further see the discussion in §2.3.4 of Chapter 2 as well as Chapter 4).

(3) Manner specification



(4) Result specification



GROC approaches thus share the assumption that the ontological-type classification of roots constrains how roots are associated with the event structure, i.e., as modifiers or complements of certain operators or projections in the verbal domain, determining in turn the argument structure and realization patterns of the surface verbs.

In short, the two main approaches to event structure make completely distinct predictions regarding the syntactic distribution of roots and consequently regarding the argument structure and realization patterns of the surface verbs. On the one hand, GROC approaches such as the one in Rappaport Hovav & Levin (1998) and Alexiadou et al. (2015) predict that manner roots are always associated with the event structure as modifiers, whereas result roots instead are to be associated with the event structure as complements. This in turn predicts that only verbs derived from manner roots will

appear in constructions in which the verbal root is associated with the event structure as an event modifier, as in nonselected object constructions, as discussed above. FD approaches, on the other hand, predict that any root can in principle be both a modifier or a complement in different constructions since roots are not assumed to have an ontological-type classification determining their distribution in the event structure. FD approaches thus predict that the argument structure and realization patterns of the surface verbs will be rather similar.

In what follows, I show that neither event structural approach to verb meaning successfully captures the syntactic distribution of roots. In §5.3, I note that GROC approaches, in particular Rappaport Hovav & Levin's and Alexiadou et al.'s, undergenerate, as there is a class of result verbs that apart from being associated with the event structure as complements, they can also function as event modifiers. Namely, I show that result verbs of the *break* type (e.g., *break*, *tear*, *melt*, *burn*) are compatible with nonselected objects therefore showing that the roots of some result verbs can indeed function as event modifiers (cf. *With a few slices of her claws, she tore him free*).

In §5.5, I note that FD approaches in contrast overgenerate, as there is a class of result verbs that never appears as event modifiers, e.g., the roots of deadjectival result verbs such as *open*, *cool*, *thin* etc. are never associated with the event structure as event modifiers, but always as complements. Consequently, verbs derived from this root class are not found in constructions in which the verbal root functions as an event modifier such as in nonselected object constructions (cf. **The kid opened the ball into the garden*).

In §5.6, in order to account for such a variation in the argument structure patterns of result verbs, I propose that the semantics of certain classes of roots can be grammatically relevant as they can determine the syntactic distribution of roots. In contrast to GROC approaches, roots, however, do not have an ontological-type classification that determines how they are associated with the event structure. Instead, the semantics of roots must be compatible with the semantics of the event structure. Cases of ungrammaticalities are thus argued to result from clashes between the semantics of roots and the semantics of the event templates. Thus, in contrast to FD approaches that hold that roots simply have conceptual content which is not to grammatically relevant, as roots are assumed to fill in real-world details about the event, I assume that certain classes of roots can have structural components of meaning as part of their truth-conditional content (cf. Chapter 3) and that

such meaning components can be grammatically relevant as they can determine grammatical properties such as the syntactic distribution of roots and in turn the argument structure and realization patterns of the surface verbs.

5.3 Manner and result as grammatically relevant ontologies of roots

As discussed in detail in Chapter 2, Rappaport Hovav & Levin (1998, 2010) have influentially proposed that the lexicalization of a manner or result component has grammatical consequences for argument structure and realization as it determines how roots are associated with the event structure. As previously discussed in §2.4 of Chapter 2, at first blush it seems that the facts bear this out, since verbs derived from manner and result roots appear to have distinct argument structure and realization patterns. For instance, canonical manner verbs such as *sweep* (5) and *scrub* (6) permit object deletion, whereas canonical result verbs like *break* (7) and *dim* (8) do not. Compare this in the relevant examples from §2.4.1.2 repeated below.

(5) a. John swept the floor.
b. All last night, John swept.
c. Cinderella outswept her stepsisters.
(Rappaport Hovav & Levin, 2002: 275)

(6) a. John scrubbed the floor.
b. All last night, John scrubbed.
c. Cinderella outscrubbed her stepsisters.
(Rappaport Hovav, 2008: 23)

(7) a. John broke the vase.
b. *All last night, John broke.
c. *Kim outbroke the other vase-smasher.
(Beavers & Koontz-Garboden, 2012: 339)

(8) a. John dimmed the lights.
b. *All last night, John dimmed.
c. *Our stage-hand outdimmed your stage-hand.
(Rappaport Hovav, 2008: 24)

In this respect, as discussed in §2.4.1.2, Rappaport Hovav (2008: 24) has

proposed that result verbs do not permit object deletion since result verbs lexicalize scales of change which somehow force the overt realization of the participant undergoing the change. This thus explains why result verbs apparently do not permit object deletion and nonselected objects, since nonselected objects also involve the deletion of the true object. Further, recall that Levin (2017: 583) similarly argues that the objects of result verbs must be expressed "because to know that a state holds requires looking at the entity it holds of", what she calls the "theme realization condition". Levin further argues that in an event of scalar change (cf. §2.2.1 of Chapter 2), the theme whose property is being measured out "must be expressed due to the theme realization condition and further it must be expressed as an object". Levin argues then that this explains why result verbs "cannot be found with unspecified objects or nonselected objects, nor can they be found in constructions where anything but their theme argument is the object" (Levin 2017: 584). Consider this again in the relevant examples from §2.4.1.2 repeated below in which canonical result verbs appear to disallow nonselected objects (10), whereas nonselected objects are permitted by manner verbs (9).

(9) a. Kim scrubbed her fingers raw.
(Rappaport Hovav & Levin, 2010: 21)
b. The joggers ran the pavement thin.
(Levin & Rappaport Hovav, 1995: 53)
c. The child rubbed the tiredness out of his eyes.
(Rappaport Hovav & Levin, 1998: 7)

(10) a. *The toddler broke his hands bloody.
(Rappaport Hovav & Levin, 2010: 22)
b. *Kim dimmed her eyes sore.
(Beavers & Koontz-Garboden, 2012: 340)
c. *We cooled the people out of the room with the air-conditioner on too high.
(Rappaport Hovav, 2008: 23)

In these examples, the verbal root is associated with the event structure as a modifier of the event as it provides the manner of action with which a result state (denoted by result phrases) is brought about. For instance, (9-a) can be paraphrased as *Kim caused her fingers to become raw by scrubbing*, and under Rappaport Hovav & Levin's lexical approach to event structure would have

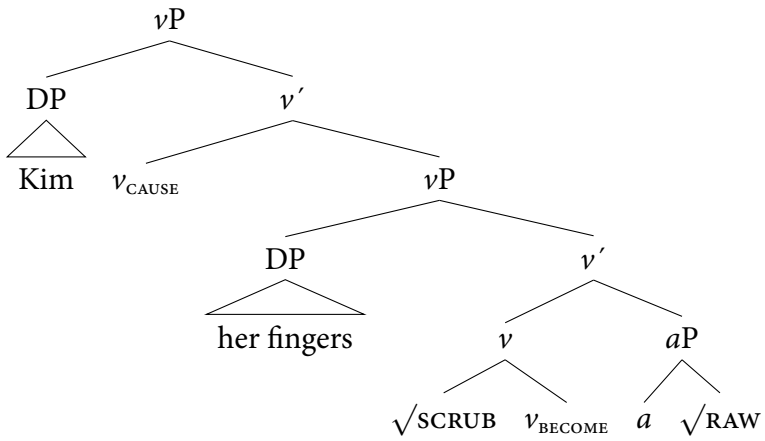
the following event structure: the root of the manner verb *scrub* is associated with the event structure as a modifier of the ACT operator, whereas the result phrase *raw* is the complement of the BECOME operator, as illustrated in (11) (see example (32) from Rappaport Hovav & Levin, 1998: 23). Since the roots of result verbs cannot function as event modifiers, Rappaport Hovav & Levin predict then that the event structure in (12) is apparently not possible.

(11) a. Kim scrubbed her fingers raw.
b. [[Kim ACT <$_{SCRUB}$>] CAUSE [her fingers BECOME <*RAW*>]]

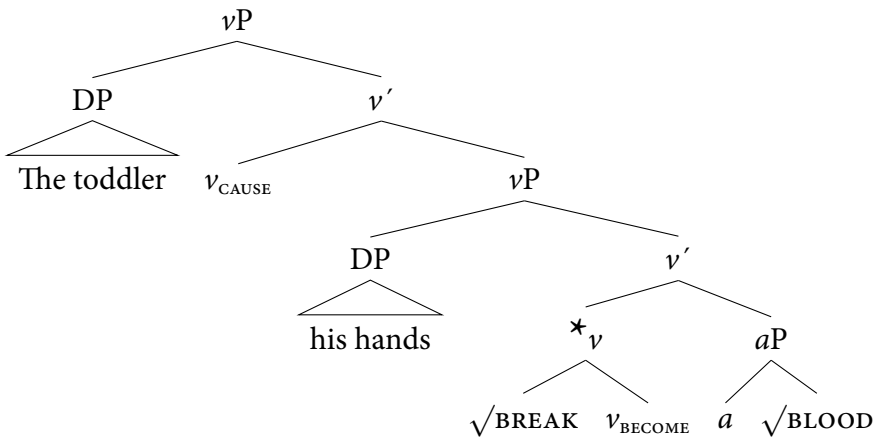
(12) a. *The toddler broke his hands bloody
b. *[[The toddler ACT <$_{BREAK}$>] CAUSE [his hands BECOME <*BLOODY*>]]

Under Rappaport Hovav & Levin's claim that manner and result roots have distinct association patterns with the event structure, the contrast above is apparently accounted for. Namely, (10) are ungrammatical under their approach since in this case the result root is associated with the event structure as an event modifier, and the participant undergoing the change of state encoded by the result root is not realized, i.e., in (12) the entity that ends up *being broken* is not expressed. Under the present approach in which event templates are represented in the syntax (cf. §1.4 of Chapter 1), this would be translated into the fact that only manner roots can be merged as modifiers to *v*, i.e., presumably only manner roots permit root adjunction to *v*, as Alexiadou et al. (2015) have proposed. Compare this below.

(13) Kim scrubbed her fingers raw.



(14) *The toddler broke his hands bloody.



It seems that GROC approaches are thus more successful than FD approaches in accounting for the syntactic distribution of roots, insofar as certain classes of roots, i.e., what Rappaport Hovav & Levin call result roots, cannot be event modifiers, as illustrated by the examples above.

In short, Rappaport Hovav & Levin strongly argue that if a verb encodes a result state predicated of a participant, such a participant must be given syntactic expression. As Beavers & Koontz-Garboden (2012: 338) note, and as previously discussed in §2.4.1.2 of Chapter 2, this constraint can be said to follow from Rappaport Hovav & Levin's (2001: 779) Argument-Per-

Subevent Condition, which, recall, is defined as follows.

(15) Argument-Per-Subevent Condition: There must be at least one argument XP in the syntax per subevent in the event structure.

Namely, Rappaport Hovav & Levin argue that manner and result verbs differ with regard to the subevents they lexicalize. In particular, recall that manner verbs are taken to involve the lexicalization of an ACT subevent, whereas result verbs are taken to always involve the lexicalization of a BECOME subevent. Under Rappaport Hovav & Levin's account, in result verbs the participant whose property is measured out is predicted to be overtly realized, since a result state involves a change-of-state/location (i.e., a BECOME) subevent of which a patient is the unique participant. Rappaport Hovav & Levin thus predict that object deletion and nonselected objects are possible with manner verbs since manner verbs do not involve the lexicalization of a BECOME subevent, which would in turn force the realization of the participant undergoing the change of state.

The approach to event structure that I assume here differs from Rappaport Hovav & Levin (1998, 2010) and Alexiadou et al. (2015) and GROC approaches in general in not assuming ontological types of roots that determine their syntactic distribution. Namely, under the present approach, roots do not bear an ontological-type classification determining their association with the event structure. In this respect, I provide naturally occurring data (16)-(18) that show that the roots of a class of result verbs can appear in nonselected object constructions, i.e., these data show that result verbs can be associated with the event structure as event modifiers and in turn that the participant undergoing the change of state encoded by the result verb need not be overtly realized, contra Rappaport Hovav & Levin. For instance, examples in (16) and (17) involve transitive and unaccusative predicates respectively where the argument of the BECOME subevent (i.e., the direct object in (16) and the subject in (17)) is not understood as undergoing the change of state encoded by the result verb, although the verb involved is of the result type (i.e., in (16-a) the object referent *him* does not become *torn*, but *free*).

(16) a. With a few slices of her claws, she tore him free. (GBooks)
b. Now we drain the blood out of the heart. (COCA)
c. They leafed the bare trees black, broke the branches off the winterdry limbs. (COCA)

(17) a. Molten nuclear fuel can melt through the reactor's safety barriers. (GloWbE)
b. Thieves smashed through the window of the [...] boutique. (COCA)
c. The bullets ripped into the tissue of his back and shoulder. (GloWbE)

Similarly, examples in (18) show transitive predicates with result verbs in which the referent of the direct object is not understood as undergoing the change of state encoded by the verb, but rather as the entity being created by means of the manner of action denoted by the verb. For instance, in (18-b) the referent of the direct object does not become *melted*, but rather it denotes the created entity, i.e., a hole that is created by *melting*.

(18) a. I stuck my GoPro under some ice and then shattered a hole right above it. (Web)
b. Scientist just melted a hole through 3,500 feet of ice. (Web)
c. A [...] team blew a hole in the wall near the embassy and charged through. (COCA)

In particular, the data I provide argue against Rappaport Hovav & Levin's claim on two grounds: (a) that result verbs must always realize the participant undergoing the change of state they encode and (b) that the roots of result verbs are always complements in the event structure, and never event modifiers. In other words, these examples challenge Rappaport Hovav & Levin's approach to event and argument structure as well as their understanding of the Argument-Per-Subevent Condition because these examples counterexemplify their prediction that result verbs must always realize the participant undergoing the change of state they encode. Further, these data also challenge their approach because they further contradict Rappaport Hovav & Levin's claim that the subject of a BECOME subevent is always an argument selected by the verb if the root involved is of the result type. For instance, in (16-a) the argument of the BECOME subevent lexicalized by *tear*, i.e., the participant that becomes torn, is not being realized.

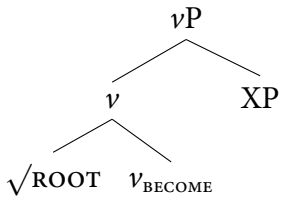
The examples in (16)-(18) further argue against the root-ontological classification as proposed by Rappaport Hovav & Levin and Alexiadou et al. (2015) which is taken to determine syntactic distribution. As I argue next, in these cases the roots of result verbs function as event modifiers providing

the manner of action of the event, but not as complements, as one would expect under Rappaport Hovav & Levin's and Alexiadou et al.'s approaches, since result roots are assumed to have the ontological-type classification of result forcing them to be associated with the event structure as complements. The new data that I provide here thus show that Rappaport Hovav & Levin's claim on the argument realization options of result verbs as well as their approach towards the syntactic distribution of roots is too strong. In what follows, I provide an analysis of these data and argue that they can be explained if one does not assume that the lexicalization of a manner or result component by the verbal root determines grammatical properties such as the syntactic distribution of roots in the event structure or the argument structure and realization patterns of the surface verbs.

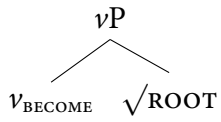
5.4 Against manner and result as meaning components determining root distribution

In the present dissertation, as discussed in §1.4 in Chapter 1 (see also Chapter 4), I do not share Rappaport Hovav & Levin's assumption that roots are constrained in terms of how they associate with the event structure depending on their ontological-type classification. In other words, the ontological-type classification that a root may have such as manner or result is not taken to be grammatically relevant with regard to determining grammatical properties such as the syntactic contexts roots can appear in, since, as preliminarily discussed above, a class of result roots can indeed function as event modifiers. Instead, as discussed in Chapter 4, roots can in principle be structurally interpreted as manner or result depending on how they are merged in the syntactic event structure, i.e., roots adjoined to v_{BECOME} are interpreted as providing the manner of action of the event and roots in the complement position of v_{BECOME} are interpreted as the state that comes about after the event finishes (Embick, 2004: 370-2).

(19) Manner specification



(20) Result specification



Further, in contrast to Alexiadou et al. (2015), I do not assume ontological-type classifications of roots that determine whether a root is merged as an event modifier or as a complement of *v*. Rather, roots can in principle be merged in either position as long as the semantics of roots and the semantics of the event structure are compatible with each other. For instance, only roots that have a certain eventive component as part of their semantics can function as event modifiers, as I discuss in detail in §5.6.

