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Syntactic Distribution of English Denominal Verbs

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by

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Dedication

For Einstein the dog.

Abstract

Syntactic Distribution of English Denominal Verbs

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Denominal verbs have been at the forefront of English word formation and lexical semantic literature. A common approach to deriving the structural representation of a denominal verb's meaning involves using the canonical thematic role the parent noun plays to choose what type of event structure it should be slotted into. This predicts that the nominal role interpretation should constrain what type of argument structures the corresponding denominal verb can occur in. Specifically, locative denominal verbs should show evidence of being associated with accomplishment event structures, while instrument denominal verbs should show evidence of being associated with activity event structures. The present study empirically tests this prediction by first subjecting denominal verbs to a range of telicity tests and then looking at tokens of different types of denominal verbs in a large corpus to quantify the range of their argument structures and semantic entailments. Ultimately, the results provide modest evidence for attributing accomplishment event structures to locatives and activity event structures to instrumentals, especially for literal uses of these verbs.

Table of Contents

List of Tables	vi
1. Introduction.....	1
2. Background.....	5
2.1: Templates.....	6
2.2: Characterizing accomplishments and activities.....	11
2.2.1 Telicity Tests.....	11
2.2.2 Argument Expression.....	13
2.3: Figurative Uses of Denominals	15
3. The Present study	20
3.1: Overview.....	20
3.2: Methodology.....	21
3.2.1 Choosing a corpus.....	21
3.2.2 Choosing verbs.....	22
3.2.3 Coding for telicity entailments.....	22
3.2.4 Coding for argument expression, change of state and figurativity	23
3.3: Results	28
3.3.1 Telicity entailments.....	28
3.3.2 Argument expression and change of state entailments.....	32
3.4: Discussion.....	34
4. Conclusion	37
Bibliography	39

List of Tables

Table 1:	Telicity Entailment Tests for Locative Verbs	30
Table 2:	Telicity Entailment Tests for Instrumental Verbs.....	31
Table 3:	Percentage of verbs that behave like accomplishments	32
Table 4:	Percentage of all tokens with syntactic features	32
Table 5:	Particle distribution	33
Table 6:	Percentage of literal tokens only with syntactic features.....	33

1. Introduction

On Saturday October 6th, 2018, a painting by notoriously anonymous street artist Banksy sold for a record-tying 1.4 million dollars at Sotheby's art auction in London (Reyburn, 2018). As the auction gavel fell, the painting began to slip out of its frame, feeding into a shredder that was hidden in its base. Onlookers gasped as employees rushed to remove the painting. As the chaos settled, Alex Branczik, Senior Director and Head of Contemporary Art at Sotheby's, allegedly said to the crowd "It appears we just got Banksy-ed."

While Branczik's sentence might have been odd out of context, English speakers familiar with the situation find it perfectly grammatical. The hashtag #banksyed was even trending on Twitter after the incident. In general, English speakers are extremely tolerant of new uses of nouns as verbs, also known as denominal verbs, like *to banksy*. A few more examples are given in (1):

- (1) a. Where do you *dog park*?
- b. I've been *Mari Kondo-ing* my house.
- c. I just want to *Netflix* all day.
- d. She *me too-ed* me!
- e. How to *LSA*.
- f. Are you *stairs-ing* it?

Pinker (1995) says that "easy conversion of nouns to verbs has been part of English grammar for centuries; it is one of the processes that makes English English" (pg. 379). As a result of the productivity of this process, a substantial number of nouns in English also have been converted to verbs. Denominal verbs have often been modeled by building the verb meaning around the parent noun from which it is derived, for example by inserting the noun into some type of semantic frame. These frames typically reflect

standard event structures, decompositions of verb meaning that combine idiosyncratic roots with semantic operators that are shared by group of verbs, like BECOME.

A common approach in the literature for deriving a structural representation of a denominal verb's meaning is to first consider an event that involves a canonical use of the parent noun and determine what sort of thematic role the individual described by the noun is playing in that event (McIntyre 2002). Then, the thematic role of the noun will determine what type of event structure it will be slotted into. If the noun is a location or locatum, it will be verbalized as a change-of-location verb, a subtype of Vendler's (1967) accomplishment class, and its event structure might look something like (2). If the noun is an instrument, it will be verbalized as an activity verb and its event structure might look something like (3).

(2) a. [x CAUSE [BECOME [y <STATE>]]] (accomplishment)

b. location → [x CAUSE [y BECOME AT <LOCATION>]]
(e.g. *bag, box, cage, crate, garage, pocket...*)

c. locatum → [x CAUSE [<LOCATUM> BECOME AT y]]
(e.g. *bandage, blindfold, fuel, oil, powder, saddle, tile...*)

(3) a. [x ACT <MANNER>] (activity)

b. instrument → [x ACT<INSTRUMENT>]
(e.g. *brush, hammer, saw, shovel,...*)

In Levin & Rappaport Hovav's event structure framework, henceforth LRH, (e.g. Rappaport Hovav & Levin 1998, Levin & Rappaport Hovav 2005, Rappaport Hovav & Levin 2010), different classes of verbs are associated with basic event structure templates depending on what the verbs lexicalize. They define lexicalized meaning as components

that are consistent across all contexts in which the verb is used.¹ The basic event structure templates representing lexicalized meaning can be augmented in rule-governed ways to build meaning. For example, a verb with a basic activity event structure can be combined with a result phrase to yield a more complex event structure. On the other hand, basic event structures cannot become less complex by adding arguments to the verb. LRH demonstrate that, on the basis of these template augmentation rules, a verb's underlying event structure should predict certain argument expression patterns that the verb displays.

