

On the argument structure realization of result verbs: A syntactic approach

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ABSTRACT

Manner/Result Complementarity (Rappaport Hovav & Levin 2010) has been argued to have consequences for argument realization: only manner verbs permit object deletion and non-selected objects. In contrast, result verbs always co-appear with their object, because they are required to express the undergoer of the change that they entail. We discuss new data involving result verbs in constructions where the undergoer of the change encoded by the result verb is not realized as the object of the predicate. We argue these data display result verbs whose root is integrated into the argument structure of the predicate in such a way that it is interpreted as specifying a co-event of the main event denoted by the predicate, whereby the result entailed by the root is not necessarily intended to hold of the direct object. This follows if verb roots do not come with a syntactically relevant specification for manner or result from the lexicon, but acquire it on the basis of their association with the syntactic structure.

KEYWORDS

argument structure, event structure, argument realization, manner, result, roots

1. INTRODUCTION

Rappaport Hovav & Levin (2010) have influentially proposed that verbs can be reduced to two broad semantic classes, manner and result verbs, differing in argument realization and structure patterns. Namely, only manner verbs are argued to permit non-selected objects and object

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deletion (e.g. *John scrubbed his fingers raw* and *All last night, John scrubbed*, respectively), whereas result verbs appear to disallow these argument structures (e.g. **John broke his fingers bloody* and **All last night, John broke*, respectively). These contrasts follow from the fact that result verbs are always required to express the theme undergoing the change entailed by the verb, and further they express it as the object of the predicate, what Levin (2017) recently called the Patient Realization Condition.

In this paper, we discuss data of result verbs appearing with non-selected objects, suggesting that the formulation of the requirement on result verbs as in Rappaport Hovav & Levin (2010) does not appear to be empirically accurate. Adopting a syntactic approach to argument and event structure, we propose that these data can be explained if the lexical specification of roots in terms of manner and result is not syntactically accessible, and therefore cannot pre-determine the types of argument structure roots can appear in. We further predict, for the same reason, that the lexical entailments of verb roots are not affected by the syntactic position roots occupy in the argument structure of predicates. We argue that apparent clashes between the meaning of verb roots and the position they occupy in a given syntactic configuration depend on the compatibility between the conceptual content of the roots and the conceptual scene evoked by the predicate. This view is at odds with the so-called grammatically relevant ontological categories approach to verb meaning (Rappaport Hovav 2017 and references therein), which argue that ontological classifications of verb roots such as that of manner or result determine the integration of verb roots into the syntactic structure.

We proceed as follows. In Section 2, we provide an overview of the patterns of argument realization discussed by Rappaport Hovav & Levin (2010) in relation to their original formulation of Manner/Result Complementarity. In Section 3, we sketch out the approach to argument and event structure that we assume and we analyze data that are problematic for a lexical take on Manner/Result Complementarity that assumes that the lexicalization of a manner or result meaning component determines grammatical patterns of verbs such as their argument structure and realization patterns. Section 4 discusses the distinction between the structural and lexical nature of manner and result. Section 5 concludes the paper.

2. MANNER/RESULT COMPLEMENTARITY

Rappaport Hovav & Levin (2010) (hereafter, RHL) propose that verbs fall into two wide semantic classes, i.e. manner and result verbs, which differ in the parameters of lexically entailing manners of actions or result states.

- (1) a. Manner verbs: *run, sweep, wipe, scrub* ...
- b. Result verbs: *break, open, destroy, arrive* ...

RHL claim that such a distinction is grammatically relevant, as transitive manner and transitive result verbs differ in argument structure. Namely, only transitive manner verbs are argued to permit their objects to be omitted. At first blush, the facts bear this out, since, as shown below, canonical manner verbs such as *sweep* or *scrub* permit object deletion and constructions such as *out*-prefixation where the object is not semantically selected by the verb, whereas canonical result verbs like *dim* or *break* generally do not.



- (2) a. John swept the floor.
 b. All last night, John swept.
 c. Cinderella outswept her stepsisters.
 (Rappaport Hovav & Levin 2002, 275)
- (3) a. John scrubbed the floor.
 b. All last night, John scrubbed.
 c. Cinderella outscrubbed her stepsisters.
 (Rappaport Hovav 2008, 23)
- (4) a. John broke the vase.
 b. *All last night, John broke.
 c. *Kim outbroke the other vase-smasher.
 (Beavers & Koontz-Garboden 2012, 339)
- (5) 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, Rappaport Hovav (2008, 24) has proposed that disallowing object deletion follows from the fact that result verbs lexicalize scales of change, which “require that the participant whose property is measured by them be overtly realized” (cf. Tenny 1987). 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 non-selected objects, i.e. objects that are not subcategorized by the verb, since such objects also involve the deletion of the true object. In a similar vein, Levin (2017, 583) has recently argued 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 Patient Realization Condition. Levin further argues that, in a resultative event, the participant whose property is being measured out “must be expressed due to the patient realization condition and further it must be expressed as an object” (Levin 2017, 584). From this it follows then that result verbs “cannot be found with unspecified objects or non-selected objects, nor can they be found in constructions where anything but their theme argument is the object” (Levin 2017, 584). The purported effects of Levin’s Patient Realization Condition are illustrated below, where canonical result verbs like *break*, *dim* and *cool* are shown to not permit resultative constructions with non-selected objects, in contrast to manner verbs like *scrub*, *run* or *rub*.