It is crucial to stress that what is to be understood as a result root semantically in terms of its lexical entailments such as √BREAK (cf. Chapter 2) can in principle be merged as an event modifier and provide the manner of action of the event, as I further discuss in detail in §5.4.6 (see also Chapter 4).[3]

5.4.1 Nonselected object constructions

The first set of examples I analyze involves transitive predicates with result verbs, e.g., *rip*, *break*, *crush*, *tear*, in which the direct object is an instance of a nonselected object (as previously illustrated by (16)), i.e., an object which is not subcategorized by the verb insofar as it is not interpreted as the undergoer of the result state named by the verb, but instead as the undergoer of a result state that is expressed independently of the verb, by means of APs as in (21) or by path PPs (22).

(21) a. Samson, who ripped him free of his bindings and pulled him to safety. (Web)
b. Six times we broke her loose from the rocks only to have her catch again. (GBooks)

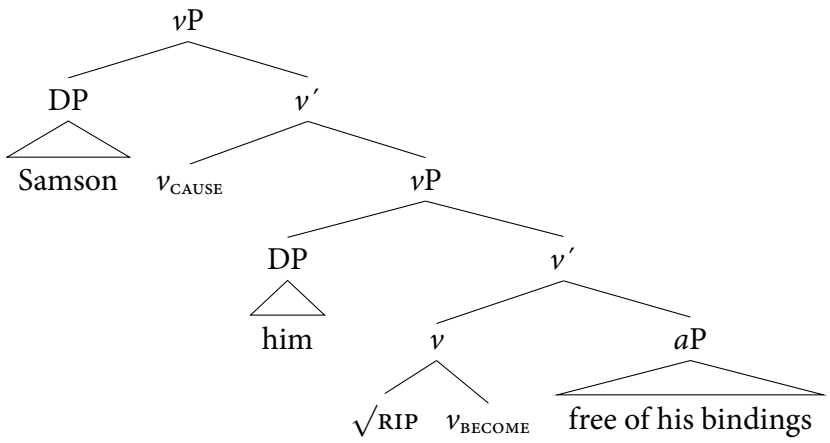
[3] The materials in this section come from Ausensi & Bigolin (under reviewb)

c. With a few slices of her claws, she tore him free. (GBooks)
d. Now we drain the blood out of the heart. (COCA)

(22) a. The power of the wind was used to move water [...] to crush the oil out of linseed and rapeseed. (COCA)
b. Rigaut tore a piece off one of the letters. (COCA)
c. We blasted the tops off mountains. (COCA)
d. Solar energy can be used [...] for splitting hydrogen out of water molecules to create a fuel for vehicles. (COCA)

These examples violate the Argument-Per-Subevent Condition as intended by Rappaport Hovav & Levin as well as their claim that result verbs are not compatible with nonselected objects. Namely, the examples above involve a BECOME subevent and a result verb, yet the subject of the BECOME subevent, i.e., the direct object, is not subcategorized by the verb. For instance, in (21-a), as briefly mentioned before, the referent of the direct object *him* undergoes the change of state denoted by the result phrase *free*, i.e., he becomes *free* and not *ripped*, which would be the result state encoded by the verb. These data thus challenge Rappaport Hovav & Levin's claim that result verbs must always realize the argument of the BECOME subevent they lexicalize. Yet, these examples can be accounted for if one assumes that the lexicalization of manner or result by the root does not determine its distribution in the event structure, which crucially keeps the Argument-Per-Subevent Condition valid as a general restriction on the architecture of event structure and the realization of the participants related to each subevent. In particular, I propose that in these cases, the verbal root is merged as an event modifier to the *v* head, and is therefore structurally interpreted as providing the manner of action of the event in which the structural result state is not denoted by the verb, but by an independent AP result phrase merged as the complement of the *v* head.

(23) Samson ripped him free of his bindings.

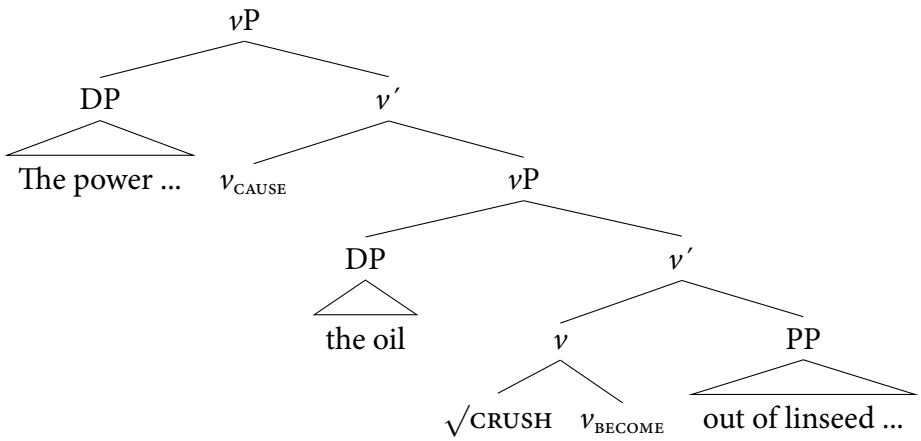


In this type of examples, the root of the result verb *rip* is associated with the event structure as an event modifier, rather than as a complement. Under Rappaport Hovav & Levin's lexical approach to event structure, this translates into *rip* lexicalizing an ACT subevent as it is providing the manner of action of the event, as in nonselected object constructions with manner verbs, e.g., *John scrubbed his fingers raw* (cf. (11)). Under the present account, thus, the selected object of *rip*, i.e., the participant undergoing the ripping event, need not be realized in the predicate, which I take to be a welcome prediction of the Argument-Per-Subevent Condition as intended here, since the object of an ACT subevent is not an argument of that ACT subevent. Consequently, this means that the Argument-Per-Subevent Condition stands valid for this type of examples if one does not assume that the lexicalization of a manner or result component by the root determines their syntactic distribution and the argument structure patterns of the surface verbs.

The same structural analysis is to be given to the examples also involving nonselected objects that have a path PP denoting a change of location as the structural result state (cf. Jackendoff, 1983). Namely, in examples involving path PPs as the predicate denoting the result state as in (22-a), i.e., *The power of the wind was used to move water [...] to crush the oil out of linseed and rapeseed*, the object DP *the oil* is the undergoer of a change of location event whose final location is determined by the PP *out of linseed and rapeseed*, and not the undergoer of a *crushing* event. Thus, descriptively speaking, what is crushed in (22-a) is not the referent of the direct object *the oil*, as one would

expect under Rappaport Hovav & Levin's approach, but the entities denoted by *linseed and rapeseed*. This means that the BECOME subevent in (22-a) is not realized by the result verb *crush*, but by the path PP *out of linseed and rapeseed*, while the result verb *crush* is interpreted as structurally providing the manner of action of the event, i.e., the *crushing* causes *the oil* to be *out of linseed and rapeseed*, as the verbal root is taken to be merged as an event modifier to *v*.

(24) The power of the wind was used to crush the oil out of linseed and rapeseed.



These examples thus provide evidence for the claim that result verbs do permit nonselected objects and that the roots of result verbs can be associated with the event structure as event modifiers providing the manner of action of the event when the structural result state is realized independently of the verb, by means of APs (21) or path PPs (22).

5.4.2 Unaccusative change of location predicates

Here, I analyze cases of unaccusative change of location predicates with result verbs, as previously illustrated by (17) repeated below as (25), in which the participant undergoing the change of state encoded by the result verb is not realized as an object, but only as a landmark for the change of location. The subject of these predicates is understood as the undergoer of a change of location event, and not as the undergoer of the result state encoded by the result verb, as one would expect under Rappaport Hovav & Levin's approach.

Additional examples of this type are provided in (26).[4]

(25) a. The bullets ripped into the tissue of his back and shoulder. (GloWbE)
b. Thieves smashed through the window of the [...] boutique. (COCA)
c. Molten nuclear fuel can melt through the reactor's safety barriers. (GloWbE)

(26) a. He's pulled them from Brainerd-area lakes after their owners broke through the ice. (GloWbE)
b. Any moment a bullet can come shattering through the glass and hit any one of us. (GloWbE)
c. I once again felt the nails violating my flesh, the rope burning into my wrists. (GloWbE)

For instance, in (25-a), the referent of the subject *the bullets* is understood as undergoing a change of location whose final location is denoted by the path PP *into the tissue*, and not as undergoing the change of state that the result verb encodes, i.e., the referent of *the bullets* does not become *ripped*. Crucially, though, the result state denoted by the result verb *rip* is not mapped onto any argument, since the referent of *the tissue*, which is understood as undergoing the change of state, i.e., the *ripping*, simply provides the final location of the unaccusative change of location predicate. This type of examples is thus challenging for Rappaport Hovav & Levin's approach to event structure since they involve canonical instances of result verbs (e.g.,

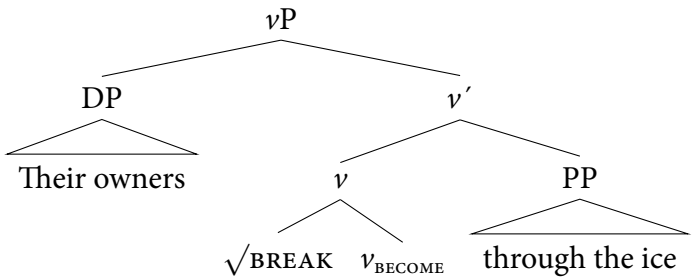
[4] Alternatively, one might question the status of (25)-(26) as being unaccusative predicates since, descriptively speaking, the entity denoted by the subject can be understood as an agent carrying out an action, e.g., in (26-a) it is understood that the entity denoted by the DP *their owners* break things in order to be able to move through the ice. Importantly, though, the unaccusative status of these examples can be seen more clearly in a language like German in which a verb like *einbrechen* 'break in' selects for BE-perfect, the auxiliary for unaccusative predicates in languages that have a split intransitivity system (cf. Sorace, 2000), e.g., *Er ist (in mein Haus) eingebrochen* 'Lit. He is in my house in.broken.' Thus, although some of these examples can be intuitively understood as having an agent that performs an action in order to reach a point in a path, structurally speaking they can be taken to be unaccusative since the change of location denoted by the predicate is predicated of the subject argument.

rip, *smash*, *melt*) in unaccusative predicates and are therefore predicted to realize the participant undergoing the change of state encoded by the verb as the subject of the BECOME subevent.

This type of examples, along with the ones in (21) and (22), thus prove problematic for Rappaport Hovav & Levin's approach to event structure since the participant undergoing the change of state encoded by the result verb is not being introduced as an argument of the BECOME subevent. Put differently, these examples argue against Rappaport Hovav & Levin's claim that the argument of the BECOME subevent must be the undergoer of the result state encoded by the verb if the verb involved is of the result type.

These data, however, can be accounted for if a structural approach to event structure is entertained. Namely, (25)-(26) involve the same structure as (21) and (22), i.e., the verbal root is adjoined to *v* providing the manner of the event and the *v* head takes a resultative predicate as its complement denoting, in this case, a change of location, with the only difference that in (25)-(26) there is no external argument present and therefore the argument that serves as the specifier of the change of location predicate, i.e., the argument of the BECOME subevent in Rappaport Hovav & Levin's terminology, is assigned nominative case, and no direct object is present.

(27) He's pulled them from Brainerd-area lakes after their owners broke through the ice.



A word of caution, however, is in order before proceeding any further. The attentive reader might have noticed that, in examples of the type in (22) (e.g., *Rigaut tore a piece off one of the letters*) and (25)-(26) (e.g., *Thieves smashed through the window of the popular boutique*), the participant undergoing the change of state encoded by the result verb is indeed realized in the predicate, as the object of the PP, therefore questioning the status of these examples as being problematic for Rappaport Hovav & Levin's approach to event struc-

ture. For instance, in an example like the one above in (27) it is the case that the undergoer of the *breaking* event denoted by the verb is indeed syntactically realized, i.e., the referent of the object of the PP *the ice* is what actually undergoes the *breaking*. One could suggest then that examples such as *Rigaut tore a piece off one of the letters* do not actually involve canonical instances of nonselected objects as in *John scrubbed his fingers raw*, but rather constitute a case of an argument/oblique alternation of the sort discussed in Beavers (2006). Namely, in a causative resultative predicate, the direct object is understood to be completely affected, whereas the oblique argument is argued to hold a lower degree of affectedness (cf. Beavers, 2011b). For instance, it is the case that in (25-c), i.e., *Molten nuclear fuel can melt through the reactor's safety barriers*, the referent of *the reactor's safety barriers* is descriptively understood as only partially melting, i.e., it does not hold a complete degree of affectedness. Following Ausensi & Bigolin (under reviewa), I note that even if one argued that these data involving result verbs do not actually involve canonical instances of nonselected objects, this type of examples would nonetheless still prove problematic for Rappaport Hovav & Levin's approach to event structure. That is, Rappaport Hovav & Levin argue that the undergoer of a BECOME subevent in a causative change of state predicate is predicted to be realized as the direct object. Thus, this type of examples, i.e., (22) and (25)-(26), remain valid since they further show that result verbs are not always required to lexicalize a BECOME subevent. Put differently, this type of examples illustrates that the BECOME subevent need not be lexicalized by the verb even if the verb involved is of the result type, contra what one would expect under Rappaport Hovav & Levin's approach.

Importantly, however, as it was discussed when analyzing examples of the type in (22) (e.g., *The power of the wind was used to move water [...] to crush the oil out of linseed and rapeseed*), the present account can be shown to be capable of providing an explanation regarding the intuition that the degree of affectedness of the object of the PP in comparison with the direct object in a causative resultative predicate is lower. Namely, following Ausensi & Bigolin (under reviewa), I take the object of the PP to serve only as a spatial reference for the final location of the change of location event denoted by the predicate. In other words, the object of the PP is not the argument of the BECOME subevent insofar as its realization appears to be optional.

(28) a. The power of the wind was used to move water [...] to crush the oil out (of linseed and rapeseed).
b. The bullets ripped in (to the tissue of his back and shoulder).

In short, the type of examples in (21)-(22) and (25)-(26) prove problematic for Rappaport Hovav & Levin's approach to event structure since they involve canonical cases of result verbs in result predicates in which the argument of the BECOME subevent is not the undergoer of the result state encoded by the result verb. Further, these examples also violate Rappaport Hovav & Levin's claim that manner and result roots are associated with the event structure differently. Namely, these examples show that the roots of result verbs can be associated with the event structure as event modifiers providing the manner of the event when a result state is denoted by a resultative predicate merged as the complement of *v*.[5]

5.4.3 Intransitive Causatives

Here, I further show that result verbs are also found in constructions where no BECOME subevent in Rappaport Hovav & Levin's terms is present. In particular, I focus on unergative predicates denoting activities in which the participant that undergoes the change of state encoded by the result verb is

[5] As I observed in Ausensi (2019b, to appearc), additional examples in which the direct object is not understood as the participant undergoing the change of state named by the result verb can be found in examples with result verbs in the *way*-construction (see Chapter 4).

(i) a. We cannot kill our way out of this war. (COCA)
b. They tried to burn their way into something with a cutting torch. (COCA)
c. Looters smashed their way in and went on a digging spree. (COCA)
(Ausensi, 2019b: 83)

As I discussed in Ausensi (2019b, to appearc), these examples of the *way*-construction are also problematic for Rappaport Hovav & Levin since they involve result verbs in a nonselected object construction in which the direct object *one's way* is not the participant that undergoes the change of state encoded by the verb, i.e., in (i-a) *our way* is not what is being *killed*. The result verb in these examples, as in (21)-(22) and (25)-(26), is structurally interpreted as an event modifier providing the manner of the event, i.e., in (i-a) the *killing* is the means employed by the subject referent to move along the path that this construction denotes.

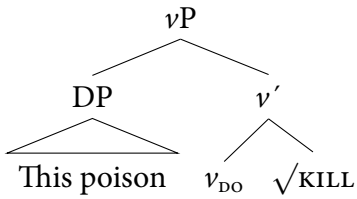
not realized, as illustrated in (29).