So, if verbs whose nominal component is interpreted in a locative role are associated with accomplishment event structures like (2), while verbs whose nominal component is interpreted in an instrumental case role are associated with activity event structures like (3), we should expect their argument structures to pattern in certain ways. Specifically, instrument denominals should appear in a wide range of argument expression patterns, including as intransitive verbs and with result phrases. Locative denominals should not be able to be used in these syntactic contexts. If this was the case then denominals wouldn't be special in any way, save for the fact that the idiosyncratic component inserted into the event structure is a noun rather than a verb.

However, there is reason to suspect that denominal argument expression behavior might not follow these patterns. There are several challenges that arise when trying to determine whether a denominal should be considered a locative or an instrumental in the first place, and therefore whether it should be assigned an accomplishment or activity template. These issues boil down to whether we can consistently identify a result entailment in locatives, a lexicalized BECOME element, that justifies the need for an accomplishment template. In fact, it is easy to find cases where a potential locative

¹ RLP's lexical meaning is similar to but slightly different from Dowty's lexical entailments. The latter simply refers to the set of things that must be true for a verb to apply to some set of arguments, while the former requires those things to be true across all uses of a verb.

denominal denotes an event which lacks such an entailment, especially when the interpretation of the noun is more figurative².

The present study is aimed at empirically testing the hypothesis that locative denominal verbs are built on accomplishment templates while instrumental denominals are built on activity templates. I examine a sample of denominals that have been classified as locative or instrumental to see whether they demonstrate the telicity tests and argument expression patterns associated with accomplishment and activity verbs. I first run these verbs through the telicity tests that Dowty (1979) uses to distinguish accomplishment verbs from activity verbs. Then, I look at tokens of each of these verbs in a large corpus to quantify the range of their argument structures and semantic entailments and compare them to LRH's predictions about accomplishment argument expression and telicity. Additionally, tokens of denominals are coded for whether or not the noun is understood as figurative to see whether figurative uses maintain the properties we predict for literal uses. The results paint a complicated picture. Some outcomes support the expected patterns for these two templates, especially for tokens coded as literal. On the other hand, some measures proved insignificant or contrary to the expected patterns.

The next section (Section 2) provides an overview of the literature on semantic classifications of denominal verbs. Section 2.1 focuses on motivations and criteria for the locative and instrumental classes and their relation to accomplishments and activities. Section 2.2 outlines the properties that characterize accomplishments and activities, including telicity entailments (2.2.1) and argument expression (2.2.2). Finally, Section 2.3 discusses the interpretation of denominals in figurative contexts. Section 3 presents the current study. Section 3.1 reiterates the goals of the study and outlines some predictions. Section 3.2 details the methodology of the study, including choosing a corpus (3.2.1), choosing verbs (3.2.2), coding for telicity entailments (3.2.2) and coding for argument expression, change of state and figurativity (3.2.4). Section 3.3 presents the

² Clark & Clark (1979) refer to figurative uses as *idiomatic*, such that the relationship between the parent noun and the derived verb is opaque. McIntyre (2002) discusses these cases in the context of *semantic drift*.

results of the study and Section 3.4 discusses those results. Section 4 concludes with an overview and comments on future directions.

2. Background

Standard analyses of derivational affixes like *-ize*, *-ify* and *-ion* typically assume that affixes perform very specific operations on base words. For example, Plag (1999) analyzes the *-ize* denominal suffix in (4) as creating a specific template into which the base noun is inserted (4b). He represents decomposed verb meanings using Jackendoff's (1988) lexical conceptual structures, which are similar to the event decomposition structures used above.

- (4) a. She randomized the order of the pronouns.
b. Cause ([*She*]_i, [GO ([_{Thing} *the order of the pronouns*]_{Theme}; [TO[_{Property} *random*]_{Base}]])

One major challenge for semantic accounts of *converted* denominals is that there are so many potential meanings a converted denominal can have that it would be impossible for a single template like (4b) to capture all of them. This snag has led to some agnosticism about the possibility of finding any systematicity in the process of conversion. Plag (1999) argues that, in contrast to the clear functions attributed to derivational morphemes like *-ize*, “the growing consensus in the linguistic literature that the variety of meanings that can be expressed by zero-affixation [conversion] is so large that there should be no specific meaning attached to the process of zero-affixation at all” (pg. 220). Lieber (2004) advocates for a view of conversion as simply a relisting of nouns as verbs, treating denominals like any other neologism.