- (6) 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)
- (7)
- 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)

As Beavers & Koontz-Garboden (2012, 338) note, this constraint on result verbs might be said to follow from Levin & Rappaport Hovav's (1999) and Rappaport Hovav & Levin's (2001, 779) Argument-Per-Subevent Condition, which states that "There must be at least one argument XP in the syntax per subevent in the event structure". Under a lexical take on Manner/Result Complementarity, result verbs always appear in predicates with a selected object because such is the syntactic argument associated with the undergoer of the BECOME subevent that they lexicalize.

The goal of the present paper is to provide evidence that RHL's claim on result verbs as always requiring the syntactic expression of their theme argument as the undergoer of the result denoted in the predicate is too strong. In particular, we discuss examples showing transitive predicates (8) and unaccusative predicates (9) where the argument of the BECOME subevent denoted by the predicate (i.e. the direct object in (8) and the subject in (9)) is not understood as undergoing the change of state encoded by the result verb.¹

- (8)
- a. With a few slices of her claws, she **tore** him free. (GBooks)
 - b. They leafed the bare trees black, **broke** the branches off the winterdry limbs.² (COCA)
 - c. We **blasted** the tops off mountains. (COCA)

¹The examples are extracted from *Web searches* (Web), *Google Books* (GBooks), *Corpus of Contemporary American English* (COCA) (Davies 2008) and *Corpus of Web-Based Global English* (GloWbE) (Davies 2013).

²RHL (1998, 123) acknowledged the existence of this type of examples, yet they do not analyze them. These examples involve a part/whole relationship, i.e. the object referent is a part of the entity denoted by the PP. An example like (8b) does not entail that the branches break, but rather that the branches get separated from the limbs, whereby a non-selected interpretation of the object is involved. On RHL's approach, however, result verbs like *break* are always complements in the event structure, and can only take result phrases if these further specify the result state in the result verb, as in *break in half* or *freeze solid*. Therefore, RHL's approach would lead to the incorrect prediction that in an example like (8b) the object *the branches* is the entity that becomes broken (i.e. it is a selected object of the verb), while the PP would in turn be further specifying the result state in the verb.



- (9) a. The bullet **ripped** into the tissue of his back and shoulder. (GloWbE)
 b. I once again felt the nails violating my flesh, the rope **burning** into my wrists. (GloWbE)
 c. The fuel **melted** through the reactor's pressure vessel. (GloWbE)

For instance, in (8a) the direct object *him* is not what becomes torn but rather what becomes free, and what is understood to break in (8b) is not the branches but rather their connection to the plant, whereby the internal structure of the branches is intact at the end of the breaking event. Similarly, the referent of *The bullets* in (9a) is not what becomes ripped but rather what ends up in the tissue, and from (9b) it is not understood that *the rope* becomes burned.³ These data are problematic for theories assuming a lexical take on Manner/Result Complementarity (Rappaport Hovav & Levin 2010; Alexiadou et al. 2015; Beavers & Koontz-Garboden 2020, i.a.) because they contradict the claim that the subject of the BECOME subevent realized in the predicate is always an argument selected by the verb if the verb involved is of the result type.

In what follows, we argue that the elasticity of result verbs, as illustrated in (8)–(9), can be accounted for if result roots are not lexically pre-associated with a given syntactic argument structure pattern of the type advocated for by RHL.⁴ This is further supported by examples of the type in (10), which consist in transitive predicates with result verbs where the direct object is understood as being created from the event denoted by the verb and not as undergoing the change of state encoded by the verb.

- (10) a. I stuck my GoPro under some ice and then **shattered** a hole right above it. (Web)
 b. At some point, he **burned** a scar on her arm. (GBooks)
 c. The impact of the Boeing 767 **ripped** a path across floors 94 to 98. (Web)

For instance, *a hole* in (10a) is interpreted as a created entity, and not as the undergoer of the shattering event, which precedes, and actually causes, the creation of the hole.

3. ACCOUNTING FOR THE ELASTICITY OF VERB MEANING

We endorse a view of argument and event structure referred to in the literature as neo-constructionist, whereby argument structure properties arise from the syntactic configurations built around abstract functional heads (Mateu 2002; Borer 2005; Mateu & Acedo-Matellán 2012; Marantz 2013; Acedo-Matellán 2016, i.a.). In this view, a basic distinction is drawn between two types of building blocks: functional heads and roots. The former are abstract relational elements which are necessary for the building of syntactic structures. The latter are intended as

³See McNally & Spalek (2022) for similar examples of non-selected object constructions with *cut*, a verb that has been argued to be polysemous between manner and result (Levin & Rappaport Hovav 2013).

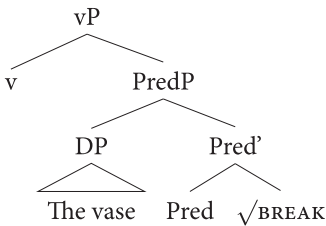
⁴See also Acedo-Matellán & Mateu (2014) for remarks on this point.



an open class of items provided with an idiosyncratic conceptual content and devoid of any grammatically relevant information.⁵

We take the argument structure associated with RHL's BECOME subevent to consist in a verbal head (v) selecting a small clause (PredP) as its complement (Hoekstra 1988). The relation established between the specifier and the complement of the small clause in this configuration is such that the element merged as the specifier is intended to become the holder of the property defined by the element merged as the complement.⁶ This configuration has been associated with transitive and unaccusative predicates denoting scalar changes of state or location (Mateu & Acedo-Matellán 2012; Acedo-Matellán & Mateu 2014, i.a.; cf. Rappaport Hovav 2014a).⁷ For instance, resultative predicates like *The vase broke* have the following syntactic structure.