(29) a. Smoking kills.
b. Bleach disinfects.
c. Alcohol dehydrates.
d. Laser light burns.
e. Normal dryers wrinkle.
f. Bleach whitens.
(Mangialavori Rasia & Ausensi, 2020: 40)

In Mangialavori Rasia & Ausensi (2020), we named these constructions Intransitive Causatives as they involve monadic, i.e., unique argument occurrences of result verbs generally considered transitive/causative which, broadly speaking, can participate in verbal alternations such as the causative alternation (e.g., *John opened the door* and *The door opened*). Crucially, though, the internal argument has been taken to be an invariable constant regardless of alternation, i.e., the internal argument is always taken to be present in both the causative and anticausative variants, since what varies is the presence or absence of the external argument interpreted as cause of the change of state named by the verb (e.g., *John broke the vase* and *The vase broke*, respectively).

In Mangialavori Rasia & Ausensi (2020: 40), we noted that in Intransitive Causatives the unique argument does not relate to a canonical internal argument as in the causative alternation, but rather the unique argument is understood as causer of the result state encoded by the result verb. That is, in contrast to anticausative variants in which the unique argument is understood as the undergoer of the result state encoded by the verb (cf. *The vase broke*), in Intransitive Causatives the unique argument is an external argument understood as the causer of the state that the verb names. This strongly suggests that Intransitive Causatives involve a structure more similar to an unergative predication (cf. *John dances*) instead of the unaccusative one of anticausative variants in which the unique argument is an internal argument. I take Intransitive Causatives thus to involve a verbal root directly merged with a v_{DO} head giving rise then to an unergative predicate that denotes an activity along the lines of *John dances* (cf. Hale & Keyser, 2002; Cuervo, 2003; Folli & Harley, 2005).

(30) This poison kills.



Intransitive Causatives thus show that result verbs can appear in unergative-like predicates in which a BECOME subevent is not being realized. Namely, Intransitive Causatives argue against Rappaport Hovav & Levin's claim that result verbs must always realize the participant undergoing the change of state they encode. In particular, under their approach, a result verb involves the lexicalization of a BECOME subevent and consequently, as per the Argument-Per-Subevent Condition as intended by Rappaport Hovav & Levin, this necessarily forces the overt realization of the participant of such a subevent, i.e., the undergoer of the result state encoded by the verb. Thus, by claiming that result verbs lexicalize an event in which a BECOME subevent must be present, the type of examples illustrated by Intransitive Causatives as in (29) is left unaccounted for. On the other hand, if one assumes that the lexicalization of a manner or result component by the verbal root does not determine how roots are associated with the event structure, the type of data being discussed here can be accounted for.

5.4.4 Creation predicates

I finish this section by analyzing result verbs in transitive predicates in which the direct object is not interpreted as an argument of any BECOME subevent, i.e., it is not understood as the participant undergoing the change of state encoded by the result verb, but as an effected entity which is created by means of the action denoted by the verb.

(31) a. Scientists just melted a hole through 3,500 feet of ice. (Web)
b. I stuck my GoPro under some ice and then shattered a hole right above it. (Web)
c. A [...] team blew a hole in the wall near the embassy and charged through.
d. Using explosives, drills or hammers, they break a hole large

enough to pass through. (GloWbE)

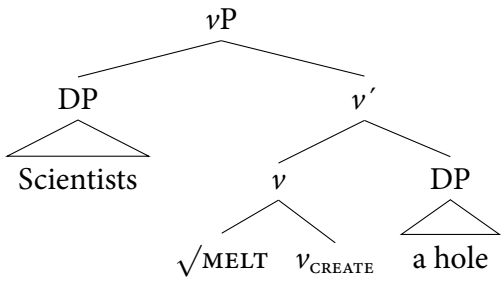
e. Getting unstuck cost him his paddle, splitting a hole through the fiberglass to the wood core. (Web)

f. A discharge of those energies burned a hole in his forehead and killed him. (COCA)

g. You really tore her a new vagina. (*Cobra Kai*, Season 1, Episode 10)[6]

For instance, in (31-a), the referent of the direct object is not interpreted as the undergoer of a *melting* event, i.e., it is not understood as undergoing the change of state encoded by the verb as it does not become *melted*, but instead as an entity that is created after the event is over by means of the action denoted by the verb. Namely, (31-a) can be paraphrased as *Scientists created a hole through 3,500 feet of ice by melting*. Thus, following Hale & Keyser (2002); Mateu & Acedo-Matellán (2012); Acedo-Matellán & Mateu (2014), I argue that this type of examples involve events of creation the structure of which involves a DP being merged with the little *v* head as its complement, whereas the verbal root is adjoined to *v* as an event modifier providing the manner that brings about the creation of the entity denoted by the DP in the complement position (see also Levinson, 2010, 2014).

(32) Scientists just melted a hole through 3,500 feet of ice.



In short, creation predicates of this type involving result verbs are problematic for Rappaport Hovav & Levin because the participant undergoing the change of state encoded by the verb is not being realized as the direct object or as the object of some PP. More importantly, though, this type of exam-

[6] https://www.imdb.com/title/tt7841694/characters/nm9544793

ples does not involve any BECOME subevent, therefore providing evidence against Rappaport Hovav & Levin's claim that result verbs always involve the lexicalization of a BECOME subevent and consequently the argument of such a subevent is then predicted to be overtly realized.

5.4.5 Interim summary

Thus far, I have shown that what are considered canonical instances of result verbs under Rappaport Hovav & Levin's approach can indeed be associated with the event structure as event modifiers providing the manner of the event, both in the presence and in the absence of a BECOME subevent, e.g., *With a few slices of her claws, she tore him free* and *Smoking kills* respectively. Under Rappaport Hovav & Levin's approach this is translated into result verbs lexicalizing an ACT subevent regardless of whether a BECOME subevent is realized or not. These data thus argue against Rappaport Hovav & Levin's claim that the lexicalization of a manner or result component by the verbal root determines how roots are associated with the event structure and in turn the argument structure and realization patterns of the surface verbs. In other words, this argues in favor of an approach in which ontological-type classifications do not determine grammatical properties such as the syntactic contexts roots can appear in.

5.4.6 On the lexical and structural nature of manner and result

I finish this section by suggesting that a crucial distinction has to be made with regard to what is understood as manner and result from a structural point of view and what is to be understood as manner and result in terms of the lexical entailments of verb classes (cf. Chapter 2).

More specifically, I discuss the fact that when result verbs function as event modifiers, as in the examples discussed in the previous sections, they still do not pass semantic diagnostics that probe the presence of manner entailments in the meaning of verbal roots, as those discussed in Chapter 2. In this respect, I suggest that it should be rather unsurprising that when result verbs are structurally interpreted as providing the manner of the event they still do not pass such semantic diagnostics. In this vein, Beavers & Koontz-Garboden (2020) have precisely observed this in relation to a claim made by Embick (2009) regarding the fact that result verbs of the *break* sort are

manner entailing, a class of verbs that Beavers & Koontz-Garboden (2020) show do not pass any of the standard manner diagnostics they develop.

It is important to note, however, that the present account does not predict that result verbs like *melt* or *break* will pass manner diagnostics of the sort proposed by Beavers & Koontz-Garboden (2012, 2020) when they are associated with the event structure as event modifiers, i.e., when they are structurally interpreted as providing the manner of the event. Namely, the manner diagnostics Beavers & Koontz-Garboden develop probe the lexical entailments of verb classes, i.e., whether a certain verb class is manner or result entailing (or both). Under the present account, a result verb like *melt* is not predicted to pattern as a manner verb in terms of its lexical entailments when it is associated with the event structure as an event modifier, i.e., in terms of truth-conditional content. Quite differently, I have proposed that a result verb is to be structurally interpreted as an event modifier in the type of examples I analyzed in the previous sections.[7] Crucially, though, this does not translate into being manner entailing in terms of the lexical entailments related to manner verbs.

In order to account for the elasticity of result verbs, as illustrated by the data in the previous sections, I have focused on the structural nature of manner and result, i.e., on the structural interpretations associated with specific positions in the event structure (cf. Mateu & Acedo-Matellán, 2012). Namely, the structural interpretation of a verbal root as an event modifier which follows as a consequence of root adjunction to *v* does not have any impact on the truth-conditional content of the verbal root. Consequently, result verbs as the ones discussed in the previous section, e.g., *melt*, *break*, *crush*, which entail change of state, are thus expected to keep their lexical entailments when they are structurally interpreted as event modifiers, i.e., when the verbal root is merged with the verbalizing little *v* head as a modifier (further see Rappaport Hovav, 2017 and Chapter 4). In other words, the fact that a verbal root encoding change of state can be adjoined to *v* does not result in the suppression of its lexical entailments as a result root. Consider this below.

(33) a. The power of the wind was used to crush the oil out of linseed

[7] Embick argued in favor of an approach in which result verbs of the *break* sort are always merged as event modifiers in the event structure. See §5.5.2 for further discussion.

and rapeseed, #but nothing underwent a crushing.

b. The bullets ripped into the tissue of his back and shoulder, #but nothing was ripped.

c. Scientists just melted a hole through 3,500 feet of ice, #but nothing became melted.

5.5 Root distribution is not unconstrained

In the previous section, I noted that the roots of a certain class of result verbs can indeed be associated with the event structure as event modifiers, contra recent proposals that hold that manner and result roots have distinct association patterns in the event structure such as the ones developed in Rappaport Hovav & Levin (1998, 2010) and Alexiadou et al. (2015). Recall that under these approaches, manner and result verbs are predicted to have distinct argument structure and realization patterns. For instance, only verbs derived from what under Rappaport Hovav & Levin's approach are classified as manner roots are predicted to appear in nonselected object constructions. However, I showed that a class of result verbs, e.g., *break, melt, crush, split, rip*, enjoy a certain degree of elasticity as they can indeed appear in nonselected object constructions, i.e., they can be structurally interpreted as providing the manner of the event, just as manner roots.

Thus far, I have only shown that the GROC approach as developed in Rappaport Hovav & Levin (1998) and Alexiadou et al. (2015) makes false predictions about the syntactic distribution of roots and in turn about the argument structure and realization patterns of the surface verbs. In particular, this line of GROC approaches to event structure undergenerates, as they leave data involving result verbs unaccounted for.

In this section, I turn to discuss data that challenge FD approaches such as the ones developed in Borer (2003, 2005b, 2013); Mateu & Acedo-Matellán (2012); Acedo-Matellán & Mateu (2014). In particular, I provide data that strongly suggest that the syntactic distribution of roots in the event structure is not completely unconstrained, as one would expect under FD approaches. In other words, the data I analyze show that it is not the case that any class of roots can in principle appear in any syntactic context. My point of departure is Embick's (2009) observation that not all classes of result verbs can be associated with the event structure as event modifiers, as illustrated below.

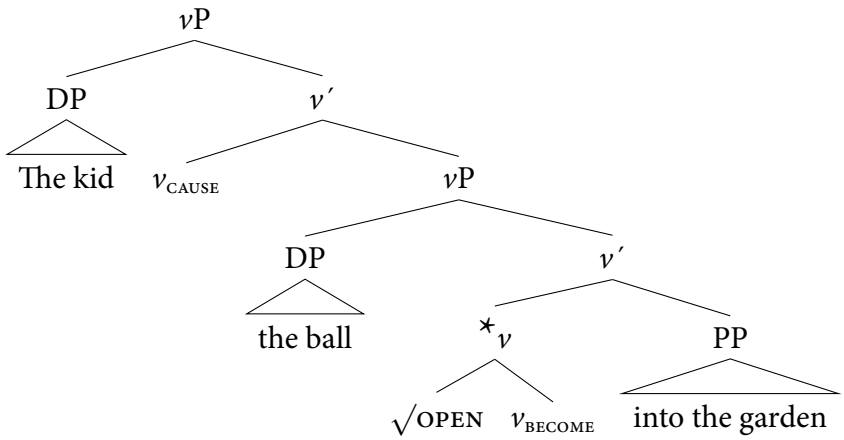
(34) a. *John opened + DP + Result XP.
b. *John darkened + DP + Result XP.
c. *John blackened + DP + Result XP.
(Embick, 2009: 7)

In particular, Embick observes that the roots of deadjectival result verbs, e.g., *open, darken, blacken*, do not appear to function as event modifiers, i.e., they do not seem to be able to provide the manner of action of the event. In formal terms, this suggests that the roots of deadjectival result verbs do not appear to allow root adjunction to *v*, i.e., the syntactic position in which roots are structurally interpreted as event modifiers. Further consider the additional examples provided below.

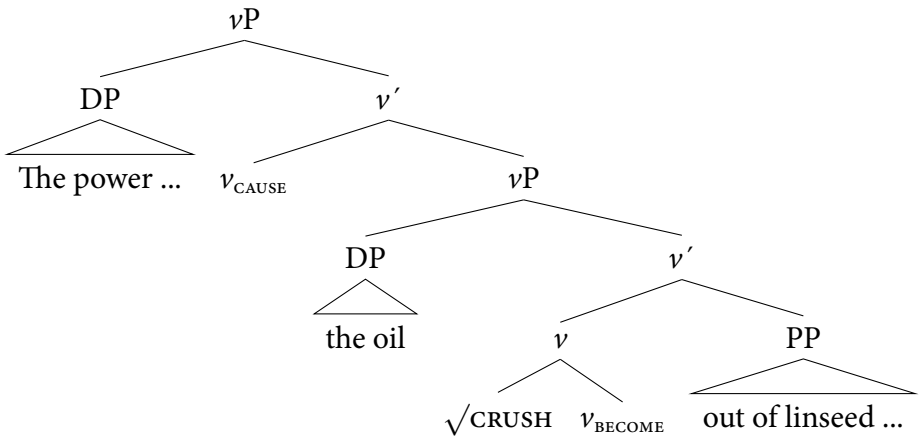
(35) a. *The kid opened the ball into the garden.
CANNOT MEAN: the kid caused the ball to go into the garden by opening (a door).
(Alessandro Bigolin p.c.)
b. *The sky darkened the city hard to see.
CANNOT MEAN: The sky caused the city to become hard to see by darkening.
(Louise McNally p.c.)
c. *The dentist whitened his teeth clean.
CANNOT MEAN: The dentist caused the teeth to become clean by whitening.
d. *We cooled the people out of the room with the air-conditioner on too high.
CANNOT MEAN: We caused the people to be out of the room by cooling (the room).
(Rappaport Hovav, 2008: 23)
e. *Kim dimmed her eyes sore.
CANNOT MEAN: Kim caused her eyes to become sore by dimming (the lights).
(Beavers & Koontz-Garboden, 2012: 340)
f. *I thinned the soup tasteless.
CANNOT MEAN: I caused the soup to become tasteless by thinning (the soup).
(Rappaport Hovav, 2014a: 276)

These examples show cases of deadjectival result verbs in constructions like the ones in (21)-(22): the roots of these deadjectival result verbs are intended to be associated with the event structure as event modifiers providing the manner of the event. The intended reading is thus that the result state denoted by the result phrases (e.g., *clean, into the garden*) is brought about by the action the verbs denote. These data thus show that the roots of deadjectival result verbs such as *open, darken, whiten, dim, thin* cannot function as event modifiers, contra what one would expect under FD approaches. In other words, this class of result verbs cannot be structurally interpreted as providing the manner of the event that brings about a result state that is denoted by a result phrase in the complement position of *v*. Compare this below in the nonselected object constructions involving the roots of a deadjectival result verb like *open* and the roots of a nondeadjectival result verb like *crush*, as illustrated above in (24) repeated below, which do permit root adjunction to *v*.

(36) *The kid opened the ball into the garden.



(37) The power of the wind was used to crush the oil out of linseed and rapeseed.



In short, these data strongly suggest that root distribution is not completely unconstrained, since some classes of roots do not allow certain association patterns with the event structure. In particular, these data show that, in contrast to GROC approaches as the ones developed in Rappaport Hovav & Levin and Alexiadou et al. which have been shown to undergenerate, FD approaches overgenerate, since under these approaches, the data in (35) should in principle be possible. Namely, FD approaches predict that root adjunction to *v* is in principle allowed by any class of roots, i.e., any class of roots should be able to function as event modifiers and provide the manner of action of the event.