While the process of conversion cannot be operationalized with a single function, there do at least seem to be common templates that a considerable subset of converted denominals tend to pattern onto, including the locative and instrumental templates mentioned above. Different versions of these templates have appeared in several semantic

typologies of denominals in the literature (e.g. Jespersen, 1942; Marchand 1969; Adams, 1973; Plag, 1999; Rose, 1973; Gottfurcht 2008³), which differ in terms of the number of templates used and how exactly those templates are modeled. What is fairly consistent across these categorizations, however, is the presence of at least one template that might be interpreted as having a locative meaning—specifically, a change-of-location qua a type of accomplishment template-- and one with an instrumental meaning—specifically, a type of activity template defined by the use of an instrument. The following section gives a brief overview of how locative and instrumental categories have been involved in wider taxonomies of denominal templates and, crucially, how locative-type templates converge on some sort of change of state element, which instrument-type templates consistently lack.

2.1 TEMPLATES

Clark & Clark's (1979) seminal paper classifies over 1300 denominal verbs into 5 broad categories (with a 6th miscellaneous category): *locatum*, *location/duration*, *agent/experiencer*, *goal/source*, and *instrument*. They interpret the events denoted by different denominals and create their own heuristic paraphrases (5-9b) to represent each event's meaning. Their denominal categories are based on the case role that they interpret the parent noun to be playing in these events. The categories include:

(5) LOCATUM

- a. Jane blanketed the bed.
- b. Jane did something to cause it to come about that [the bed had one or more blankets on it].

(6) LOCATION/DURATION

- a. Kenneth kenneled the dog.
- b. Kenneth did something to cause it to come about that [the dog was in a kennel].

³ For an excellent overview of semantic classifications of denominals, see Rimell (2012)

(7) AGENT

- a. John butchered the cow
- b. John did to the cow the act that one would normally expect [a butcher to do to a cow].

(8) GOAL/SOURCE

- a. Edward powdered the aspirin.
- b. Edward did something to cause it to come about that [the aspirin was powder].

(9) INSTRUMENT

- a. John bicycled into town.
- b. John caused it to come about that he was in town by doing the act one would normally expect [one to do with a bicycle].

Clark and Clark label their categories with the names for case roles in Fillmore (1968, 1971). They are careful to specify that their paraphrases are strictly heuristic devices to identify verbs of similar origins, but do not represent the sources from which the verbs are derived. In other words, they do not claim that the underlying semantic representations of (5-9a) are (5-9b) respectively. Rather, Clark and Clark focus on pragmatic motivations for how each innovative denominal verb inherits its semantics. They argue that a listener should be able to infer the meaning of a newly coined denominal based on the Gricean assumption that “the speaker has good grounds for thinking that the listener can come to that interpretation uniquely on the basis of what they mutually know” (Clark and Clark 1979, pg. 787).

Clark and Clark’s categories represent possible ways that a listener may interpret a new denominal. But the question remains whether we also consistently attribute different semantic structures, like those in (2) and (3), to certain denominals in our lexicon. In the denominal literature, several semantic approaches do in fact propose that

denominals interpreted in different case roles⁴ should be associated with specific semantic templates, two of most common templates being associated with instrumental and locative interpretations⁵. A sample of templates and paraphrases used to define locative denominals is given in (10) and instrumental templates are given in (11)⁶.

(10) [Locative] Templates

- a. put in a place (Jespersen, 1942)
- b. cause it to come about that something has N on/in it (Clark & Clark, 1979)
- c. cause it to come about that something is in/on N (Clark & Clark, 1979)
- d. CAUSE vb GO TO/COME FROM object (Rose 1973)
- e. CAUSE object BE+LOC vb (Rose 1973)
- f. to put in/on N (Quirk et al 1985)
- g. to give N, to provide with N (Quirk et al 1985)
- h. put (in)to X (Plag 1999)
- i. CAUSE [GO x TO [noun base]] (Gottfurcht 2008)

(11) [Instrumental] Templates

- a. action for which implement is meant (Jespersen, 1942)
- b. so the act one would normally expect one to do with N (Clark & Clark, 1979)
- c. to perform an action by means of what the noun denotes (Adams, 1973)
- d. to...with N ('to use the referent of the noun as an instrument for whatever activity is particularly associated with it') (Quirk et al 1985)
- e. use X (Plag 1999)

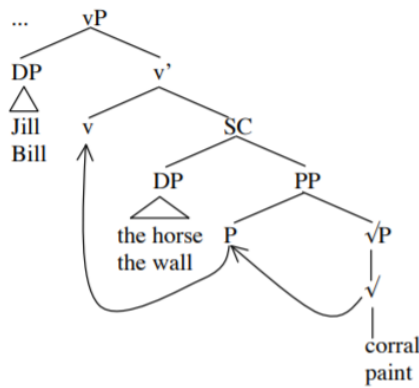
⁴ While Clark and Clark use Fillmore's case roles to define their categories, denominal classifications vary in terms of what semantic roles define their classes. For example, Adams (1973) categorizes verbs based on whether the underlying noun is an object, complement or instrument.