(11) The vase broke.



In (11), the verbal head v is given phonological content from the incorporation of the root $\sqrt{\text{BREAK}}$ that is initially merged as the complement of Pred, whereby the surfacing verb is

⁵Regarding the nature of root content, the current picture is somewhat more complex since syntactic approaches to argument structure actually differ in the view they assume toward root meaning. For instance, on more radical approaches, Borer (2013) argues that roots lack any type of non-phonological information, insofar as content is only introduced when roots appear in some grammatical context. Borer (2005), Mateu & Acedo-Matellán (2012), Acedo-Matellán & Mateu (2014) accept that roots carry idiosyncratic encyclopedic information, although such information is not grammatically relevant. Others, e.g. Marantz (1997), Harley & Noyer (2000), Harley (2005), Alexiadou, Elena & Schäfer (2006) classify roots into semantic classes determining grammatical properties such as their distribution in the event structure. Recently, a new line of research argues that classes of roots introduce structural components of meaning, i.e. the meanings associated with functional structure, which can determine the grammatical properties of the surface verb (see Beavers & Koontz-Garboden 2020; Ausensi, Yu & Smith 2021). The present work endorses the view of approaches like Borer (2005), Mateu & Acedo-Matellán (2012) and Acedo-Matellán & Mateu (2014).

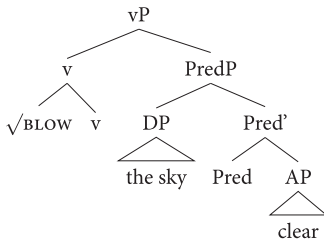
⁶We set aside cases of transitive predicates where no result is involved and yet the direct object is not interpreted as an incremental theme, as in *kick the door*, insofar as they are not relevant for the purposes of our discussion. In this respect, see Hale & Keyser (2002) for an analysis of these predicates as involving a PP complement of v headed by a possessive P (what in Hale & Keyser 2002 is identified as a relation of *central coincidence*), whereby a paraphrase of, say, *kick the door* would be ‘provide the door with a kick/give the door a kick’. See Acedo-Matellán (2016), building on Marantz (2005), for an alternative analysis regarding the direct object as an adjunct to an unergative predicate, introduced by a silent P of central coincidence along the lines of Hale & Keyser (2002) [...]. A paraphrase of such example according to this analysis would read as ‘do kicking on/at the door’.

⁷The unified analysis of change-of-state predicates and change-of-location predicates follows from the so-called “localist hypothesis”, whereby changes of state are conceived of as abstract changes of location (Gruber 1965; Jackendoff 1983; Talmy 1991, 2000; Mateu 2008, i.a.). Further see Rappaport Hovav (2014a) for the observation that both change-of-state predicates and change-of-location predicates denote events of change along a scale.



understood as lexicalizing the result property acquired by the specifier of PredP (i.e. that of becoming *broken*). Alternatively, v can acquire phonological content by forming a complex head with a root externally merged with it (i.e. ‘conflated’, à la Haugen 2009).⁸ In this case, the root specifies a co-event of the main event of change of state/location that arises from the syntactic configuration (Embick 2004; McIntyre 2004; Harley 2005; Mateu & Acedo-Matellán 2012). The predicate in (12) exemplifies this pattern. (12) can be paraphrased as ‘the wind cleared the sky by blowing’, whereby it can be argued to involve the conflation of the root $\sqrt{\text{BLOW}}$ with v and the independent lexicalization of the result complement of Pred by means of an AP.

(12) The wind blew the sky clear.



In the present framework, a lexical take on Manner/Result Complementarity follows if result roots always merge in the syntactic configuration consisting in a v head that selects a PredP complement—as this is the configuration associated with resultative events—and further they always initially merge as the resultative complement of Pred within such a configuration. In what follows, we argue that examples of the type in (8), (9) and (10) provide evidence for the fact that those roots which are classified as result roots can conflate with v in the same way as manner roots do, and that this possibility is granted even if the syntactic configuration is such to not give rise to a resultative predicate (i.e. in present terms, it does not involve a PredP complement of v). In light of the assumptions of the present framework regarding the nature of roots, this possibility is to be regarded as the unmarked hypothesis. The examples in (8)–(10) thus provide evidence for the fact that roots do not come with a lexical specification in terms of manner or result which directly drives the patterns of their syntactic (argument structure) realization.