What these data seem to suggest then is that certain association patterns with the event structure seem to be incompatible with some classes of roots, i.e., not all classes of roots can function as event modifiers and provide the manner of action of the event that brings about a specific type of result. In formal terms, this suggests that root adjunction to *v*, i.e., the syntactic position in which roots are structurally interpreted as providing the manner of the event, does not seem to be allowed by all classes of roots as it appears to be sensitive to the semantics of the root involved. Foreshadowing the discussion in §5.6, these data strongly suggest that only classes of roots that have a certain eventive component as part of their semantics can be associated with the event structure as event modifiers, e.g., √BREAK, √MELT, √CRUSH. As discussed in Chapter 3, roots of the √BREAK sort predicate a state of a

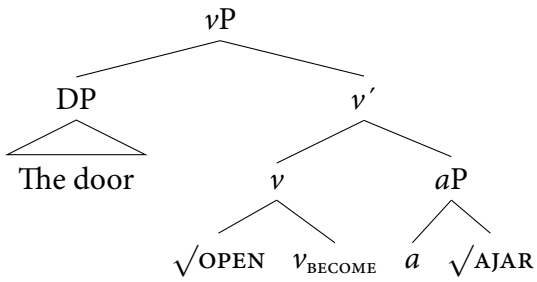
participant, but also require that such a state be caused, i.e., they encode an entailment of change that gives rise to the state they predicate. I argue then that only stative roots with such an eventive component can function as event modifiers and provide the manner of the event, i.e., they allow root adjunction to *v*. In contrast, stative roots that lack such an eventive component and simply denote pure, simple states as part of their semantics appear to be incompatible with being interpreted as event modifiers, e.g., $\sqrt{\text{OPEN}}$, $\sqrt{\text{WHITE}}$, $\sqrt{\text{DARK}}$, and will therefore disallow root adjunction to *v*.

If this proposal is on the right track, it could then provide an explanation as to why verbs derived from these two classes of stative roots have distinct argument structure and realization patterns, i.e., only verbs derived from stative roots with an eventive component as part of their semantics permit constructions that involve root adjunction to *v* such as nonselected object constructions. Before discussing this proposal in more detail, I turn to discuss apparent counterexamples to Embick's observation that the roots of deadjectival result verbs cannot function as event modifiers. I then provide a brief overview Embick's approach to event structure in more detail and show that it has some shortcomings when accounting for the syntactic distribution of roots.

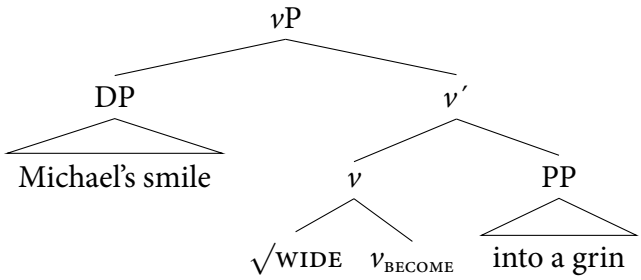
5.5.1 Apparent counterexamples

Here, I discuss examples involving deadjectival result verbs of the *open* type which at first blush appear to pose a challenge for the claim that the roots of this verb class cannot function as event modifiers. For instance, examples such as *open the door ajar* or *Michael's smile widened into a grin* (Web) appear to resemble the examples discussed in the previous section in which the verbal root could be said to be associated with the event structure as an event modifier providing the manner of the event. Thus, since they resemble examples involving root adjunction to *v* such as *With a few slices of her claws, she tore him free* in which the verbal root provides the manner of the event, this type of examples could be given the same structural analysis, i.e., a structure involving root adjunction to *v* and a resultative predicate merged as the complement of *v* denoting the structural result state.

(38) Open the door ajar. (to be revised)

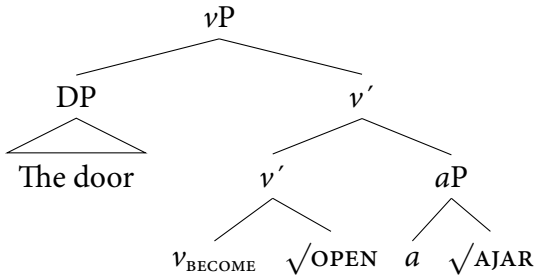


(39) Michael's smile widened into a grin. (to be revised)

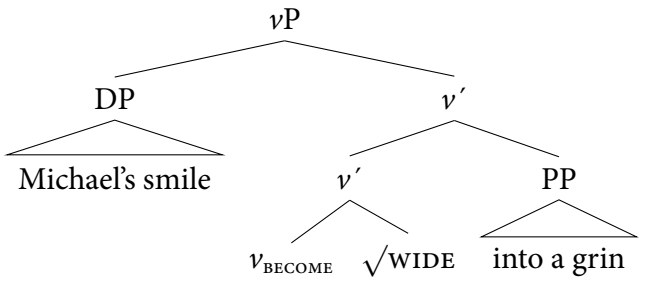


It is crucial to note, however, that in examples of the *open the door ajar* or *Michael's smile widened into a grin* type, the result phrases, i.e., *ajar* and *into a grin* respectively, denote result states that are a further specification of the state encoded by the verbal roots, i.e., they do not introduce distinct result states as in examples such as *With a few slices of her claws, she tore him free* (cf. Rappaport Hovav & Levin 2010; Beavers 2011b; Mateu 2012 and the discussion in §2.2.1 and §2.4.1.3 of Chapter 2 as well as Chapter 4). For instance, the result phrase *ajar* is a further specification of the degree of *openness* that holds of the door. Similar cases include examples of deadjectival verbs such as *cool* or *lengthen* which only take result phrases that are a further specification of the scale of change denoted by the verbs, e.g., *cool the soup to 10ºC* and *lengthen the jeans 5 centimeters* respectively. Thus, I argue that these examples should not receive an analysis of root adjunction to *v*, but rather the verbal root is in the complement position and the result phrases are modifiers of the result state that the verbal root encodes (cf. Mateu, 2012; Acedo-Matellán et al., to appear).

(40) Open the door ajar. (final)



(41) Michael's smile widened into a grin. (final)

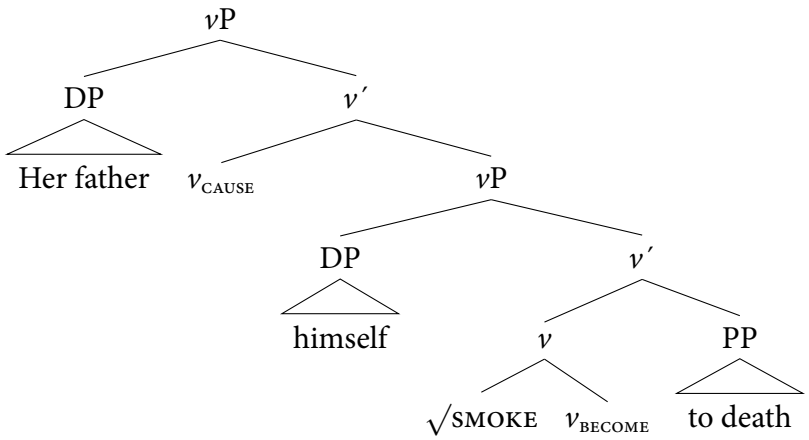


In short, in this type of examples the verbal roots are not associated with the event structure as event modifiers, but rather as complements, insofar as the result phrases simply denote states that are a further specification of the result state the verbal roots encode. More importantly, though, this type of examples does not constitute cases of nonselected object constructions, i.e., the direct object is indeed an argument selected by the verb insofar as it is the participant that undergoes the change of state encoded by the verb. Namely, in *open the door ajar*, the referent of the direct object is the holder of the result state encoded by the verb. In contrast, in the type of examples discussed in the previous sections involving root adjunction to *v* as in *With a few slices of her claws, she tore him free*, the direct object is not an argument selected by the verb as it does not undergo the *tearing*.

In a similar vein, Louise McNally (p.c.) points out that examples such as *The chute widened itself into a roundish, rectangular cave opening* could be said to be actually problematic for the claim that the roots of deadjectival result verbs never appear as event modifiers insofar as they clearly resemble canonical cases of nonselected object constructions of the *smoke oneself to*

death type in which the verbal roots are event modifiers providing the manner of the event that brings about the result state predicated of the reflexive, as illustrated below (cf. Bigolin & Ausensi, 2021).

(42) Her father smoked himself to death. (GloWbE)



In this respect, it is crucial to note that despite the reflexive, in these examples, i.e., *The chute widened itself into a roundish, rectangular cave opening*, the result phrases still appear to provide further specification about the result state encoded by the verbal root as in *open the door ajar*. This contrasts with the result phrases of the type in (42) or the ones in *laugh oneself silly* which introduce a state which is unconnected with the action the verb denotes. Namely, *to death* or *silly* are states which are unrelated to the events denoted by *smoke* or *laugh* respectively in the sense that an event of *smoking* or *laughing* need not cause a result state of *being dead* or *silly* (cf. Washio, 1997).

Importantly, roots of the √WIDE type can also appear without the reflexive in combination with result phrases that clearly specify the result state the verb encodes, as in *The gulf between the classes has widened into an unbridgeable abyss* (Web). Therefore, they can be said to involve the structure as in (41) (cf. *Michael's smile widened into a grin*), in which the verbal root √WIDE is merged as the complement of *v* and the PP headed by *into* is a modifier of the result state the verbal root encodes. Thus, I suggest they should not be taken to involve the structure of nonselected object constructions of the *smoke oneself to death* type, in which the verbal root √SMOKE is adjoined to *v* providing the manner of the event that brings about the result state of

death (42). Put differently, I do not believe that the presence or absence of the reflexive in this type of examples can be said to be related to whether the verbal root is associated with the event structure as a modifier or as a complement and in turn whether the PP headed by *into* is a complement of *v* (39) or a modifier of the result state the root encodes (41).[8]

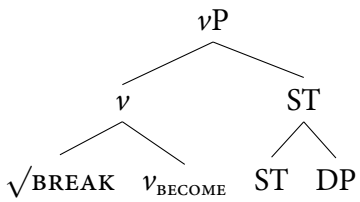
5.5.2 Embick's (2009) approach to event structure

As discussed above, the key observation by Embick (2009) is that roots denoting states fall into two classes with regard to whether they can function as event modifiers. Embick observes that only roots of the √BREAK sort (e.g., √BREAK, √CUT, √SPLIT) can function as event modifiers, in contrast to √OPEN-type roots (e.g., √DARK, √OPEN, √BLACK).

(43) a. Mary broke/cut/split the package open.
b. *John opened/blackened/darkened + DP + Result XP.
(Embick, 2009: 7)

The example above is the one Embick provides to illustrate the difference between these two classes of roots. In order to account for this contrast, Embick proposes that √OPEN-type roots are predicates of states and are therefore always associated with the event structure as complements of *v*. In contrast, Embick proposes that √BREAK-type roots are predicates of events which always function as event modifiers. Crucially, though, although roots of the √BREAK type are adjoined to *v* providing the manner of the event, this class of roots are predicates of events which always select what Embick calls a 'proxy' stative complement (ST).

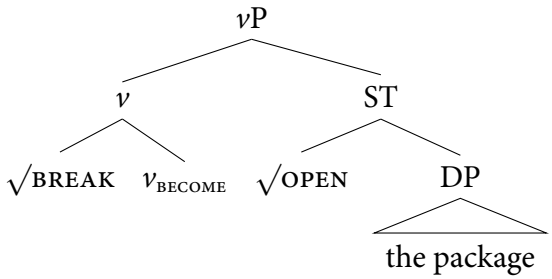
(44) √BREAK with a Proxy State. (Embick, 2009: 17)



[8] I am grateful to Alessandro Bigolin for discussion about this type of examples.

Embick argues that if the ST proxy is empty, as in (44), it is then defined by the root adjoined to *v*. Thus, the ST in (44) is interpreted as the state that comes about after a breaking event is over, i.e., *broken*. Crucially, though, Embick notes that this analysis can account for examples in which √BREAK-type roots appear together with result phrases denoting distinct states than the ones the root encodes like *break the package open*. In this case, the ST proxy is overtly realized as it is named by another root denoting a result state, e.g., √OPEN.

(45) Break the package open.



In short, under Embick's approach, √BREAK-type roots are predicates of events which are adjoined to *v* functioning as event modifiers and always select a stative complement. If this stative complement is not given overt realization, it is defined by the root adjoined to *v* such that it is interpreted as a state that comes about after the event denoted by the root is over. In contrast, √OPEN-type roots are predicates of states and under Embick's approach always function as complements. Embick thus claims that this explains why this class of roots does not function as event modifiers and does not appear with result phrases denoting distinct result states (cf. **thin the soup tasteless*).

5.5.2.1 Problems with Embick's approach

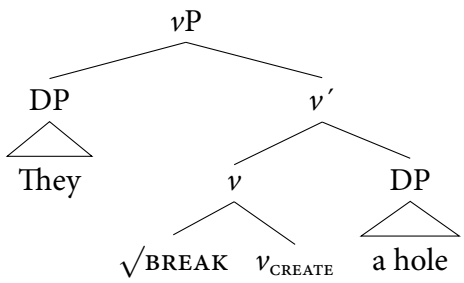
I note, however, that there are data that are problematic for the event structural approach Embick develops. In particular, the examples discussed above regarding creation predicates with result verbs as in (31) can be said to be problematic for Embick insofar as they do not involve any stative complement being selected as the complement of *v*. Rather, as discussed in detail in §5.4.4, creation predicates have a DP denoting an entity merged as the com-

plement of *v*, rather than a stative complement. Namely, these examples, repeated below, challenge Embick's claim that roots of the √BREAK-type always select a stative complement as the verbal roots involved fall under the class of roots that Embick labels √BREAK-type (e.g., √BREAK, √MELT, √SPLIT).

(46)
a. Scientists just melted a hole through 3,500 feet of ice. (Web)
b. I stuck my GoPro under some ice and then shattered a hole right above it. (Web)
c. A [...] team blew a hole in the wall near the embassy and charged through.
d. Using explosives, drills or hammers, they break a hole large enough to pass through. (GloWbE)
e. Getting unstuck cost him his paddle, splitting a hole through the fiberglass to the wood core. (Web)
f. A discharge of those energies burned a hole in his forehead and killed him. (COCA)
g. You really tore her a new vagina. (*Cobra Kai*, Season 1, Episode 10)

That is, to the extent that creation predicates have a DP denoting an entity as their complement, but not a stative complement as in *break the package open*, this type of examples counterexemplify Embick's claim that √BREAK-type roots always select a state as their complement. Consider the relevant structure for this type of examples repeated below.

(47) Using explosives, drills or hammers, they break a hole large enough to pass through.



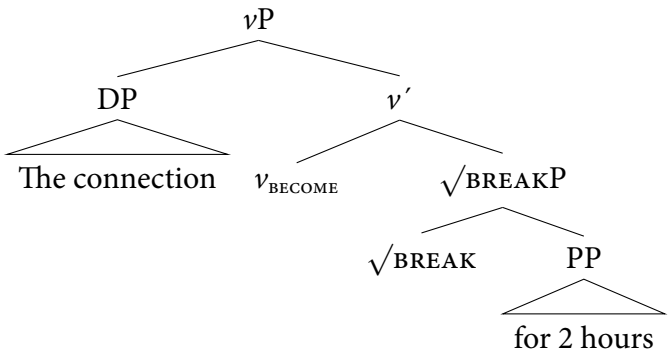
Embick's proposal is also challenged by the fact that, as Yu (2020) discusses

in detail, if √BREAK-type roots are predicates of events adjoined to *v* which always select a stative proxy complement with the structure as in (44), it is rather mysterious then why such a stative constituent, i.e., the proxy state, does not appear to be available for sublexical modification with *again* (cf. Chapter 3). In particular, Yu observes that in the following context an object can be said to have been created broken so that there is no previous event which caused the object to be in a broken state. Yu notes that in this case it is not possible to assert the sentence with *again*. This shows that such a putative stative proxy constituent does not appear to be available for *again* to attach.

(48) CONTEXT: Mary requested a potter to make a plate in separate pieces so she can practice her pottery-mending skills. She took a day to put the pieces together. John, who was secretly angry with Mary for previously breaking his favorite bowl, snatched the mended plate from Mary and ...
#John broke the plate again.
(Yu, 2020: 72)

If √BREAK-type roots always select a stative complement, it is rather mysterious why modifiers like *again* cannot take scope over it, especially when durative modification of the state the root denotes is actually possible, as Embick (2009: 3) himself observes, as illustrated below.

(49) We are going to break the connection for 2 hours.