⁵ I use the term locative here to include both instances where the noun is interpreted as a locatum or as a location. For our purposes, the difference between these readings is unimportant because both should include a change of state element that would associate it with an accomplishment event structure. The only difference is whether the verb or the direct object is naming the locatum (and vice versa).

⁶ Not all of these frameworks use the terms "locative" and "instrumental" however these paraphrases are of categories that tend to line up with how "locatives" and "instrumentals" are discussed here and in the literature, namely that the former involves the interpretation of the noun in a locative role and the latter involves the interpretation of the noun in an instrumental role.

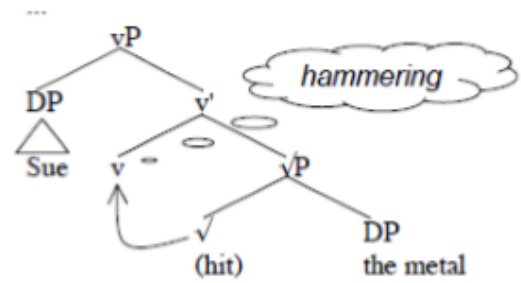
The locative templates in (10) vary in terms of what primitives are present and how they are configured, but they all consistently indicate there is some sort of change of location, or at least a change of state, that the parent noun is involved in. So, if locative denominals really do have this component to them, it seems fitting to classify them as accomplishments with the event structures in (2b-c) which also entail a change of state given the presence of the BECOME operator. In contrast, the instrumental templates in (11) are much more underspecified in that the parent noun simply needs to be used somehow. Some of the instrumental templates specify that the event should constitute a ‘normal’ use of the object. This is akin to Kiparsky’s (1997, pg. 9) Canonical Use Constraint (CUC), which states that if an action is named after a thing, it involves a canonical use of the thing. Regardless, the fact that instrumental templates seem to lack any change of state requirements supports the idea that we should associate them with activity event structures like (3b).

It is worth mentioning here that there are also several syntactic models of denominal verbs that make a structural distinction between locative and instrumental denominals (i.e. Hale and Keyser 1993, 2002; Harley 2005). For example, Harley models locatives like (12) and instrumentals like (13). There are some crucial differences here. First of all, note that locative verbs are modeled with a small clause complement, which contains a PP through which the nominal root raises before moving on to the verb head. On the other hand, instrumental denominals have no such small clause, the root is a generic verb root and the verb only gains its denominal reading through a mysterious process she calls manner incorporation. Leaving the different incorporation processes aside for our purposes, these two structures support the idea that locatives are accomplishments while instrumentals are activities. The small clause structure in (12) can be interpreted as encoding a result that, for example “the horse is in the corral,” which is absent from the structure in (13).



'Jill corralled the horse'
'Bill painted the wall'

(12)



'Sue hammered the metal'

(13)

The templates in (10) and (11) describe very different types of events, suggesting that there should be a very clear categorical difference between the meanings of locative and instrumental denominals. And that difference seems to rest on whether or not there is a change of state entailed, which is also a crucial difference between activity and accomplishment event structures more broadly. So, it seems entirely logical to apply some variant of the event structures in (2b-c) and (3b) to these categories of verbs. However, when we start to prod the surface of what these denominals mean, this story quickly starts to get muddy.

First of all, it is often unclear whether the noun should be interpreted as having a locative role or an instrumental role in the first place. One difficulty here is that potentially all locatives can be coerced into an instrumental reading since we might consider changing the location of something to be an instrumental use of that thing. For example, *bandage* could easily have the event structure in (14a) if we consider it a lexical entailment that the bandage is moving onto another location. However, we could also easily say that to bandage something simply means to use a bandage as an instrument in a way that we might expect it to be used, compliant with the CUC, suggesting that an activity event structure like (14b) is appropriate.

- (14) a. bandage (locatum) → [x CAUSE [<bandage> BECOME AT y]]
b. bandage (instrument) → [x ACT <bandage>]

If we do decide that the noun named by a denominal is playing a locative role, is it fair to assign it an accomplishment event structure by default? Do we always find a lexically entailed change of state in all bandaging events? If these templates really are *lexicalized* components of a denominal's meaning, according to LRH they should consistently apply to a verb in all contexts. There should be a change of state entailed by every use of a locative denominal and it should behave like an accomplishment verb. One way to test this is to see whether the argument expression behavior of locative denominal verbs is consistent with how we expect accomplishment verbs to behave.

2.2 CHARACTERIZING ACCOMPLISHMENTS AND ACTIVITIES

The literature makes some specific predictions about how accomplishment verbs and activity verbs should behave. This includes several entailment tests proposed by Dowty (1979) which pinpoint differences in telicity, and argument expression predictions which stem from LRH's program of research on manner/result complementarity.

2.2.1 Telicity Tests

Given that activities and accomplishments belong to different aspectual classes of verbs, it is unsurprising that the hallmark difference between them has to do with their telicity properties. Dowty (1979) outlines a battery of tests for activity and accomplishment verbs, which I will summarize here. These tests are based on how the verbs can be used with different time adverbial phrases and the resulting entailments.⁷ First of all, accomplishments can take prepositional phrases with *in* but rarely take phrases with *for* (15). Activities can only be used with *for* phrases (16).