A series of predictions can be drawn from the present framework regarding the behavior of result verbs when they involve the conflation of a result root with v :

1. First, the result root in such a configuration is structurally interpreted as specifying a co-event of the main event denoted by the predicate (in the same way as, for instance, $\sqrt{\text{BLOW}}$ is in (12)). This follows from the neat division, assumed in the present framework, between syntactically transparent semantic construal and syntactically non-transparent conceptual content of roots (Mateu 2002; Borer 2005, i.a.). In light of such a division, a given syntactic

⁸The availability of this structure-building process in a given language has been related to the typological behavior of the language with respect to Talmy’s (2000) typology of change events (Mateu 2002, 2008, 2012, 2017; McIntyre 2004; den Dikken 2010; Acedo-Matellán 2016, i.a.).



position is predicted to correspond to a given semantic interpretation irrespective of the conceptual content of the root merged in that position.

2. Second, the undergoer of the change that the verb lexically entails is not required to surface as the direct object of the predicate (or as the subject, in the case of unaccusative predicates), *pace* RHL. This is because the verb root is not occupying a predicative position (e.g. the complement of Pred) in the argument structure of the predicate, whereby the result lexically entailed by the root cannot be *syntactically* predicated of any argument.
3. The third prediction is that the result verb arising from such a configuration continues to display the conceptual need to find an undergoer for the result that it entails. This prediction also follows from the distinction between syntactically transparent semantic construal and syntactically non-transparent conceptual content. Namely, the result lexically entailed by the root at the level of its conceptual content is not affected by the syntactic position occupied by the root, because the level of conceptual content is by assumption opaque to syntax. The need to find an undergoer of the result lexically entailed by the root cannot be fulfilled syntactically (cf. prediction 2), but rather it is fulfilled at the level of conceptual interpretation of the predicate. Namely, we predict that predicates displaying result roots that are understood configurationally as specifying a co-event require that the undergoer of the result entailed by the verb root be recoverable from the conceptual interpretation of the predicate. Such an undergoer can either be overtly expressed (but, crucially, not necessarily as direct object), or it can be syntactically omitted, as long as pragmatic/contextual factors ensure its recoverability.
4. Last, when the result entailed by the root is interpreted conceptually as holding of the direct object, such an entity is understood as undergoing at least two unrelated resultative events, namely the one conceptually denoted by the root conflated with *v* and the one provided configurationally by the complement of the small clause (*pace* Goldberg's 1991 semantic take on the Unique Path Constraint; cf. Ausensi & Bigolin 2021).

Bearing these predictions in mind, in the next section we turn to analyze the kinds of constructions outlined in (8) to (10) in light of the present syntactic theory of argument and event structure.

3.1. The elasticity of result verbs revisited

We start by analyzing cases of transitive predicates with result verbs where the direct object is not interpreted as the undergoer of the result state named by the verb, but rather as the undergoer of a change of state/location which is realized independently, by means of an AP (13) or a spatial PP (14).

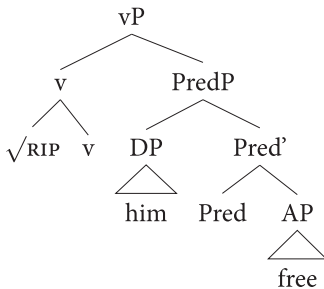
- (13)
- a. Samson, who **ripped** him free of his bindings and pulled him to safety. (Web)
 - b. Six times we **broke** her loose from the rocks only to have her catch again. (GBooks)
 - c. With a few slices of her claws, she **tore** him free. (GBooks)
 - d. Another and deeply significant - and symbolic - lesson is that they were loosed from their bonds. The fire **burned** them loose. And this is sometimes how our Lord sets us free from the things that bind us. (Web)



- (14) a. Rigaut **tore** a piece off one of the letters. (COCA)
 b. We **blasted** the tops off mountains. (COCA)
 c. Solar energy can be used [...] for **splitting** hydrogen out of water molecules to create a fuel for vehicles. (COCA)
 d. I could **rip** your throat out if I wanted. (*Locke and Key*, Season 2, Episode 10: <https://tvshowtranscripts.ourboard.org/viewtopic.php?f=1094&t=47202>)

These examples are problematic for theories assuming a lexical take on Manner/Result Complementarity because they involve a BECOME subevent and a result verb, yet the subject of the BECOME subevent (i.e. the direct object) is not understood as undergoing the result state encoded by the verb. For instance, in (13a) the object *him* is intended to become *free*, and not *ripped*. In the present approach, these examples can be taken to instantiate the conflation pattern discussed above for (12). Accordingly, the verb provides information about a co-event of the change of state/location denoted by the predicate, even though it is a verb of the result type according to semantic classifications (cf. prediction 1). Thus, (13a) can be paraphrased as ‘cause him to become free *by ripping*’. Additionally, as observed above, the only result of which the direct object must be seen as the undergoer is that denoted by the complement of the small clause, and not that lexically entailed by the verb, bearing out prediction 2.

- (15) Samson, who **ripped** him free of his bindings and pulled him to safety.