5.6 A more nuanced view of root distribution

In section §5.4, I provided evidence against the GROC approaches as developed in Rappaport Hovav & Levin (1998, 2010), as well as Alexiadou et al. (2015), with regard to the claim that manner and result are grammatically relevant component meanings of roots that determine how roots are associated with the event structure and in turn the argument structure and realization patterns of the surface verbs. In particular, I noted that GROC approaches of this type undergenerate as they leave data unaccounted for. For instance, result verbs of the *break* sort are found in nonselected object constructions in which the verbal root is associated with the event structure as a modifier of the event, rather than as a complement, as one would expect under Rappaport Hovav & Levin's and Alexiadou et al.'s approaches.

In section §5.5, I noted that FD approaches (e.g., Borer, 2005b, 2013; Mateu & Acedo-Matellán, 2012; Acedo-Matellán & Mateu, 2014), on the other hand, appear to overgenerate, since not all classes of roots can function as event modifiers. For instance, the roots of result verbs of the *open* sort are never associated with the event structure as modifiers, but always as complements. As discussed in detail, this has consequences for the argument structure and realization patterns of the surface verbs. Namely, result verbs of the *open* type do not appear in nonselected object constructions or in other constructions in which the verbal root functions as an event modifier. If one assumes an FD approach to event structure, this is rather unexpected, insofar as in principle any class of roots should appear in the same syntactic contexts.

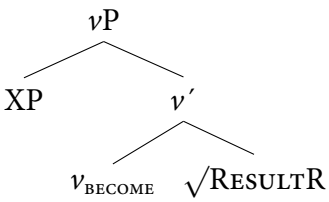
In this section, having discussed why neither approach to event structure successfully captures the syntactic distribution of roots, I propose that the data that challenge these two main approaches to event structure can be accounted for if one assumes an approach whereby the distinct semantics that classes of roots can have heavily bears on their distribution in the event structure. In particular, the semantics of roots determine syntactic distribution, and therefore whether a certain class of roots can function as an event modifier as well as a complement is largely determined by the semantics of such a class of roots. The present proposal is thus critically different from GROC approaches since roots are not classified into *ad hoc* semantic classifications determining their distribution in the event structure. Rather, I propose that it is the distinct semantics that classes of roots have, which

crucially appears to be empirically grounded (see Chapter 3), which must be compatible with the semantics of the event templates. Further, the present proposal is also critically different from FD approaches since I assume that syntactic distribution of roots is grammatically constrained, i.e., not all roots appear in the same event structures, a phenomenon I relate to the fact that only some classes of roots introduce structural components of meaning by themselves (cf. Chapter 3) making them compatible in turn with additional event templates.

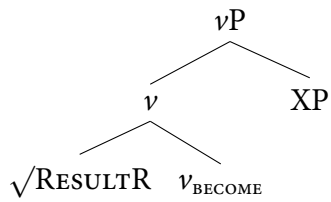
5.6.1 The semantics of roots determines distribution

I argue that broadly speaking there are two classes of result verbs with respect to their association with the event structure. On the one hand, roots of the √BREAK sort involve what Beavers & Koontz-Garboden (2020) have called Result Roots (cf. Chapter 3), i.e., roots which predicate a state of a unique participant but require that such a state must be the result of a change, e.g., √BREAK, √SPLIT, √MELT, √FREEZE, √CRUSH etc. I propose that Result Roots have two distinct association patterns with the event structure: as complements and as event modifiers. Under the event structural approach I have adopted in the present dissertation, this is translated into the fact that Result Roots can either be merged as complements (50) or modifiers (51) to the verbalizing little *v* head.

(50) Complement

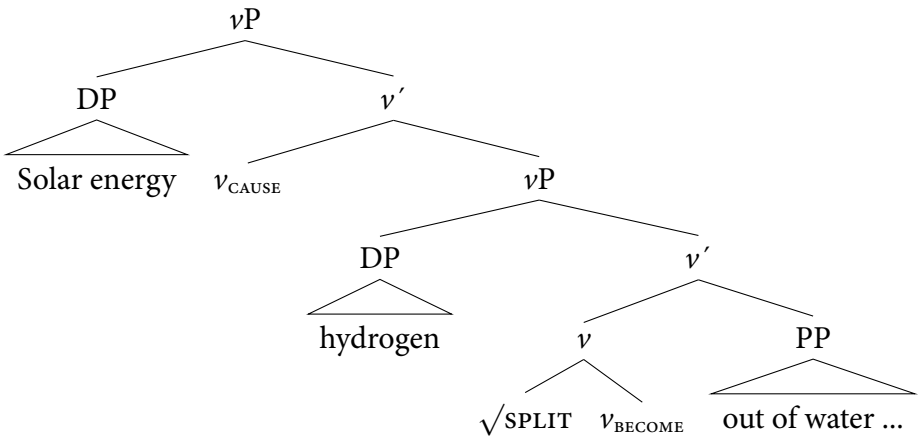


(51) Modifier

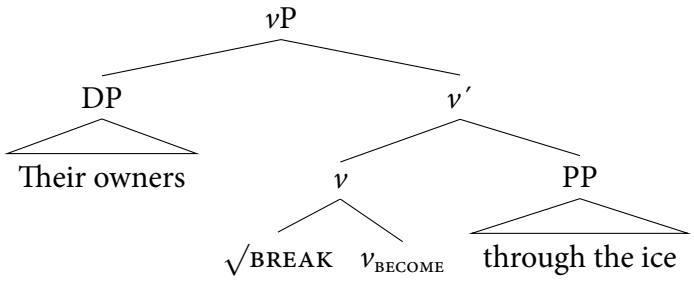


As discussed in detail in §5.4, these two merging possibilities explain why verbs derived from Result Roots can appear in constructions in which the verbal roots function as event modifiers, rather than complements. For instance, this is the case in nonselected object constructions (52), in unaccusative change of location events (53) and in creation predicates (54). In these cases, the Result Roots are structurally interpreted as providing the manner of the event. Consider this in the additional examples below.

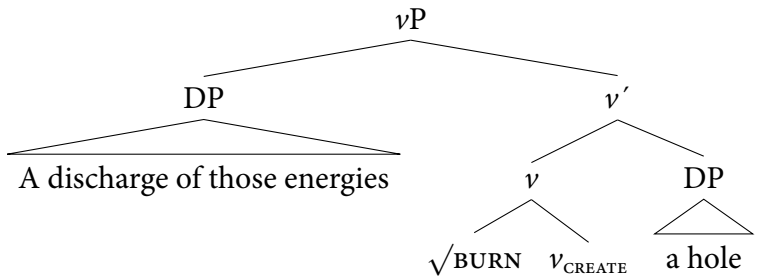
(52) Solar energy can be used [...] for splitting hydrogen out of water molecules to create a fuel for vehicles. (COCA)



(53) He's pulled them from Brainerd-area lakes after their owners broke through the ice. (GloWbE)

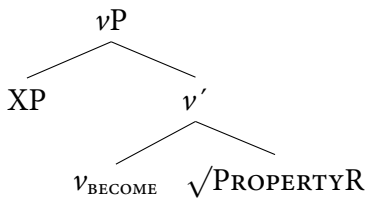


(54) A discharge of those energies burned a hole in his forehead and killed him. (COCA)

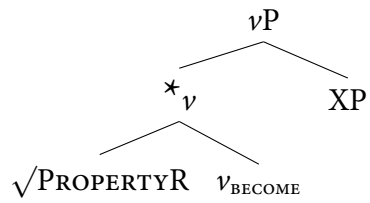


On the other hand, roots of the √OPEN sort are what Beavers & Koontz-Garboden (2020) have called Property Concept Roots, i.e., roots which predicate a pure, simple state of a unique participant without entailing that an event gives rise to the state, e.g., √OPEN, √COOL, √WIDE, √THIN, √DARK, √BLACK. I propose that Property Concept Roots only have one association pattern with the event structure, i.e., they are always complements, and therefore coercion into event modifiers is not possible. Under the present approach, this is translated into the fact that Property Concept Roots are always merged as the complement of the *v* head.

(55) Complement

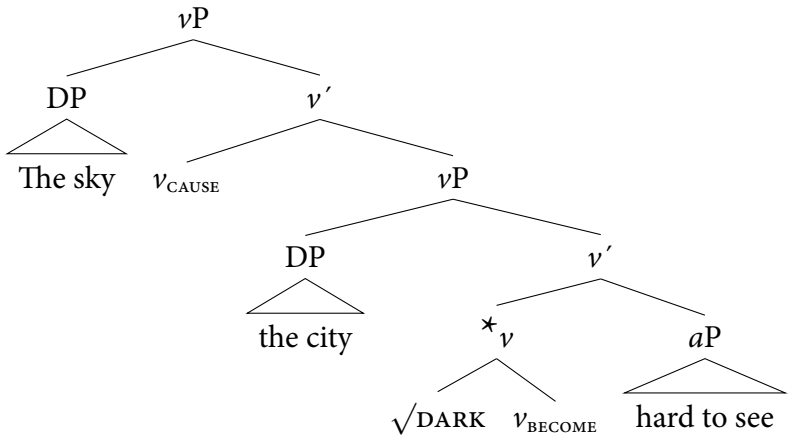


(56) *Modifier

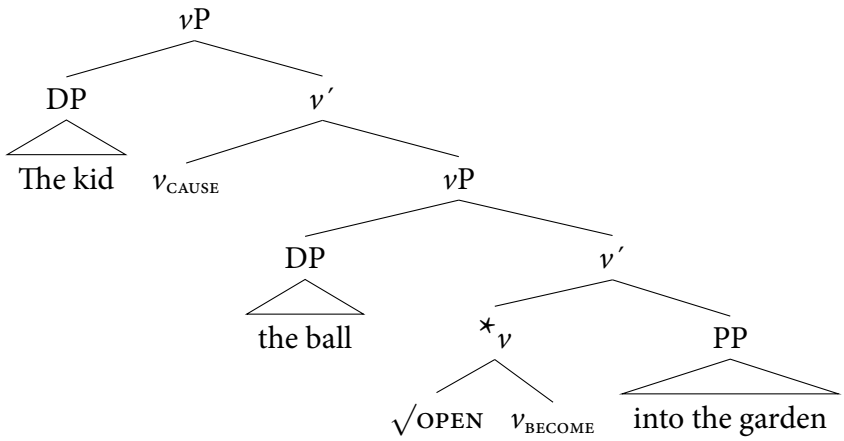


As discussed in §5.5, this unique merging possibility explains why verbs derived from Property Concept Roots never appear in constructions in which the verbal root functions as an event modifier. In other words, Property Concept Roots cannot be structurally interpreted as providing the manner of the event, as illustrated by the examples in (35), some repeated below.

(57) *The sky darkened the city hard to see.



(58) *The kid opened the ball into the garden.



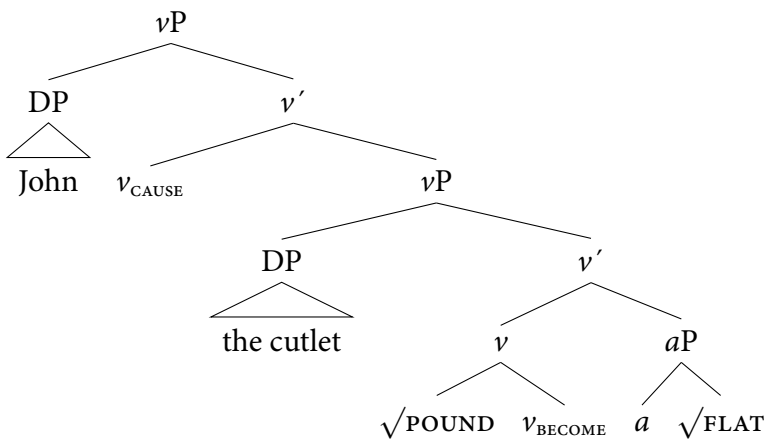
In this respect, I propose that the different semantics that roots can have (heavily) bears on their syntactic distribution. In particular, I argue that the difference between Result Roots and Property Concept Roots regarding their merging possibilities in the event structure boils down to the different semantics these two classes of roots have. Namely, recall that as discussed in Chapter 3, both classes of roots are predicates of states, but only Result Roots introduce an entailment of change that gives rise to the state they denote.

(59) a. $[\![\sqrt{\text{ResultR}}]\!] = \lambda x \lambda s[\textit{state'}(x, s) \wedge \exists e'[\textit{become'}(e', s)]]$
b. $[\![\sqrt{\text{PropertyR}}]\!] = \lambda x \lambda s[\textit{state'}(x, s)]$

From the different semantics roots denoting states can have, it naturally follows that Property Concept Roots are therefore prime candidates for functioning as complements in the event structure as they denote simple, pure states with no eventive properties. The fact that Result Roots can function as event modifiers can be explained if this class of roots has eventive properties as part of their semantic denotation, i.e., an entailment of change. In particular, the eventive properties allow them to associate with the event structure as event modifiers. Namely, Result Roots generally function as complements of the event structure, since they are predicates of states, but they can also function as event modifiers due to their eventive properties. In contrast, I propose that Property Concept Roots are never associated with the event structure as event modifiers as they denote pure, simple states, i.e., the root is completely stative with no eventive properties.

In contrast, the roots of manner verbs, e.g., √POUND, are predicates of events, as they encode manners of action as part of their truth-conditional content, and are therefore prime candidates for functioning as event modifiers. In other words, as they are predicates of events, they frequently appear as modifying a causing subevent, i.e., they provide the type of event that brings about a result state. For instance, in *pound the cutlet flat* the root √POUND provides the manner that brings about the state of *being flat*, i.e., the *pounding* causes the entity denoted by the direct object to become flat.

(60) a. $[\![\sqrt{\text{POUND}}]\!] = \lambda x \lambda e[pound'(x, e)]$
b. John pounded the cutlet flat.



It is important to note that this classification of roots regarding their association patterns with the event structure is critically different from the approach Embick (2009) develops and crucially it can be shown to account for data that can be said to be problematic for Embick, such as creation predicates, as discussed above. In particular, recall that Embick argues that Result Roots are predicates of events which always function as event modifiers and select a stative complement. Embick notes that it is necessary to hold that Result Roots such as √BREAK are predicates of events which always select a stative complement insofar as this class of roots does not appear to occur as an activity predicate, e.g., *John broke the vase for three hours* cannot mean that John carried out an activity for an amount of time without resulting in any state (cf. *John pounded the cutlet for three hours*). Embick concludes then that this is explained by the fact that this class of roots always occurs with a stative complement, in contrast to the roots of the √POUND type, which are

also predicates of events under his approach but they do not select a stative complement.

In contrast, I propose that Result Roots have two merging possibilities in the event structure, either as complements or as modifiers to *v*. The fact that Result Roots cannot denote activities is explained by the assumption that, as discussed in §1.4 of Chapter 1, root adjunction to *v* is only possible if a complement is taken by *v*. In other words, when Result Roots are merged as event modifiers, the verbalizing little *v* head always takes a resultative predicate as its complement (which need not be stative) denoting either a change of state (e.g., *With a few slices of her claws, she tore him free*), a change of location (e.g., *We blasted the tops off mountains*) or a created entity (e.g., *Scientists just melted a hole through 3,500 feet of ice*).

5.6.2 Beyond event modifiers and complements

I finish this section by showing how the semantics of another class of roots can further determine their syntactic distribution. In particular, I briefly discuss the so-called causative alternation (e.g., *John broke the vase/The vase broke*) and its relation to roots of the $\sqrt{\text{MURDER}}$ type (cf. Chapter 3), a domain where GROC approaches have been successful in capturing what verb classes can participate in this alternation.

In this respect, recall that as discussed in detail in Chapter 3, roots of the $\sqrt{\text{MURDER}}$ type (i.e., $\sqrt{\text{MURDER}}$, $\sqrt{\text{SLAUGHTER}}$, $\sqrt{\text{ASSASSINATE}}$, $\sqrt{\text{MASSACRE}}$ and $\sqrt{\text{SLAY}}$) pose a problem for approaches that assume that external arguments are always introduced externally to the verb by functional projections in the syntax. Namely, if this is always the case, then it remains unclear why roots of the $\sqrt{\text{MURDER}}$ type systematically disallow event structures that exclude the presence of the external argument such as the causative alternation (e.g., *John murdered the man/*The man murdered)*. Here, I suggest that a natural explanation follows if one acknowledges that $\sqrt{\text{MURDER}}$-type roots comprise structural components of meaning related to entailments of intentionality associated with the external argument as part of their truth-conditional content, as I argued in detail in Chapter 3 (further see Ausensi et al., 2021).