⁷ Note that many of the examples in this section that are marked as unacceptable can become acceptable in specific contexts, e.g. an activity can sometimes be interpreted in context as an accomplishment if pragmatic or linguistic contextual information provides a change of state (see Section 2.2.2. for more) and sometimes an accomplishment can be reinterpreted as an activity on a kind of imperfective or partitive reading (see e.g. Krifka 1998:215, de Swart 1998: 361-62, Rothstein 2004:114-15, 190-91)

- (15) a. ?John painted a picture for an hour.
b. John painted a picture in an hour.

- (16) a. John walked for an hour.
b. *John walked in an hour.

When accomplishments do take a *for* phrase, some are ambiguous between a repetitive reading and a durational reading. For example, Dowty (1979) argues that the activity in (17b) only has the reading that there were several habitual horse-riding events over a period of four years. The accomplishment in (17a), allows for the possibility of multiple jailing events, but also has a reading where the result state of a single jailing event lasted for four years.

- (17) a. The sheriff of Nottingham jailed Robin Hood for four years.
b. The sheriff of Nottingham rode a white horse for four years.

The progressive form of an activity entails the perfect form of the verb (18a), which is not the case with accomplishments (18b).

- (18) a. John was painting => John painted.
b. John was painting a picture =/=> John painted a picture.

Dowty also points out that accomplishments and activities have different entailments when they combine with verbs like *stop*. Stopping an event denoted by an activity verb still entails that the activity took place (19b). This is not necessarily the case with accomplishments (19a):

- (19) a. John stopped painting the picture. =/=> John did paint a picture
b. John stopped walking => John did walk

Relatedly, while accomplishments can occur as the complement of *finish*, activities cannot.

- (20) a. John finished painting a picture
b. *John finished walking.

Finally, combining these verbs with *almost* yields different entailments. Almost doing an activity verb means the activity never takes place (21b). We can also get this reading for accomplishments, but there is an additional reading where the event started but was never completed (21a).

- (21) a. John almost painted a picture.
b. John almost walked.

If locatives really do lexicalize accomplishment event structures, they should behave like accomplishments when faced with similar tests⁸.

2.2.2 Argument Expression

A primary goal of event structural approaches to verb meanings is to demonstrate how different classes of verbs exhibit distinct argument expression patterns. According to LRH, activity and accomplishment verbs behave in very different ways because of constraints on how the templates can be augmented. In particular, activity verbs have the option of being augmented to yield accomplishments, for example in (22) below the activity [x ACT] is embedded in a more complex accomplishment structure.

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

⁸ Note here that, although several of Dowty's examples involve a transitive accomplishment and an intransitive activity, this is not always the case. For example, *push the cart* is a transitive activity verb.

However, accomplishments cannot become activity verbs by losing the lexically specified result component of their meaning because, according to Levin & Rappaport Hovav's monotonicity principle, once a verb is lexically associated with a particular event structure, we can only add meaning, not take meaning away.

While template augmentation affords activity verbs a wide range of argument expressions, accomplishment verbs are more rigid. Consider the range of argument expressions for the manner verb *sweep*, which Rappaport Hovav & Levin (1998) associate with an activity event structure (23). In (24a), the verb surfaces only with an agent. In (24c-d), it surfaces with a range of modifiers that express different types of results.

(23) *sweep* → [x ACT <SWEEP>] (lexicalized manner)

- (24) a. Terry swept.
b. Terry swept the floor.
c. Terry swept the crumbs into the corner.
d. Terry swept the leaves off the sidewalk.
e. Terry swept the floor clean.
f. Terry swept the leaves into a pile.
g. Terry swept herself silly.
h. Terry swept the floor up.

LRH contrast manner verbs with result verbs, which are associated with accomplishment event structures, for example *break* (25). Unlike the arguments of *sweep*, both the causer and the participant of *break* must be obligatorily expressed (26a) and the verb cannot appear with arguments that express a result state (26c-h). LRH argue that (26a) is impossible because there are two subevents with two obligatory participants in an accomplishment event structure, x and y in (25), and these both must be realized. Further, LRH rule out (26c-h) because accomplishments cannot be augmented further with additional result states.

(25) break → [x CAUSE [BECOME [y <BROKEN>]]] (lexicalized result)

- (26) a. *Terry broke.
b. Terry broke the dish.
c. *Terry broke the dishes into the corner.
d. *Terry broke the dishes off the table.
e. *Terry broke the dishes shattered.
f. *Terry broke the dishes into a pile.
g. *Terry broke herself silly.
h. *Terry broke the dish up.

If locative denominals really do have accomplishment event structures then according to LRH we should not be able to coerce them into activity readings, they should consistently lexicalize a change of state, and their argument expressions should reliably pattern like result verbs. So, like *break*, locative denominal verb phrases should have high rates of transitivity, and low rates of result phrases and telicizing particles in their argument structures. They also should have high rates of telicity and entailing change of state. On the other hand, instrumental denominals should be able to be used with a wide array of result phrases and particles and lack lexicalized results and change of state entailments.