The same analysis applies to the change-of-location examples in (14), which—in accordance with the localist hypothesis (see fn. 7)—share the same syntactic structure with the change-of-state examples in (13). For instance, in (14a) the object DP *a piece* is intended as the undergoer of a change-of-location event whose final location is specified by the particle *off*, and not as the undergoer of a *tearing* event. Put differently, what is being torn in (14a) is not the direct object *a piece*, but rather *one of the letters*, which is however surfacing as the complement of a spatial PP providing the reference of a change-of-location event. As in the case of (13), we take this to show that the BECOME subevent in (14) is not lexicalized by the result verb. Rather, the BECOME subevent is understood as a change of location where the final location is expressed by a locative PP (e.g. *off* in (14a)) while the result verb specifies the type of event that brings about that change of location. In most of the examples in (13) and (14), the actual undergoer of the result lexically entailed by the verb is introduced as the complement of a PP that attaches to the phrase



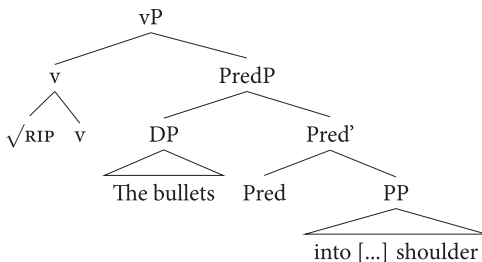
denoting the structural result (e.g. *his bindings* in (13a)). However, we predict that such an undergoer can be overtly expressed through a variety of syntactic options and that indeed its overt realization in the clause is not mandatory for the syntactic well-formedness of the predicate (cf. prediction 3). As a matter of fact, the entity undergoing the result entailed by the verb can be omitted from the predicate when its presence can be recovered pragmatically, e.g. from the context (as in (13c)), from a previous statement (as in (13d)) or from general world knowledge (as in (14d)).

A similar set of examples concerns cases of unaccusative predicates with result verbs where the subject is understood as undergoing a change of location, despite the verb encoding a change of state.

- (16) a. The bullets **ripped** into the tissue of his back and shoulder. (GloWbE)
- b. This time, he **ripped** in without hesitation and pulled a blue half-page out of the envelope. (COCA)
- c. The fuel **melted** through the reactor’s pressure vessel. (GloWbE)
- d. I once again felt the nails violating my flesh, the rope **burning** into my wrists. (GloWbE)
- e. Any moment a bullet can come **shattering** through the glass and hit any one of us. (GloWbE)

For instance, in (16a) it is understood that *the bullets* undergo a change of location whose goal is specified by the complement of the spatial PP, i.e. *the tissue*. Therefore, the undergoer of the *ripping* event denoted by the verb (i.e. *the tissue*) serves structurally as the spatial reference of the change-of-location event denoted by the predicate. The examples in (16) involve the same syntactic structure of (13) and (14), the only difference consisting in the absence of an external argument. As a consequence, the argument introduced in the specifier of the small clause becomes the subject of the predicate.

- (17) The bullets **ripped** into the tissue of his back and shoulder.



These examples are problematic for theories assuming a lexical take on Manner/Result Complementarity insofar as they display result verbs in unaccusative predicates which are therefore predicted to realize the participant undergoing the result state encoded by the verb as the subject



of the predication, yet such is not the case. Similarly to (13) and (14), in these examples the participant undergoing the result state encoded by the verb is not introduced as the subject of the predication. The actual undergoer of the result entailed by the verb in (16) surfaces in most cases within the result complement of the small clause, receiving an interpretation as the final location of the change-of-location event denoted by the predicate. However, as in the case of (13) and (14), the syntactic expression of such an entity is not mandatory: for instance, this entity is not overtly realized in the resultative predicate in (16b), where the undergoer of the *ripping* event is provided in a coordinated clause (cf. *the envelope*). Again, this shows that the recoverability of such an undergoer cannot be regarded as a structural requirement imposed on the predicate by the result verb.

Thus far, we have shown that result verbs can be found in change-of-state/location predicates in which the theme of the change of state/location is not the undergoer of the result state named by the result verb.⁹ In what follows, we further show that result verbs are also attested in predicates denoting events of creation, as in (18). These predicates involve result verbs, yet the direct object is not interpreted as the undergoer of the change entailed by the verb, but rather as an *effected* entity which is created during the event denoted by the result verb.

- (18) 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. His boss just finished **tearing** him a new hole in his backside. (GBooks)
 d. Asher glanced over at the door often, waiting for the queen to pop in and **blast** them a new hole. (GBooks)
 e. At some point, he **burned** a scar on her arm. (GBooks)
 f. The impact of the Boeing 767 **ripped** a path across floors 94 to 98. (Web)
 g. Push from one end and pull from the other eventually **tearing** an entrance through the middle. (Web)

For example, in (18a) the direct object *a hole* is not interpreted as the undergoer of a *melting* event, but rather as an entity that is created while the *melting* event described by the verb takes

⁹Additional cases of result verbs in predicates where the direct object is not intended as the undergoer of the change of state encoded by the verb are found in examples with the *way*-construction.

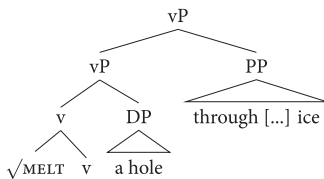
- (i) a. We cannot kill our way out of this war. (COCA)
 b. They tried to burn their way into something with a cutting torch. (COCA)
 c. Looters smashed their way in and went on a digging spree. (COCA)

For instance, the direct object *our way* in (i-a) is not intended as being *killed*, and who actually ends up being *killed* is not expressed in the predicate. In light of this, we take these examples to involve a BECOME subevent which is lexicalized independently of the verb root (namely, by means of a PP), despite the verb root being of the result type. The result root, in turn, is interpreted as specifying a co-event, such that, for instance, a proper paraphrase of (i-a) is “We cannot get out of this war *by means of killing*”.