As I discussed in §3.2 of Chapter 3, recall that if one assumes, as Alexiadou et al. (2015) and Folli & Harley (2005) point out, that all external arguments are solely introduced externally to the verb by some functional pro-

jection in the verbal domain, so that they are not arguments of the verb itself, then it is rather unexpected why verb classes such as *murder* verbs always require the overt realization of the external argument, i.e., the roots of this verb class do not appear in event templates in which the external argument is not introduced. Evidence for this comes from the anticausative variant of the causative alternation, namely the variant that is uncontroversially assumed to lack Voice or any other head introducing the external argument (see Hale & Keyser, 2002; Levin & Rappaport Hovav, 1995; Schäfer, 2008; Koontz-Garboden, 2009; Rappaport Hovav & Levin, 2012; Rappaport Hovav, 2014b), as illustrated by the (b) examples below.

(61) a. The strong gust of wind broke the window.
b. The window broke.

(62) a. The cook cooled the soup.
b. The soup cooled.

(63) a. The toddler shattered the vase.
b. The vase shattered.

In this respect, Alexiadou et al. (2015) convincingly show that the anticausative variant does not contain either an implicit or explicit external argument when subject to relevant diagnostics, in contrast to passives. For instance, as Alexiadou et al. (2015: 20) note, anticausatives do not license *by*-phrases (64), cannot control PRO (65), are incompatible with agentive adverbs (66) and do not license instrumental PPs (67). Compare this below (from Alexiadou et al., 2015: 20).

(64) a. The ship was sunk by Bill/by the hurricane.
b. *The ship sank by Bill/by the hurricane.

(65) a. The boat was sunk [PRO to collect the insurance].
b. *The boat sank [PRO to collect the insurance].

(66) a. The boat was sunk deliberately.
b. #The boat sank deliberately.

(67) a. The window was broken by John with a hammer.
b. *The window broke with a hammer.

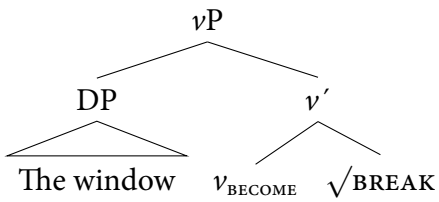
In order to capture the fact that *murder* verbs never alternate across languages (see Rappaport Hovav, 2014b), GROC approaches such as the one

developed in Alexiadou et al. (2015: 54) (building on Marantz, 1997; Rappaport Hovav & Levin, 1998; Harley & Noyer, 2000; Reinhart, 2002; Alexiadou et al., 2006) propose an ontological-type classification of roots according to their idiosyncratic information. Such an ontology is argued to determine the distributional properties of roots with regard to their participation in the causative alternation. For instance, roots such as √MURDER are then argued to disallow the causative alternation insofar as their ontological-type classification, that of agentive, requires them to be inserted in specific event structures (cf. §1.3.2 of Chapter 1).

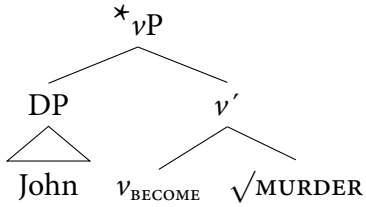
(68) √agentive (*murder*, *assassinate*)
√internally caused (*blossom*, *wilt*)
√externally caused (*destroy*, *kill*)
√cause unspecified (*break*, *open*)
(Alexiadou et al., 2015: 54)

Namely, roots such as √MURDER are then argued to only appear in event structures that have an external argument interpreted as the agent of the event (cf. Chapter 3). Insofar as the anticausative variant does not contain such a functional projection, this class of roots is then predicted not to appear in this alternation. Compare this below.

(69) The window broke.



(70) *John murdered/assassinated/slaughtered. (on intended reading)



While a GROC approach of the type developed in Alexiadou et al. (2015) may capture the distributional properties of distinct classes of roots with regard to the causative alternation, it still leaves the facts about sublexical modification with *again* unexplained. In other words, they still do not explain why roots like √MURDER disallow repetitive readings that exclude intentionality associated with the external argument, as I discussed in detail in Chapter 3. More importantly, though, as Alexiadou et al. (2015: 55) themselves note, such a classification runs the risk of being purely descriptive and highly circular (i.e., roots of the √MURDER type never appear in event structures that do not contain Voice because of their ontological-type classification and such an ontological-type classification is due to the fact that such verbs never appear in structures that do not contain Voice).

Here, I propose that such (*ad hoc*) classifications can be done away with if we acknowledge that root meanings can be more complex than previously assumed, i.e., in the sense that classes of roots can contain structural components of meaning as part of their truth-conditional content. In particular, recall that I have proposed that the semantics of the root must be compatible (to some extent) with the semantics of the event templates. Here, I further propose that the locus of ungrammaticalities is in clashes between the semantics of the root and the semantics of the event structure. Note, thus, that this is critically different from FD approaches as in Borer (2005b); Mateu & Acedo-Matellán (2012); Acedo-Matellán & Mateu (2014), *i.a.*, since they take such ungrammaticalities to be apparent as they are considered to be incompatibilities between the conceptual content of the root and the event structure. In contrast, I assume that some classes of roots come with structural components of meaning and in turn that clashes between the semantics of roots and the semantics of the event structure result in actual cases of ungrammaticalities. Namely, the semantic content of certain classes of roots is indeed grammatically relevant as it can determine grammatical properties of roots such as how they are associated with the event structure.

In this respect, consider the anticausative variant again. Such a variant does not include the presence of an external argument, i.e., the anticausative variant involves an event of change of state of a participant without specifying the cause that gives rise to that event of change of state. Thus, if the semantics of √MURDER-type roots, repeated below, relates to predicating a state of a unique participant, but crucially requires that such a state must have a cause and that such a cause must be of a specific type, i.e.,

an intentional-type action, it is expected then that verbs derived from such roots will never alternate between causative and anticausative uses, insofar as the anticausative variant excludes the presence of an agent argument, and agents are, by default, the only type of arguments compatible with intentionality (see Dowty, 1991).

(71) $[\![\sqrt{\text{MURDER}}\text{-type}]\!] = \lambda x \lambda s[\textit{dead'}(x, s) \wedge \exists e' \exists v[\textit{cause'}(v, e') \wedge \textit{become'}(e', s) \wedge \forall v'[\textit{cause'}(v', e') \rightarrow \textit{intentional'}(v')]]]$

The present account has the advantage of capturing both the distributional properties of $\sqrt{\text{MURDER}}$-type roots as well as the different kinds of readings that *again* and *re–* prefixation generate (cf. Chapter 3) without the need of stipulating *ad hoc* classifications. Although ontological-type classifications correctly capture the distributional properties of roots, they still leave unexplained the facts about sublexical modification and run the risk of being purely descriptive and highly circular, as discussed above.[9]

In short, in order to account for the distributional properties of roots, I

[9] The attentive reader might have noted that the present account predicts that the verb derived from the root $\sqrt{\text{KILL}}$ should be able to participate in the causative alternation, yet this is never the case in English (e.g., **John killed* (on intended reading)). This is because, in contrast to $\sqrt{\text{MURDER}}$-type roots, such a root does not place any restrictions on the type of cause that gives rise to the state it denotes, and therefore verbs derived from roots of the $\sqrt{\text{KILL}}$ sort should be able to alternate, since verbs that do not place selectional restrictions on the cause generally alternate across languages (cf. *break*). However, while such a root does not place selectional restrictions on the type of cause, it still requires that the state it denotes be caused, in contrast to roots such as $\sqrt{\text{BREAK}}$, which simply require that the state they denote be the result of a change (and such a change can simply originate in the theme itself, and therefore need not be (externally) caused, see Koontz-Garboden, 2009). In addition, although I remain agnostic about what the correct analysis ultimately is, insofar as the focus of the present section is on verbs of the *murder* sort, and such verbs have been observed to never alternate across languages (see Rappaport Hovav, 2014b; Alexiadou et al., 2015), it is important to note that *kill* does in fact alternate in languages such as Hebrew (Rappaport Hovav, 2014b), Greek (Alexiadou et al., 2006, 2015) or Spanish (Vivanco Gefaell, 2016). Thus, this suggests that the fact that *kill* does not alternate despite not imposing selectional restrictions could simply be an accident of English, e.g., a blocking effect because of *die* (see Koontz-Garboden, 2009: 87). In short, what is crucial for the present purposes is that verbs derived from $\sqrt{\text{MURDER}}$-type roots never participate in the causative alternation across languages, whereas verbs derived from roots of the $\sqrt{\text{KILL}}$ sort certainly do in some languages.

propose that the semantics of the roots must be compatible with the meaning of the event structure, and therefore cases of ungrammaticality will be the result of clashes between the semantics of roots and the meaning of the event structure. In addition, I have suggested that if we acknowledge that certain classes of roots have more complex meanings than previously assumed, then a natural explanation follows for the fact that verbs derived from $\sqrt{\text{MURDER}}$-type roots never appear in event templates that exclude the presence of the external argument. I have suggested that such an approach has the advantage of capturing the distributional properties of $\sqrt{\text{MURDER}}$-type roots as well as the kinds of readings available with sublexical modification (cf. Chapter 3). While ontological-type classifications such as that in Alexiadou et al. (2015) capture the distinct distributional properties of roots as it is such a classification that determines and/or constrains the event templates that roots can occur in, they still leave unexplained the different kinds of readings available with sublexical modification (cf. Chapter 3) and run the risk of becoming purely descriptive and highly circular.

5.7 Conclusion

In the present chapter, I have focused on the syntactic distribution of roots in the event structure. I have first discussed two influential approaches to event structure that have proposed distinct ways to capture the syntactic contexts roots appear in. On the one hand, GROC approaches have classified roots into semantic classes according to their ontological type. The ontological type of roots has been argued to be grammatically relevant as it determines the syntactic contexts roots can appear in. FD approaches, on the other hand, reject the idea that roots can have ontological types that can be grammatically relevant and argue instead that any root can in principle appear in any context. GROC and FD approaches thus make completely distinct predictions regarding root distribution and the argument structure of the surface verbs. Namely, under GROC approaches, roots with distinct ontological types are predicted to appear in different syntactic contexts and in turn the argument structure of the surface verbs will be rather different. Under FD approaches, in contrast, all classes of roots are predicted to appear in the same syntactic contexts and therefore they predict that the argument structure of the surface verbs will be rather similar.

I have shown, however, that neither approach to event structure has been

successful in capturing the syntactic distribution of certain classes of roots as they both leave crucial data unaccounted for. In particular, I have provided evidence against GROC approaches of the type developed by Rappaport Hovav & Levin and Alexiadou et al. which hold that the lexicalization of a manner or result component by the root determines syntactic distribution and in turn the argument structure and patterns of the surface verbs. Under these approaches, manner and result roots have distinct association patterns with the event structure, i.e., result roots are always complements, and manner roots are always event modifiers. Consequently, this predicts that only verbs derived from manner roots will appear in syntactic contexts in which the verbal root is associated with the event structure as an event modifier, as in nonselected object constructions (e.g., *John scrubbed his fingers raw*). In this respect, I have provided data that show that a class of result roots can indeed function as event modifiers as they can be found in nonselected object constructions (e.g., *Scientists just melted a hole through 3,500 feet of ice*) therefore arguing against these GROC approaches to event structure. I concluded then that these data can be accounted for if one assumes that the lexicalization of a manner or result component by the root does not determine grammatical properties such as the distribution of roots in the event structure. Further, I have also argued against FD approaches (e.g., Borer, 2005b, 2013; Acquaviva, 2008, 2014; Mateu & Acedo-Matellán, 2012; Acedo-Matellán & Mateu, 2014) by providing data that show that root distribution is not completely unconstrained, as there are certain classes of roots that cannot appear in just any type of syntactic context, but rather have a fixed association pattern with the event structure. Namely, I have shown that the roots of deadjectival verbs of the *open* type never function as event modifiers, but always as complements (e.g., **The kid opened the ball into the garden*).

In order to account for these data that have challenged both GROC and FD approaches, I have proposed that if one looks at the distinct semantics that classes of stative roots have, then a natural explanation follows for the distinct association patterns of Result and Property Concept Roots. Namely, certain association patterns with the event structure such as root adjunction to *v* in which roots are interpreted as providing the manner of the event seem to be incompatible with some classes of roots. In particular, root adjunction to *v* seems to be sensitive to the semantics of the type of root involved, i.e., only classes of roots that have an eventive component as part of their se-

mantics can be associated with the event structure as event modifiers. In contrast, roots that simply predicate a pure state, with no eventive properties, are not compatible with being interpreted as event modifiers insofar as the root is completely stative. I have proposed that if this account is on the right track, an explanation then follows for why verbs derived from these two classes of roots have distinct argument structure and realization patterns, i.e., only verbs derived from stative roots with an eventive component as part of their semantics permit constructions that involve root adjunction to *v* such as nonselected object constructions (cf. *With a few slices of her claws, she tore him free* vs. **The kid opened the ball into the garden*).

In short, I have proposed that the semantics of roots heavily bears on the grammatical properties of classes of roots insofar as it can determine their syntactic distribution and in turn the argument structure and realization patterns of the surface verbs. To this end, I have focused on result verbs and shown that they enjoy a certain degree of verbal elasticity, contra what one would expect under Rappaport Hovav & Levin's and Alexiadou et al.'s approaches. Yet, I have shown that there are cases of lack of verbal elasticity, contra what FD approaches predict, e.g., Borer (2005b, 2013); Mateu & Acedo-Matellán (2012); Acedo-Matellán & Mateu (2014). In this respect, I have proposed that if certain classes of roots introduce structural components of meaning, then a natural explanation follows. Namely, the semantics of roots must be then compatible with the semantics of the event structure. Cases of ungrammaticality thus result from clashes between the semantics of roots and the semantics of the event structure.

Chapter 6

Towards a root-sensitive approach to event structure

Contents

6.1 Introduction

In this dissertation, I explored the division of labor between grammar and the lexicon from the viewpoint of event structural theories that take verb meanings to decompose into event templates and roots. The standard assumption under these theories is that event templates define the temporal and causal structure, while roots fill in real-world details about the event. An important assumption of this view is that the semantics of the whole event structure and the grammatical properties of the verbs are only determined by event templates, as only event templates introduce structural components of meaning such as change, causation or intentionality. By analyzing a range of different but related phenomena, I argued against this strong division of labor by showing that roots play a bigger role in grammar and meaning composition. In particular, I argued in favor of an event structural theory of verb meaning in which the contributions of event templates and roots need not be mutually exclusive, as assumed in standard decompositional theories, but can complement each other in some cases with grammatical consequences. I observed that root-specific entailments are grammatically relevant as roots can impose restrictions on the syntactic structures they associate with and in turn determine the grammatical properties of the surface verbs. I thus argued in favor of an event structural approach to verb meaning which must be sensitive to the semantic contribution of distinct classes of roots.

Chapter 2 looked into the question of whether there are constraints or limitations in the lexical entailments of verbs. In particular, I argued against Rappaport Hovav & Levin's (2010) claim that the idiosyncratic meaning of verbs is actually constrained in that they can only make reference to a manner of action or a result state, but never both. Namely, Rappaport Hovav & Levin predict that there should not be verbs that encode a type of action that gives rise to a specific state, i.e., actions and states are in complementary distribution. By analyzing what I called *murder* and *manner-of-stealing* verbs, I arrived at the conclusion that there are no constraints regarding the lexical entailments of verbs of the type argued for by Rappaport Hovav & Levin. That is, the truth-conditional content of verbs is not constrained in terms of denoting actions or states. In this respect, I isolated a type of action that is common across all *murder* and *manner-of-stealing* verbs, i.e., these verbs encode an intentional-type action that brings about a result state, i.e., *death* in the former verb class and *change of possession* in the latter. After analyz-

ing these verb classes, I concluded that agent entailments, i.e., intentionality associated with the agent argument, are sufficient to induce manner properties and hence that intentionality has more important consequences for the study of verb meaning than previously assumed.