2.3 FIGURATIVE USES OF DENOMINALS

There is reason to doubt that locatives cleanly pattern onto accomplishment event structures like the above analyses predict. Let's look at some naturally occurring examples of *bandage*, a denominal that has been classified as a locative by Clark & Clark (1979) and subsequently Kiparsky (1997). Compare the use of *bandage* in (27a) to that in (27b):

(27) a. ...they mumble to themselves and breathe heavily as they drift through the halls in their light robes and silently **bandage** previous days' wounds.

(kyotojournal.org)

b. ...wash the wounds of our souls, apply the medicine of healing (often the teaching and sacraments of the Church), and **bandage** up our souls.

(orthodoxcatechismproject.org)

The bandaging event in (27a) implies the presence of a literal bandage, along with a change of location entailment consistent with an accomplishment template. In (27b), the bandage is a figurative one and the event loses its change of location entailment. We see this pattern emerging with figurative uses of other locative denominals, for example (28) and (29). In (27b) and (28b), the change of location entailment becomes a different change of state entailment. In the case of (29b), where *crown* is figurative, there is arguably no change involved in the event at all.

(28) a. ...help us **plaster** the walls...

(globalresourcegroup.org)

b. Emily **plastered** a smile on her face and walked over...

(xblog.in)

(29) a. ...soon after his accession, Leo II **crowned** his father Zeno as co-emperor and effective regent.

(world library.net)

b. Eventually, the Jesus Christ Tower will **crown** the building and make it the highest church in the world with 170 meters.

(bcn.travel)

These figurative uses of locative denominals seem inconsistent with the templates in (10), which require a change of location meaning. If they were accomplishment verbs,

they should not be able to lose or change these entailments when the noun is interpreted as figurative, because their *lexicalized* meaning should not waver. Even when *break* is used in a figurative context, we still aren't able to get result constructions that violate an accomplishment event structure, as shown in (30b-e) (cf ex. 26).

- (30) a. Terry broke her heart.
b. *Terry broke her heart out of her body.
c. *Terry broke her heart shattered.
d. *Terry broke her heart into a puddle.
e. *Terry broke her heart up.

Should we posit polysemous event structures for the literal and figurative uses of locative denominals? This solution is not ideal. After all, a main goal of event structural approaches like that of LRH is to eliminate the need for polysemous entries for a single verb. Further, figurativeness is not a discrete feature. Clark and Clark (1979) devote a lot of ink to outlining how speakers gradually extend denominals into figurative uses. The process by which a denominal loses the connection between the noun and verb meanings is called *idiomatization*. The stages of this process are as follows:

- (1) **Complete innovations** i.e. *pie, Wayne, Banksy*
- (2) **Near-innovations** i.e. *houseguest, chopstick*
- (3) **Half-assimilated transparent idioms** i.e. *key in the data, satellite the broadcast*
- (4) **Assimilated transparent idioms** i.e. *bicycle, truck, crowbar, paperclip*
- (5) **Partly specialized idioms** i.e. *smoke a pipe, park the car, ground the plane, land the plane, table the conversation*
- (6) **Opaque idioms** i.e. *Boycott, dun, diddle, fudge, Charleston, ferret, badger, beef*

The first four stages of the idiomatization cline are differentiated based on the size of the group of people who regularly use the verb. C&C call this progression *assimilation*. The final push towards becoming an opaque idiom involves transferring the meaning of the

verb to a specialized group or context. An important takeaway from this discussion is that there is a continuum of how semantically transparent the relationship between the parent noun and the denominal verb can be.

For example, they discuss *boycott*, whose nominal roots are found in the name Captain Charles Boycott, an English land agent in 1880's Ireland whose unfair landlord practices provoked his community to withdraw their patronage and shun him from community activities. From that particular event, the word was broadened to be conventionally associated with any abstention from patronage as an act of social protest. Since a knowledge of the relationship between Captain Boycott and the verb *to boycott* is not necessary for a speaker to be able to freely use the verb, Clark and Clark (1979) call this type of denominal an opaque idiom.

On the other end of the spectrum are innovations like *Banksy*, where the connection between the name and the verb is vital for its interpretation. Somewhere in between *Boycott* and *Banksy* lies an array of verbs with somewhat transparent noun-verb relationships. These cases include verbs which have come to be limited to specialized contexts. For example, *land* originally had a generic meaning akin to 'disembark', but became specialized to airplanes, even when planes began to be capable of landing on water.

Clark and Clark use this process of idiomatization to model historical change, arguing that all denominals start as innovations and drift towards opacity, lingering at different stages in the process. However, even an innovative denominal may require a special interpretation of the noun and therefore could be seen as "specialized". Interpreting the verb *door* as in *the cyclist was doored* requires a special understanding that it is not uncommon for a car door to open in a bike lane and collide with a cyclist.