place. We thus argue that these predicates denote complex events of creation, which, following Mateu (2012), can be taken to involve an unergative verb-complement syntactic configuration (à la Hale & Keyser 1993, 2002) where a DP is merged as the complement of a complex *v* head obtained in turn via conflation, as in (19). That is, these predicates do not involve the structural realization of a BECOME subevent, even though the verb root is of the result type. Like in previous cases, in the examples in (18) the undergoer of the result lexically entailed by the verb root typically surfaces by means of a PP, which, in this case, we claim to be externally adjoined to the *vP*.¹⁰ In addition, the fact that, in these predicates, the result verb receives configurationally a co-event interpretation is further suggested by the availability of the benefactive construction (cf. (18c), (18d)), which has been independently argued to correlate with a creation-directed manner reading of the verb (Levin 2009; Folli & Harley 2020).

(19) Scientists just **melted** a hole through 3,500 feet of ice.



In short, we have discussed data showing that result verbs can join the argument structure of a predicate as modifiers denoting a co-event, and that this is regardless of whether the predicate denotes a change (of state/location), as in the case of (13), (14) and (16), or not, as in (18). These

¹⁰Two anonymous reviewers raise doubts about complex creation predicates of the *melt a hole* type as not involving a structural result state. In particular, previous literature shows that creation predicates appear to allow restitutive modification with *again* (Dobler 2008, 2009; Alexiadou & Schäfer 2011). This would argue in favor of creation predicates involving a result state, since restitutive readings only follow when *again* takes scope over a stative constituent (cf. Dowty 1979). In this regard, one reviewer suggests that the direct object could be in a small clause relation with the PP in the complement of *v*, giving rise to a semantic interpretation of a predicate like (18a) as ‘as a result of *melting* (the ice), there is a hole in the ice’. In this paper, we adopt the Hale and Keyserian analysis of predicates of creation/consumption as consisting in the unergative verb-complement configuration (see Hale & Keyser 1993, 2002; Mateu 2002; Volpe 2004; Harley 2005; Folli & Harley 2005, 2007, 2008, 2020; Acedo-Matellán 2014, 2016, i.a.), which is not associated with a BECOME subevent (further see Rappaport Hovav & Levin 1998 on the absence of BECOME in the event structure of creation/consumption predicates). Importantly, nothing crucial for the purpose of the present discussion hinges on analyzing complex creation predicates as involving a result state or not, since in either analysis the entity denoted by the object is not the undergoer of the result state encoded by the result verb. Additionally, it is important to note that creation predicates of the type in (18) generally appear with a PP introducing the undergoer of the action denoted by the verb root, irrespective of whether the root involved is semantically of the result type or not. Compare this below.

- (i) a. She brushed a hole in her coat.
(Levin & Rapoport 1988, 279)
- b. Deanne kicked a hole in the wall. (COCA)



facts suggest that the lexical classification of roots in terms of manner and result does not directly drive their argument structure and realization patterns, *pace* RHL.

3.2. A possible answer to exceptions

Here, we consider the examples that have been put forward in order to support the difference in argument structure realization between manner and result verbs, as originally illustrated in (7) (repeated below as (20)).

- (20) 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 particular, these examples involve result verbs in event structures where they are intended to function as event modifiers. For instance, in (20a) the *breaking* is the event that purportedly brings about the result state introduced by the AP *bloody*. Following Yu et al. (2023), we suggest that these examples are ruled out due to the fact that they violate the well-accepted assumption that result verbs must entail direct causation. Namely, these resultatives, despite being well-formed structurally and describing plausible real-world scenarios, are not acceptable insofar as they involve indirect causation, i.e. they contain an intermediate entity that intervenes between the initial cause and final causee (Wolff 2003). At least since the 1970s, it is a rather uncontroversial claim that result verbs like *break* or *kill*—often referred to as lexical causatives—entail direct causation, in contrast to periphrastic causatives, e.g. *cause to break*, which are compatible with indirect causation (Fodor 1970; Katz 1970; Smith 1970; Ruwet 1972; Shibatani 1976; McCawley 1978; Levin & Rappaport Hovav 1995; Bittner 1999; Wolff 2003; Rappaport Hovav & Levin 2001, 2012; Kratzer 2005; Rappaport Hovav 2014b; Levin 2020). This is illustrated in the example below, taken from Katz (1970), where an intermediate entity is involved between the initial causer and final causee. This makes the scenario described in (21) incompatible with a result verb of the *kill* sort, as the type of causal relation involved in such a scenario is indirect. Consequently, only the periphrastic causative *cause to die* is allowed.

- (21) 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.

Resultative constructions of the type in (22) and (23) have been analyzed on a par with result verbs with regards to causation, as resultatives must also involve a direct causal relation between



the process denoted by the verb and the final state acquired by the referent of the object at the end of the event (Dowty 1979; Jackendoff 1990; Pustejovsky 1991; Carrier & Randall 1992; Goldberg 1995; Rappaport Hovav & Levin 1998; Bittner 1999; Rappaport Hovav & Levin 2001; Levin & Rappaport Hovav 1999; Kratzer 2005; Levin 2020). Most notably, Levin (2020) has recently argued that resultatives require the causal relation to be ‘tight’, i.e. they also entail direct causation and consequently intermediate causers are disallowed. This is illustrated by the examples below, which Levin (2020, 210–211) provides in order to illustrate what she calls the ‘tightness condition’, following similar observations in Bittner (1999).