Chapter 3 explored the types of meaning that roots can have in terms of truth-conditional content. In particular, I focused on the roots of *murder* verbs and argued that this class of roots violates another constraint on root meaning, namely the Bifurcation Thesis for Roots. In this respect, I argued that √MURDER-type roots comprise entailments of change and intentionality as part of their truth-conditional content, therefore violating the Bifurcation Thesis for Roots insofar as intentionality and change are meaning components that are uncontroversially assumed to be solely introduced structurally. I noted that the fact that certain classes of roots can introduce structural components of meaning has grammatical consequences, e.g., it heavily bears on type of causation, whether direct or indirect, that verbs denote. Namely, I argued that the verbs derived from √MURDER-type roots entail direct causation, in contrast to the ones derived from roots of the √KILL type, which are unspecified for the type of causation. Last, I further argued that √MURDER-type roots not only entail intentionality associated with the external argument, but must also represent the external argument in their lexical semantics, i.e., they associate with the external argument internally rather than externally, contra Kratzer (1996) *et seq*. By doing so, I provided evidence against the prevalent view that intentionality entailments as well as the external argument are structurally introduced by functional heads in the syntax (cf. Kratzer, 1996; Folli & Harley, 2005; Pylkkänen, 2008; Alexiadou et al., 2015, *i.a.*).

Chapter 4 focused on the division of labor between event templates and roots with regard to the expression of resultativity. In particular, the starting point was the widely-accepted restriction involving resultative constructions in English that there can only be one result state predicated in a single clause (cf. Goldberg, 1991, *et seq*.). More specifically, I focused on result verbs and the types of result phrases they combine with. Contra Rappaport Hovav & Levin (2010), I showed that result verbs can combine with result phrases denoting distinct result states than the one encoded by the verb, e.g., *Sailor finishes his beer [...] steps on it, crushing it flat*. The data I provided showed that semantically two result states can be predicated of the same entity in a single clause, namely, the result state encoded by the result verb and the one

denoted by the result phrase. Although this type of examples semantically involves that two distinct result states are predicated of the same entity, I argued they are well-formed since structurally there is only one result state. Namely, the restriction on the number of result states was argued to follow from the architecture of event structure, i.e., structurally there can only be one overt predicate denoting a result state in a single clause. For instance, in examples of the *crush something flat* type, I contended that the roots of result verbs, despite semantically encoding a result state, join the syntactic derivation as event modifiers, and it is the result phrases that are selected as the result predicates. I thus proposed a more nuanced view regarding the expression of resultativity in English from the viewpoint of the division of labor between roots and event templates.

Chapter 5 examined the restrictions imposed by roots on event templates. In this respect, I showed that the two main approaches to event structure, i.e., Free Distribution and Grammatically Relevant Ontological Categories approaches, do not fully account for the syntactic distribution of roots. On the one hand, I provided evidence against Grammatically Relevant Ontological Categories approaches of the type developed by Rappaport Hovav & Levin (1998, 2010) and Alexiadou et al. (2015) which propose that the lexicalization of a manner or result component by the root determines syntactic distribution, i.e., manner roots are event modifiers and result roots are complements. In this respect, I provided data that challenge these approaches as they involve result roots occurring as event modifiers (e.g., *Scientists just melted a hole through 3,500 feet of ice*). On the other hand, I also argued against Free Distribution approaches of the type developed by Borer (2005b, 2013); Mateu & Acedo-Matellán (2012); Acedo-Matellán & Mateu (2014) by providing data that show that root distribution is not completely unconstrained, e.g., the roots of deadjectival verbs of the *open* type never function as event modifiers (e.g., **The kid opened the ball into the garden*). In order to account for these contrasts, I proposed that certain association patterns with the event structure seem to be sensitive to the semantics of the type of root involved, i.e., the semantics of roots must be compatible with the meaning of the event structure. I argued that only classes of roots that have an eventive component as part of their semantics can be associated with the event structure as event modifiers. I proposed thus that the semantics of roots heavily bears on the grammatical properties of classes of roots insofar as it can determine their syntactic distribution and in turn the

argument structure and realization patterns of the surface verbs.

6.2 Roots restrict their syntactic contexts

To close this dissertation, I turn to answer pending questions that I have not discussed in that much detail in the previous chapters. In particular, although this dissertation has explored the nature of root meaning in more detail than previous event structural approaches, it nonetheless has not fully looked into how root meaning can interact with the syntactic structure from the viewpoint of syntactic decompositional approaches. Namely, if certain classes of roots can contain structural components of meaning as part of their truth-conditional content, i.e., the meanings generally assumed to be exclusively introduced structurally by event templates, a natural question that arises then is whether the semantics of the whole event structure is still solely determined by event templates. Alternatively, it could be the case that roots determine the semantics of the event structure. If roots determine the semantics of their syntactic contexts, one might be tempted to conclude that event templates are not necessary after all. In this chapter, I attempt to provide an initial answer to these questions and arrive at the conclusion that when roots introduce structural components of meaning as part of their truth-conditional content, they delimit their syntactic contexts, i.e., roots impose restrictions on the syntactic contexts they associate with.

6.2.1 Intentionality and external arguments

I start by considering $\sqrt{\text{MURDER}}$-type roots one last time (cf. Chapter 3). An important question related to this root class which encodes entailments of intentionality associated with the external argument and represents the agent argument internally within its lexical entry is whether functional heads like Voice or the verbalizing little *v* head still introduce intentionality entailments and the external argument when they are combined with this root class. Alternatively, it could be the case that in the presence of roots that contain structural components of meaning, functional heads like Voice or *v* could receive this type of information from other levels of representation.[1]

[1] The material in this section has appeared in Ausensi et al. (2021).

Following Yu (2020), I propose that when roots introduce structural components of meaning, the whole meaning of the event structure can be determined by roots and functional heads like the verbalizing little *v* head and Voice are then semantically inert, i.e., contextual allosemy (see Schäfer, 2008; Wood, 2012; Myler, 2014; Wood & Marantz, 2017; Merchant, 2019). As we noted in Ausensi et al. (2021), this can be captured by using a spell out rule within the Distributed Morphology tradition so that the meaning of the verbalizing *v* head is sensitive to the identity of the root that it verbalizes. Namely, *v* can be interpreted as semantically inert in the context of certain classes of roots such as $\sqrt{}$MURDER-type roots, i.e., it is semantically an identity function that returns the denotation of its sister unaltered.

(1) $[\![v]\!] \rightarrow \lambda F.F$ / ___ $\sqrt{}$MURDER-type

Under this analysis, the semantics of the whole syntactic context is provided solely by the root, i.e., the interpretation of the event is determined only by the root, as the root introduces entailments of causation, change and intentionality. In other words, the semantics associated with an intentional change of state event denoted by a predicate like *John murdered the man* is exclusively contributed by the root involved and not by the syntactic structure. Despite the fact that *v* is semantically inert in the context of certain classes of roots, it is still necessary if one assumes a syntactic decompositional analysis along the lines of the Distributed Morphology insofar as it is the functional head that is taken to verbalize the acategorial root.

Concomitantly, recall that as discussed in §3.5 of Chapter 3, $\sqrt{}$MURDER-type roots also introduce the external argument internally in their lexical semantics. Although one might be tempted then to conclude that functional heads such as Voice are no longer necessary for $\sqrt{}$MURDER-type roots, here I propose, following Schäfer (2008), Myler (2014), Alexiadou et al. (2015), Wood & Marantz (2017), Yu (2020), that Voice is nonetheless present insofar as it assigns accusative case regardless of whether it introduces a thematic role. Namely, assignment of accusative case is tied to Voice introducing an argument in its specifier rather than its semantic content. This presupposes thus that there exists a flavor of Voice that introduces an argument and assigns accusative case to it, but crucially it does not assign a thematic role to this argument, i.e., Voice$_{[+D,-\theta]}$. The argument Voice introduces is in turn assigned its semantic role by some constituent lower down in the structure, which remains unsaturated until Voice is combined, i.e., the

root. Semantically, this can be implemented if Voice$_{[+D,-\theta]}$ is interpreted as a type-neutral identity function in the context of a *v*P formed with certain classes of roots, such as √MURDER-type roots (Schäfer, 2008; Wood, 2012; Myler, 2014; Alexiadou et al., 2015; Wood & Marantz, 2017; Yu, 2020).[2]

(2) $[\![\text{VOICE}_{[+D,-\theta]}]\!] \rightarrow \lambda F.F$ / ___ [$_{vP}$ *v* √MURDER-type]

Under this analysis, the functional heads such as Voice and *v* are semantically inert since their sole purpose is to either introduce the external argument syntactically or verbalize the acategorial root. Namely, on this view functional heads do not determine the semantic interpretation of the external argument they introduce, i.e., whether it is to be interpreted as an Agent, Causer etc., or the interpretation of the event. That is, when roots are semantically rich in that they introduce structural components of meaning like change, causation or intentionality, the role of the functional heads is simply to fulfill syntactic requirements such as case assignment or the syntactic introduction of arguments and roots in this case determine the semantics of the event structure. Thus, in a predicate involving a root of the √MURDER type, the entailments of intentionality associated with the external argument as well as the caused change of state interpretation is solely introduced by the root and not by the syntactic structure (see also Yu, 2020).

6.2.2 Eventivity and root distribution

In Chapter 5, I proposed that only roots that have a certain eventive component as part of their semantics can provide the manner of the event. In particular, I proposed that Result Roots (e.g., √BREAK, √MELT, √FREEZE)

[2] As we discuss in Ausensi et al. (2021), proposing that functional heads like *v* and Voice are semantically inert with roots that introduce structural components of meaning accounts for the fact that √MURDER-type roots disallow subjectless presuppositions (cf. §3.5) as well as repetitive presuppositions that do not entail intentionality associated with the external argument in the previous event (cf. §3.3). In particular, if *v* and Voice are semantically inert, then *again* can only attach at the VoiceP level, i.e., the position in which the agent arguments of *murder*-type verbs are introduced. In Ausensi et al. (2021) we note that *v*P, i.e., the attachment site in which subjectless presuppositions are generated with other types of transitive eventive verbs like *hit* or *kill*, following the discussion in Bale (2007), is not of the correct semantic type to attach, therefore providing an answer to why subjectless presuppositions are not generated with *murder*-type verbs. See Ausensi et al. (2021).

in contrast to Property Concept Roots (e.g., √OPEN, √THIN, √DARK) can function as event modifiers and provide the manner of the event that brings about a result state. That is, although both classes of roots were taken to be predicates of states, only Result Roots introduce an eventive component as part of their meaning, i.e., an entailment of change that gives rise to the state they predicate, which I proposed allows them to occur as event modifiers.[3]

If this is correct, i.e., that only stative roots that contain an eventive component as part of their truth-conditional content can occur as event modifiers, an open question then is why roots of the √MURDER type do not appear to function as event modifiers despite including eventive properties as part of their truth-conditional content. In other words, if Result Roots can occur as event modifiers because they are predicates of states with eventive properties, we should expect then that √MURDER-type roots can also occur as event modifiers, since they are also predicates of states with eventive properties (cf. Chapter 3). Yet, as noted in §2.4.1.2 of Chapter 2, this does not seem to be the case, as illustrated by the relevant examples repeated below.

(3) a. *The spy murdered his hands bloody.
(cf. Kim scrubbed her fingers raw)
b. *The knight slew his sword bloody.
(cf. John ran his shoes ragged)
c. *John assassinated himself tired.
(cf. John laughed himself tired)
d. *John slaughtered his fingers raw.
(cf. Kim scrubbed her fingers raw)
e. *John massacred himself into prison.
(cf. He effectively talked himself into prison) (GBooks)

For instance, (3-a) cannot have the interpretation that the spy caused his hands to become bloody by murdering (someone), i.e., √MURDER-type roots do not seem to be able to provide the manner of the event. In formal terms, this translates into the fact that, just like Property Concept Roots, √MURDER-type roots cannot be modifiers to *v*, as they seem to always function as complements despite having eventive properties as part of their semantics.

In order to account for such a contrast, alternatively one might sug-

[3] Parts of the material in this subsection come from Ausensi et al. (in progress).

gest that Result Roots like √BREAK are not predicates of states, but predicates of events, contra Beavers & Koontz-Garboden (2020). In particular, in Ausensi et al. (in progress), in order to account for the observation that Property Concept Roots do not occur as event modifiers, we propose that Result Roots are predicates of events that entail a result state (4-a). Result Roots thus differ from canonical manner roots such as √POUND in that manner roots are predicates of events without entailing any result state (4-b). Property Concept Roots, instead, are predicates of states (4-c).

(4) a. $[\![\sqrt{\text{BREAK}}\text{-type}]\!] = \lambda x \lambda e[break'(x, e)]$
where break'(x,e) = 1 iff $\exists$s[*become*'(e,s)] $\wedge$ *broken*'(x,s)]
b. $[\![\sqrt{\text{POUND}}\text{-type}]\!] = \lambda x \lambda e[pound'(x, e)]$
c. $[\![\sqrt{\text{OPEN}}\text{-type}]\!] = \lambda x \lambda s[open'(x, s)]$

Under this ontological classification of roots, the fact that Property Concept Roots like √OPEN do not occur as event modifiers is accounted for since Property Concept Roots are predicates of states and therefore complements of *v*. Result Roots like √BREAK in contrast are always event modifiers to *v* since they are predicates of events. Importantly, although Result Roots are predicates of events that entail a result state, they do not syntactically decompose into an eventive and stative component, as in standard syntactic decompositional analyses of verb meaning (cf. Embick, 2004, 2009; Harley, 2005; Pylkkänen, 2008; Alexiadou et al., 2015, *i.a.*). Namely, the structure of *John broke the vase* does not involve a syntactically decomposed result state, i.e., the structure is that of a simple transitive predicate along the lines of *John pounded the cutlet* and the result state is solely contributed by the root. In other words, the change of state interpretation in *John broke the vase* is solely determined by the root, and not by the syntactic structure.

(5) a. John broke the vase.
b. [$_{vP}$ subject [$_{v}$ *v* √BREAK] object]

(6) a. John pounded the cutlet.
b. [$_{vP}$ subject [$_{v}$ *v* √POUND] object]

(7) a. John opened the door.
b. [... [object [BECOME √OPEN]]

This event structural approach thus predicts that Result Roots can occur as event modifier insofar as under a syntactic decompositional analysis in

the Distributed Morphology tradition they are taken to be modifiers to *v* as they are predicates of events. It is crucial to note that this root-ontological classification differs from the one laid out by Beavers & Koontz-Garboden (2020) and Embick (2009). Namely, Result Roots under Beavers & Koontz-Garboden's approach are predicates of states that entail change, whereas under Embick's approach Result Roots are predicates of events that always select a state as their complement (cf. §5.5.2). In Ausensi et al. (in progress), we propose that analyzing Result Roots as predicates of events that entail a result state, instead of as predicates of states that entail a result state (Beavers & Koontz-Garboden, 2020) or as predicates of events that select a state as their complement (Embick, 2009), makes some desireable predictions and accounts for the distinct types of syntactic contexts these classes of roots occur in, which the approaches cited above do not fully account for.

For instance, if Result Roots, in contrast to Property Concept Roots, do not involve a syntactically decomposed result state, we should expect then that restitutive readings should be disallowed (cf. Rappaport Hovav, 2008; Beavers & Koontz-Garboden, 2020). In other words, this ontological classification of roots predicts that only Property Concept Roots should generate restitutive readings, as only this class of roots involves a syntactically decomposed result state and therefore sublexical modifiers such as *again* are able to take low scope over it. As discussed in detail in Chapter 3 (see also §1.4), the facts seem to bear this out (example from Yu, 2020: 105).

(8) CONTEXT: Mary requested a potter to make a plate in separate pieces so she can practice her pottery-mending skills. She took a day to put the pieces together. John, who was secretly angry with Mary for previously breaking his favorite bowl, snatched the mended plate from Mary and ...
#John broke the plate again. (#Restitutive)

(9) John opened/closed the door again. (Restitutive OK)

More importantly, if Result Roots such as √BREAK are actually predicates of events, then the state variable should not be available for durative modifiers like *for*-phrases either. This again contrasts with Property Concept Roots like √OPEN which are taken to be predicates of states with a syntactically decomposed result state and therefore durative modification of the state variable with *for*-phrases is actually possible (cf. §1.4).

(10) Mary opened the door for two hours.
   a. OK Mary spent two hours opening the door.
   b. OK Mary opened the door and it was open for two hours.

(11) Mary broke the vase for two hours.
   a. OK Mary spent two hours breaking the vase.
   b. #Mary broke the vase and it was broken for two hours.