Regardless of whether idiomatization is the right way to model semantic drift, a relevant point for the present study is that the relationship between a parent noun and its denominal verb is variable. Clark and Clark discuss this variability as it applies to different verbs, but we also see this variability among different uses of the same verb. In

the examples in (13-15) the relationship between *bandage*, *plaster*, and *crown* is fairly transparent in the literal examples, but becomes more opaque in the figurative examples.

The accomplishment event structure in (2) requires the presence of a change of state that involves the parent noun naming either a location or a locatum. As we move closer to the opaque idiom side of Clark and Clark's cline, especially when we reach the stage of partly specialized idioms, the noun meaning has become less important in the interpretation of the verb and may even disappear. Does this variability affect whether we can model figurative locative denominals with an accomplishment event structure? In other words, do figurative uses of a denominal carry the same event structural baggage as literal uses?

The question of how we interpret figurative uses of denominals is related to a broader literature on how we interpret idioms. Titone and Connine (1999) show that idioms are simultaneously processed as compositional and non-compositional. Interpreting phrases like *pull some political strings* involves both an understanding of the idiomatic meaning of *to pull strings* and the ability to parse the syntactic structure of the literal meaning to determine where particular modifiers, namely *some* and *political*, are able to surface. Gehrke & McNally (2019) assume that, because of the availability of both readings, non-compositional idioms are based on the event structures of the literal events that the expression denotes. If figurative uses of denominals are similarly built on their literal event structures, then we should expect them to have similar argument expression behavior to literal uses. However, if figurative denominals behave very differently from literal uses, this might be evidence that denominals can lose their literal event structures in the process of conventionalization. Perhaps locative denominals initially are derived with accomplishment event structures but develop more flexibility depending on the interpretation of their parent nouns.⁹

⁹ This sort of shift might be characterized by Dowty (1979) as a shift from a more regular syntactic rule to a more idiosyncratic lexical rule or simply a lexical drift overall.

3. The Present Study

3.1 OVERVIEW

Denominals denote events in which we interpret their parent noun in a particular thematic role. Past analyses have associated these thematic roles with particular event structural templates to represent the meaning of the verb. In particular, denominals whose parent noun is in a locative role have been associated with accomplishment event structures, where there is a change of state entailment. Denominals with an instrumental parent noun have been associated with activity event structures, where there is no lexicalized change of state entailment. If locative denominals really do have lexicalized accomplishment event structures, then they should have particular entailments and argument expression patterns. We should not be able to coerce them into activity readings, they should consistently entail a change of state, and their argument expressions should reliably pattern like result verbs.

The present study is aimed at empirically testing this theory against corpus data. The independent variable in this study is not just the denominal type, but more specifically a $\langle V, N, R \rangle$ triple: a verb V derived from a noun N denoting an event where the referent of N has a thematic role R . I look at two types of R : locative and instrumental. The dependent variables are certain syntactic properties of these verbs, like telicity entailments and argument expression patterns. I first look for telicity entailments by running the verbs through a series of tests and I look for argument expression patterns by pulling naturally occurring examples of denominals from a large corpus.

Some denominal V 's also have meanings that involve figurative interpretations of N . I also look at whether these figurative uses preserve the syntactic properties of the literal use. This is akin to asking whether figurative uses of a verb should also be represented using the same template we might expect from the literal uses.

3.2 METHODOLOGY

3.2.1 Choosing a corpus

In order to empirically examine the argument expression behavior of these verbs, I pulled tokens of verbs from a large corpus. In this study I use enTenTen, the English corpus in the TenTen corpora collection. The TenTen corpus family is a set of web corpora built by the Sketch Engine corpus manager that include corpora for more than 35 languages with a target corpus size of 10+ billion words per language. These corpora pull, tag, and organize massive amounts of texts from various websites for use in corpus linguistics. The latest iteration of the English TenTen corpus is the enTenTen15, which contains 15 billion words and has been crawled and processed repeatedly over the past ten years. The enTenTen is tagged by TreeTagger using Sketch Engine's version of the Penn TreeBank tagset.

Beyond its accessibility, enTenTen was a good fit for the project for a few important reasons. The fact that the corpus is tagged for part of speech is crucial because it allows us to look for tokens of the denominal lemmas functioning as only verbs. Most importantly, the enTenTen is huge. Even mega corpora like the BNC, which contains 100 million words, did not return a significant number of denominal tokens for several items. To give a general idea of how rare these denominals are, the average frequency in the enTenTen for all of the denominals that I tested was 46,942 tokens per 15 billion words. This means that for every million words, a particular denominal would occur about 3 times. Rarer denominals, for instance *kennel* whose enTenTen frequency reached 1,489 tokens, simply aren't frequent enough for smaller corpora to yield a workable sample.

The rarity of these denominals made it necessary to use a massive corpus like the enTenTen. However, with such a large corpus there is often a trade-off in the corpus quality. There were moderate but consistent scraping and tagging errors that had to be eliminated manually. The fact that the corpus contained a fair amount of errors confirmed that manual coding was a preferred method to any automatic data analysis.