- (22) Sam kicked the door open.
- a. OK Sam’s foot makes contact with the door, causing it to open.
 - b. #Sam kicked a ball which hits the door, causing it to open.
- (23) Tracy pushed the door open.
- a. OK Tracy pushed (on) the door, causing it to open.
 - b. #Tracy pushes a red button which sets a mechanism in operation that opens the door.

With this background in mind, let us turn back to the examples of the *break your hands bloody* type. As Yu et al. (2023) observe, although these examples describe plausible real-world scenarios, they are ruled out due to the fact that they involve an intermediate entity other than the initial causer that brings about the result state introduced by the AP *bloody*. For instance, as Yu et al. (2023) note, a plausible context would be one in which the subject’s referent would break an object which would, by means of having broken, cause their hands to become bloody as a result. This scenario, despite describing a real-world context not hard to imagine, would involve a case of indirect causation insofar as the subject’s referent, i.e. the initial causer, is not the entity that directly brings about the result state introduced by the AP *bloody*. Rather, it is the entity that has broken which causes the hands to become bloody, but this entity is conceptualized as an intermediate causer, and therefore gives rise to a violation of the direct causation constraint, as argued by Levin (2020).

By way of closing this section we address the fact, originally observed by RHL, that even though result verbs can function as event modifiers, they are not permitted in unergative predicates of the type in (24) (examples adapted from Beavers & Koontz-Garboden 2012, 339).

- (24) a. #All last night, John broke.
(cf. All last night, John swept)
- b. #All last night, John shattered.
(cf. All last night, John scrubbed)

We suggest that the ill-formedness of examples like those in (24) falls under prediction 3 discussed above. Namely, these examples fail to meet the condition—required to license a co-event reading



of result verbs—that the undergoer of the result conceptually entailed by the verb root be inferable from the conceptual interpretation of the predicate. The unergative predicates in (24) are interpreted as activities, in the sense of Vendler (1957) and Dowty (1979) (further see Pinker 1989; Erteschik-Shir & Rapoport 1997; Rappaport Hovav & Levin 1998, i.a.). Such an interpretation, we argue, makes an event of change of the sort entailed by the verb root hard to contextualize within the type of conceptual scene arising from the predicate. As a consequence, the conceptual need of the verb root to find an undergoer of the change of state that it entails is not fulfilled, and the predicate, despite being syntactically well-formed, is pragmatically aberrant.

In the following section, we provide arguments in favor of differentiating between what is to be understood as manner and result structurally and as manner and result in terms of lexical entailments of verb classes, which we argue should be considered as distinct notions (see also Mateu & Acedo-Matellán 2012 on this point).

4. THE STRUCTURAL AND LEXICAL NATURE OF MANNER AND RESULT

As has been pointed out in the previous section, in many of the examples in (13), (14) and (16) the theme acquiring the result state encoded by the verb is overtly realized as the complement of a preposition.¹¹

(25) The fuel **melted** through the reactor's pressure vessel. (GloWbE)

For instance, the undergoer of the melting event in (25) can be taken to appear syntactically, being introduced by means of a PP. We suggest, however, that (25) is actually ambiguous between two readings, concerning the attribution of the result entailed by the verb. Namely, this example can be taken to mean either that the vessel becomes melted as a result of the glowing fuel coming into contact with it, or that the fuel, by melting (intended as an anticausative process), is able to get through the vessel thanks to having acquired a liquid consistency.¹² We argue that this ambiguity depends on the fact that, by world knowledge, both the nuclear

¹¹As noted by an anonymous reviewer, these examples appear to fall under Beavers's (2006) generalization about argument/oblique alternations, whereby the direct object in change-of-state predicates displays total affectedness while the oblique argument is intended as only partially affected. For instance, in accordance with Beavers (2006), entities like *the reactor's pressure vessel* in (25) can be understood as only partially melting. Our approach provides us with an explanation for the degree of affectedness of the object of the PP in examples of the type in (25), relating this phenomenon to the fact that the change of state encoded by the verb is not the main event expressed by the predicate but rather a co-event of change of state which is not structurally encoded. We argue that the interpretation of the vessel as only partially melting in (25) is the result of a pragmatic inference conditioned by the structural interpretation of the predicate, which tells us about a spatial displacement of the fuel and not about a melting process of the vessel. Namely, the only partial melting of the vessel constitutes the most natural way of depicting the vessel's affectedness in the conceptual scene evoked by the event of change of location concerning the fuel. Put differently, the conclusion that the vessel only melts partially is an inference depending on the world knowledge consideration that this is the most likely event to occur to the vessel in order for the fuel to get through it.

¹²Notice, incidentally, that this second reading implies a violation of the Unique Path Constraint under a semantic formulation, as the fuel is intended as undergoing both the change of state entailed by the verb and the change of location denoted by the PP. Such a violation occurs under the conditions predicted by our approach, namely it involves a resultative predicate with a result verb arising structurally as specifying a co-event (cf. prediction 4 in Section 3).



fuel and the pressure vessel can qualify as potential undergoers of a melting process in the conceptual scene evoked by the predicate, whereby they both fulfill the conceptual need of the result verb to find an undergoer of the result that it entails (cf. prediction 3 in Section 3). We thus take this ambiguity to show that the attribution of the result entailed by the verb, in a predicate like (25) where the result root is used as a modifier, is carried out at the level of conceptual interpretation of the predicate, and has no reflection on its argument structure. Accordingly, we predict that the ambiguity does not occur in the similar example in (26), where the reading where the subject of the predicate (i.e. *ice*) melts is the only available one.