In short, under this approach, the difference between the two classes of roots which are predicates of events, i.e., Result Roots like $\sqrt{\text{BREAK}}$ and canonical manner roots like $\sqrt{\text{POUND}}$, is not to be attributed to a different structural analysis whereby Result Roots involve a syntactically decomposed result state, as it is often assumed in standard syntactic decompositional analyses (cf. Folli & Harley, 2005; Pylkkänen, 2008; Alexiadou et al., 2015), but to the fact that only Result Roots are predicates of events that entail a result state. A welcome prediction of this analysis is that it can naturally account for the fact that in the case of Result Roots sublexical modifiers are not able to take low scope over the result state as the result state typical of this root class is not to be represented in the syntax, but encoded directly in the root.

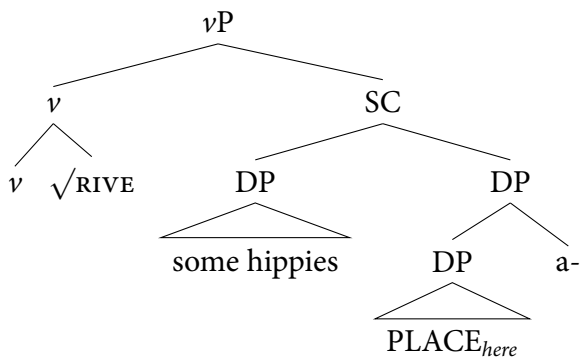
In event structural approaches which take both Result Roots and Property Concept Roots to decompose into an eventive and stative component, the contrasts above between these two root classes regarding sublexical modification with modifiers like *again* or durative phrases with *for* is left unaccounted for. In contrast, under the approach developed in Ausensi et al. (in progress), Result Roots constitute a class of roots that function as manner modifiers and entail change and a subsequent result state. This analysis then provides further evidence in favor of the claim that the semantics of certain classes of roots completely determine the syntactic contexts roots occur in. Namely, the change of state interpretation in a predicate like *break the vase* is not represented in the syntactic structure, i.e., it is not structurally introduced by some projection in the syntax such as a small clause (cf. Folli & Harley, 2005) or a Result Phrase (cf. Alexiadou et al., 2015), but it is instead solely determined by the root. Consequently, the difference between predicates involving manner roots (e.g., *pound the metal*) and predicates involving Result Roots (e.g., *break the vase*) is not to be attributed to a difference in the syntactic decomposition of such predicates, but rather to a difference in the type of root involved so that a change of state interpretation only arises in the presence of a root that entails change and a subsequent result state.

6.2.3 Directed motion entailments

I close this section by providing a final piece of evidence for the claim that certain classes of roots determine their syntactic contexts. In particular, I analyze the grammatical behavior of so-called directed motion verbs such as *arrive, leave, enter* etc. (cf. Levin, 1993; Moro, 1997; Irwin, 2012; Rappaport Hovav, 2014a) and argue that the change of location entailment typical of this verb class can also be encoded within the root itself. Namely, the change of location interpretation associated with a theme argument as in an example like *John arrived in Barcelona* can also be determined by the root itself, rather than by the syntactic structure.[4]

Regarding directed motion verbs such as *arrive*, syntactic decompositional analyses have also proposed that the change of location entailment is introduced by some functional projection in the syntax, and not by the root (cf. Moro, 1997; Irwin, 2012, 2018, 2020). In this vein, Irwin (2012) has recently argued that directed motion verbs of the *arrive* type syntactically decompose into a root and a locative morpheme following the proposal by Moro (1997) for similar verbs in Italian, who argued that verbs like *arrivare* 'arrive' "involve a predicate within a SC [small clause] that incorporates into a V node higher up" (Irwin, 2012: 107). Drawing on Moro, Irwin thus extends the analysis to English and proposes to syntactically decompose *arrive* into a root √RIVE and a locative morpheme *a-*, as shown below.

(12) Some hippies arrived. (Irwin, 2012: 107)

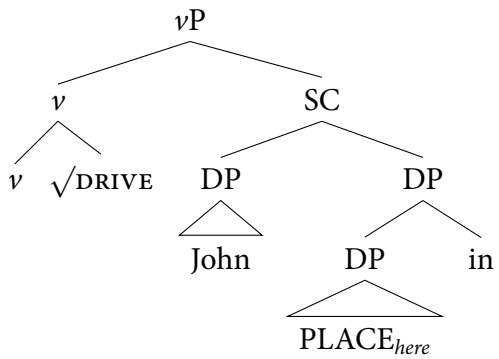


[4] Parts of the material in this subsection have appeared in Ausensi et al. (to appear).

In Irwin's analysis, the root √RIVE is merged as an event modifier to *v*, whereas the locative morpheme *a-* further specifies the PLACE_{here}, which is responsible for introducing the result state, i.e., being in some location, and *a-* moves to prefix to √RIVE.

Irwin notes that the morpheme *a-* is similar to the particles in so-called particle verb constructions such as *drive in* or *pull up*. Irwin then proposes that the roots of directed motion verbs such as √RIVE and the roots of the verbs in particle verb constructions such as √DRIVE are both merged as event modifiers to *v* providing the manner by which the theme ends up on the new location. In the case of particle verb constructions, the result state is also structurally introduced by the small clause predicate, where a particle, e.g., *in*, provides further specification about it.

(13) John drove in. (adapted from Irwin, 2012: 110)



In short, Irwin argues that directed motion verbs of the *arrive* sort and particle verb constructions have the same syntactic structure since in both cases the root is adjoined to *v* functioning as an event modifier and provides the manner of action that brings about the result state, which is structurally introduced by a small clause.

Irwin's analysis of *arrive*-type verbs (also Moro, 1997) and particle verb constructions thus predicts that sublexical modifiers should be able to pick out the result state of being at a location to the exclusion of the manner. For instance, *again* should generate a restitutive reading with *arrive* where there is a previous state of the theme being in a particular location, parallel to cases where *again* generates restitutive readings as it can scope over the result state to the exclusion of the manner when they are provided by different roots as is the case of resultative constructions, e.g., *hammer the metal flat* (cf. §2.4.4

of Chapter 2 as well as §4.3.1 of Chapter 4). Similarly, particle verb constructions should also allow the same type of restitutive readings insofar as they share the same syntactic decompositional analysis under Irwin's approach.

Regarding particle verb constructions, such restitutive readings are indeed available, suggesting that the decompositional analysis Irwin gives to particle verb constructions appears to be correct. This is illustrated in the following examples in which the manner of action that brings about the state of being in some location in the previous event is different from the manner of the asserted event. In this case thus a repetitive reading is not possible insofar as *again* attaches to the predicate contributing the result state and it therefore generates a restitutive interpretation.

(14) a. CONTEXT: John previously walked here, but he later left. After a while ...
John drove here again. (Restitutive OK)

b. CONTEXT: The dog previously walked into the room, but it later ran out. After a while ...
The dog bounced in again. (Restitutive OK)

c. CONTEXT: Tom had previously walked out of the room, but he later came in. After a while ...
Tom ran out again. (Restitutive OK)

In particular, the fact that *again* can generate restitutive presuppositions in this case is actually predicted by Irwin's analysis since *again* attaches to the small clause predicate to the exclusion of the manner contributed by the root, which is higher up in the structure, as a modifier to *v* (cf. (13)).

However, contra Irwin, directed motion verbs of the *arrive* type do not allow restitutive presuppositions. This is illustrated below for *arrive* which when modified with *again* generates clear contradictions in contexts in which the only possible reading is that of a restitutive one. Namely, the examples below make explicit reference to contexts in which the interpretation when modified with *again* is only of a restitutive type, i.e., they state that there is an entity that was born in a place, so that there was no previous causing event that led to that entity to be in that place in a previous stage. In these contexts, *arrive* cannot be modified with *again*, therefore strongly suggesting that *arrive* does not allow restitutive presuppositions.

(15) a. CONTEXT: John was born here, and stayed here until he left when he grew up. After some years ...
#John arrived again. (#Restitutive)

b. CONTEXT: John was born in Chicago, and stayed there until he left for Boston when he grew up. After some years ...
#John arrived in Chicago again. (#Restitutive)

Under Irwin's account in which *arrive*-type verbs and particle verb constructions have the same structure, the contrasts above are rather mysterious. The contrasts seem to show that in the case of *arrive*, *again* cannot scope just over the result state, as in *drive in*. In other words, Irwin's analysis, as well as Moro's, predicts that directed motion verbs like *arrive* should allow restitutive readings, insofar as their structure is the same as particle verb constructions, i.e., verbs like *arrive* are syntactically decomposed into a root providing the manner of the event and the result state of being located in some place is contributed by a small-clause predicate.

What these contrasts seem to strongly suggest is that in the case of directed motion verbs of the *arrive* type, the root entails change as part of its truth-conditional content. In other words, the change of location interpretation typical of this verb class seems to be contributed by the root. In this case, the roots of verbs like *arrive* would predicate a state of being located in some place as a result of a change, which would be encoded in the root itself and not introduced syntactically. In this respect, a possible denotation for a root like $\sqrt{\text{ARRIVE}}$ could be the following one.

(16) $[\![\sqrt{\text{ARRIVE}}]\!] = \lambda y \lambda x \lambda s[\textit{be-at'}(x, y, s) \wedge \exists e'[\textit{become'}(e', s)]]$

If this analysis is on the right track, we should expect then that a restitutive presupposition should not be available for this verb class insofar as $\sqrt{\text{ARRIVE}}$ would be a predicate of states that entails an event of change. Thus, modification with *again* would necessarily include the event of change the root encodes generating repetitive presuppositions, and never restitutive ones, as illustrated above in (15).[5]

[5] Further see Ausensi et al. (to appear) for discussion about the behavior of other directed motion verbs with respect to sublexical modification and the type of truth-conditional content they encode. The overall picture is that directed motion verbs do not constitute a uniform class of verbs with regard to whether the root entails change or not.

6.3 Conclusion

This dissertation has provided a more nuanced view of the types of semantic entailments roots can have in contrast to the meanings introduced by event templates. The overall picture is that the meanings roots and event templates introduce need not be mutually exclusive, as generally assumed in standard event structural theories, insofar as there are certain classes of roots that can introduce structural components of meaning and in turn determine the semantics of the predicates they occur in. This argues against the standard assumption in syntactic decompositional theories of verb meaning that the semantics of the syntactic context is solely determined by the event templates, defined by functional heads in the verbal domain, and never by roots (Borer, 2003, 2005b, 2013; Mateu & Acedo-Matellán, 2012; Acedo-Matellán & Mateu, 2014; Alexiadou et al., 2015).

In particular, I have proposed that when roots introduce structural components of meaning, roots are then capable of imposing semantic restrictions on the syntactic structures they associate with. This points to a direction in which there are semantic components of the event structure that need not be represented in the syntax, but can be encoded directly within the root. For instance, I proposed that this is the case for predicates involving Result Roots such as $\sqrt{\text{BREAK}}$ in which the change of state interpretation typical of this root class is not introduced by some sort of resultative predicate such as a small clause or a Result Phrase in the syntax (cf. Folli & Harley, 2005; Alexiadou et al., 2015) but rather it is encoded directly within the root. As discussed in detail, this analysis makes some welcome predictions at the same time that it is capable of accounting for the distinct types of readings that sublexical modification generates in contrast to other classes of roots such as Property Concept Roots.

The overall conclusion of this root-sensitive approach is that one should provide a syntactic decompositional analysis of verb classes only if there is compelling evidence for such a decomposition. For instance, in the case of Property Concept Roots such as $\sqrt{\text{OPEN}}$, it seems indeed to be the case that verbs derived from this root class can be said to decompose into a stative and

Our main piece of evidence comes from the type of presuppositions directed motion verbs generate with *again* and durative *for*-phrases.

eventive component, insofar as sublexical modification with modifiers such as *again* and durative *for*-phrases are able to target the result state. In contrast, sublexical modification is not able to target the result state in predicates involving Result Roots, strongly suggesting that verbs derived from this root class do not syntactically decompose into a stative and an eventive component. This contrast provided compelling evidence in favor of the claim that the result state must be encoded directly within the root itself in the case of Result Roots. The syntactic structure of a predicate involving a Result Root like *John broke the vase* is that of a simple transitive predicate with no syntactically decomposed result state, as in an activity predicate such as *John pounded the cutlet*. An important consequence of this approach then is that syntax can be assumed to be *simpler* (cf. Culicover & Jackendoff, 2005, 2006) insofar as certain structural components of meaning can be encoded directly within the root and consequently need not be represented in the syntactic structure at all.

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Appendices

Publications derived from the thesis

The work developed in this dissertation has given place to the following papers, either published, accepted, to appear, under review or currently in progress.

Acedo-Matellán, Víctor, Josep Ausensi, Josep Maria Fontana & Cristina Real-Puigdollers. to appear. Old spanish resultatives as low depictives. In Chad Howe, Pilar Chamorro, Timothy Gupton & Margaret Renwick (eds.), *Theory, data and practice: Selected papers from the 49th Linguistic Symposium on Romance Languages* Open Romance Linguistics 1, 231–260. Berlin: Language Science Press.

Ausensi, Josep. 2019a. Agent entailments induce manner properties: Evidence from verbs of killing. In Van Alem Astrid, Mirella De Sisto, Elisabeth J. Kerr & Joanna Wall (eds.), *Proceedings of the 27th Conference of the Student Organization of Linguistics in Europe*, 118–134. Leiden: Leiden University Centre for Linguistics.

Ausensi, Josep. 2019b. Revisiting the elasticity of verb meaning and the *way*-construction in English. In M. Teresa Espinal, Elena Castroviejo, Manuel Leonetti & Cristina Real-Puigdollers (eds.), *Proceedings of Sinn und Bedeutung 23*, 77–94. Bellaterra (Cerdanyola del Vallès): Universitat Autònoma de Barcelona.

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Ausensi, Josep. to appear b. The semantics of roots determines argument structure. In Luisa Martí, Hazel Pearson & Yasutada Sudo (eds.), *Proceedings of Sinn und Bedeutung 25*, London: University College of London and Queen Mary University of London.

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Ausensi, Josep & Alessandro Bigolin. under review a. Resultatives and low depictives in English: A syntactic approach to the Unique Path Constraint. Unpublished ms., Universitat Pompeu Fabra and Universitat Autònoma de Barcelona.

Ausensi, Josep & Alessandro Bigolin. under review b. A syntactic approach to the Argument-Per-Subevent Condition. Unpublished ms., Universitat Pompeu Fabra and Universitat Autònoma de Barcelona.

Ausensi, Josep, Ryan Walter Smith & Jianrong Yu. in progress. A root-sensitive approach to event structure. Unpublished ms., Universitat Pompeu Fabra, The University of Texas at El Paso and The University of Arizona.

Ausensi, Josep, Ryan Walter Smith & Jianrong Yu. to appear. Directed motion entailments in the semantics of roots: A root-sensitive approach. In Luisa Martí, Hazel Pearson & Yasutada Sudo (eds.), *Proceedings of*

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Ausensi, Josep, Jianrong Yu & Ryan Walter Smith. 2020. Repetitive presuppositions with *again*: Un-severing the external argument. In Patrick Farrel (ed.), *Proceedings of the Linguistic Society of America*, vol. 5, 83–93. Linguistic Society of America.

Ausensi, Josep, Jianrong Yu & Ryan Walter Smith. 2021. Agent entailments and the division of labor between roots and functional structure. *Glossa: A Journal of General Linguistics 6*(1). 53.

Related publications

The author has also produced the following papers, which are related to the main contributions of the present dissertation but have not been directly derived from the work developed in the dissertation.

Bigolin, Alessandro & Josep Ausensi. 2021. A new resultative construction in Spanish? A reply to Rodríguez Arrizabalaga. *Folia Linguistica*.

Mangialavori Rasia, Eugenia & Josep Ausensi. 2020. Intransitive causatives in English: Productivity regularities and asymmetries. In Michael Franke, Nikola Kompa, Mingya Liu, Jutta Mueller & Juliane Schwab (eds.), *Proceedings of Sinn und Bedeutung 24*, vol. 2, 38–55. Osnabrück: Osnabrück University.

Mangialavori Rasia, Eugenia & Josep Ausensi. to appear. Deconstructing the conative alternation in Romance. In Chad Howe, Pilar Chamorro, Timothy Gupton & Margaret Renwick (eds.), *Theory, data and practice: Selected papers from the 49th Linguistic Symposium on Romance Languages* Open Romance Linguistics 1, 161–186. Berlin: Language Science Press.