(26) When exposed to heat the ice **melts** through the strainer. (Web)

This, we argue, is not by chance: in (26) we infer that the ice, not the strainer, undergoes the melting process entailed by the verb root because ice is known by world knowledge to be both a non-reacting and cold substance, which therefore is very unlikely to melt what comes into contact with it. The relevant generalization is that from the syntactic structure of a predicate like *X melts through Y* one has no means to tell *a priori* whether it is *X* or *Y* that melts, i.e. one cannot establish by purely syntactic or semantic facts, and world knowledge and pragmatic considerations apart, which entity the result state encoded by the verb applies to. According to our analysis, the change of state provided by *melt* in *X melts through Y* is not structurally realized. The attribution is figured out at the conceptual level, which is not syntactically represented, and therefore it can be potentially ambiguous, depending on the nature of the participants involved in the event. In contrast, it is important to notice that the entity undergoing the change of location denoted by the PP in both (25) and (26) is indisputable: under any possible attribution of the melting event, it is the subject referent that undeniably undergoes the change of location. Crucially, this information does not pertain to the realm of inferences, but rather to the realm of syntactically encoded linguistic predicates: the result of the change of location, being structurally realized, can only apply to the structural theme, which is the constituent merged as the specifier of PredP and which is correctly predicted to surface as the subject of the predicate in the unaccusative configuration in (25).

From these considerations, it further follows that result verbs structurally interpreted as specifying a co-event still do pass semantic diagnostics probing the presence of result entailments in the meaning of verb roots, as shown below (cf. [Rappaport Hovav 2017](#)).

(27) #Scientists just melted a hole through 3500 feet of ice, but no ice has melted/nothing has changed about the ice.

Diagnostics like (27) cannot be deemed relevant to conclude that result roots cannot be structurally interpreted as providing a co-event, because these tests target a level of meaning—the semantic content of roots—which is opaque to syntax. As we have shown, result as structurally intended is to be regarded as unrelated to the notion of result that is provided by the semantic content of roots: the two notions display different properties, that are correctly predicted by the framework we are assuming.

For the same reason, the present approach does not predict that result verbs should pass manner diagnostics of the sort proposed by [Beavers & Koontz-Garboden \(2020\)](#) when they are intended structurally as specifying a co-event. Beavers & Koontz-Garboden adopt these



diagnostics 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 show do not pass any of the standard manner diagnostics. For instance, manner verbs impose semantic restrictions on the type of subjects they allow, whereas result verbs do not restrict their subjects in this sense. Compare this below (examples from Beavers & Koontz-Garboden 2020, 97).

- (28) a. John scrubbed/wiped the floor with a stiff brush.
 b. ??The stiff brush scrubbed/wiped the floor.
 c. ??The earthquake scrubbed/wiped the floor.
 d. ??The pressure from the water scrubbed/wiped the submerged floor.
- (29) a. John broke/shattered the vase with a hammer.
 b. The hammer broke/shattered the vase.
 c. The earthquake broke/shattered the vase.
 d. The pressure from the water broke/shattered the windows of the submerged car.

The logic behind these contrasts is that since manner verbs encode a manner of carrying out an action, they are predicted to only allow subject types that are compatible with the manner of action they encode (28). Insofar as result verbs do not encode any manner of action, they do not restrict subject types in this respect and therefore no semantic restrictions follow (29). These diagnostics probe the lexical entailments of verb classes, but the syntactic operation of adjoining a root to the *v* head as intended in the present framework applies independently of the truth-conditional content of roots and, crucially, does not affect it. The fact that result verbs do not impose semantic restrictions on their subjects when they function syntactically as modifiers, as shown in (30) (further cf. (13d), (16a), (16c), (16d), (16e), (18f)) is thus fully compatible with the present approach, and it is actually predicted by it.

- (30) a. A discharge of those energies burned a hole in his forehead and killed him. (COCA)
 b. Hurricane Sandy tore a path through the Northeast yesterday. (COCA)

5. CONCLUSION

In this paper, we have provided evidence showing that result verbs can appear in constructions where the result encoded by the verb is not mapped onto the direct object of the predicate, therefore contradicting the prediction of theories assuming a lexical semantic approach to Manner/Result Complementarity in which result verbs must always syntactically realize the participant undergoing the result state that they encode, and further realize it as the object of the predication.

Adopting a neo-constructionist approach to argument and event structure, we have accounted for the elasticity of result verbs by arguing that the truth conditions of verb roots regarding result entailments do not directly drive the argument realization patterns of the



respective verbs in the syntax. By the same reason, we have argued that the lexical entailments of roots are not affected by their syntactic interpretation, thus predicting restrictions in the range of possible constructions available to result verbs in terms of a requirement that the undergoer of the change entailed by the verb root be recoverable on pragmatic or contextual grounds from the conceptual interpretation of the predicate.

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