3.2.2 Choosing verbs

There are several lists in the denominal literature of conventional verbs that are said to fall in each category. These lists are based on the author's interpretation of the canonical meaning of the verb, and their judgements about the thematic role that the noun is playing in those events. I use two of these lists as a starting point for choosing verbs to test. For the locatives, I started with Kiparsky (1997), whose list is based off Clark & Clark (1979) but is more selective according to his own judgements. I used both his location and locatum list. For instrumentals, I use Clark & Clark's (1979) instrumental category list.

From these lists, I created a picky list of verbs that would be possible to test in a corpus. I eliminated several problem items. I excluded any item that included extra morphology, like *begrime*, since I am only interested in converted denominals. I also eliminated items that were particularly esoteric like *epoxy* and *flannel (one's face)*. While these denominals are likely conventional for certain groups of people, if I am not familiar with the term it is impossible to code them based on my own semantic judgements. I also had to eliminate verbs that didn't have a high enough token frequency to be coded, even in the large corpus. For example, *graffiti*, *grenade*, and *spade* didn't have a sufficient number of verbal examples to code.

After paring down the lists, I randomly chose verbs of each type to code. The following denominals were coded.

(31) Instrument: bomb, clamp, gag, hammer, knife, pencil, sandbag, shackle, shield, snare, solder, strap, tether, torch, torpedo, towel, wire

(32) Locative: bandage, butter, cap, caulk, cloak, corral, crown, flag, fuel, house, leash, plaster, soap, spice, star, tile, trap

3.2.3 Coding for telicity entailments

I first tested the verbs themselves for telicity entailments using Dowty's (1979) tests for distinguishing between accomplishments and activities. This battery includes the following tests which are described in Section 2.2.1:

- Can the verb be used with temporal adverbial “*for*” phrases?
- Can we get a durative reading when the verb is used with “*for*” phrases?
- Can the verb be used with temporal adverbial “*in*” phrases?
- Does the progressive form of the verb entail the perfect?
- Does “x stopped *verbing*” entail that “x did *verb*”?
- Can the verb be used with “*finish*”?
- Does “x almost *verbed*” entail that “x started to *verb* but did not complete the event”?

I applied these tests to the verbs in (31) and (32) in isolation. That is, I did not yet consider the verbs in the contexts generated by the corpus data. On one hand, this method has its disadvantages: the grammatical context in which these verbs are interpreted might be telling us to interpret them in a different way than the “normal” classification of the verb. However, this method has its advantages for determining whether these verbs *lexicalize* an accomplishment event structure. If I were to code for telicity properties for each token of the verb, there might be aspects of the argument structure that could affect the telicity. For example, telicizing particles like *out* have the potential to turn activities into accomplishments, and plural direct objects are known to turn accomplishments into activities. Since we’re interested in the possibility that certain denominals entail certain base event structures, it is best to test the verbs themselves for these properties. Also, since the proposed accomplishment event structure in (2) involves a direct object, I tested the denominals in their transitive uses with a semantically vague direct object, either *it* or *him*. For example, *fuel it* or *gag him*.

3.2.4 Coding for argument expression, change of state and figurativity

Next, I gathered data about the argument expression patterns and other semantic entailments of each verb. Using Sketch Engine, I searched enTenTen for instances of each denominal that were tagged with any verb tag, excluding gerunds and participles. This rendered what Sketch Engine calls a ‘collocation’ for each verb, a list of the contexts

in which the verb is used throughout the corpus. For each denominal, I coded the first random 20 tokens of use. This token frequency is slightly higher than Rimell (2012), a corpus study which looked at the first 15 tokens of a denominal. So, although 20 tokens may not be representative of the verb's entire distribution, this level of granularity is commensurate with past work and allows us to draw modest conclusions about typical syntactic and semantic behavior of these verbs.

I coded each individual verb token for transitivity and the presence of a result phrase and/or particle. Transitivity was determined by whether there was a direct object present. All of the denominal verbs in the study are at least optionally transitive, so instances coded as intransitive were often cases of object drop (33), a potential patient encoded in an oblique rather than a direct object (34), or uses that were truly intransitive or inchoative (35).

(33) a. To leash or not to leash? (justgetout.net)

b. ...giving those people in the expected area more time to *sandbag*.
(internationalpreppersnetwork.net)

c. I've learned how to *solder*, how to program an Arduino, some things about integrated circuits, and so much more.
(dublinmaker.ie)

(34) a. Maybe we need to pick a feature and *hammer* on it harder.
(appleinsider.com)

b. You can *tile* over painted walls by first roughing up the surface using the sanding...
(cambodia9.info)

c. ...*caulk* around vents that enter you home.
(responsiblepestcontrol.net)

(35) a. ...every time I actually took a bit of the liver, I cringed and *gagged*.
(phoenixrising.me)

b. ...though VV Vinayak's last film Akhil *bombed* at the box office.
(rememberthealamo.info)

c. ...we need a certain buffer so that the chain can still proceed freely and does not *clamp*.
(igus.eu)

Another important element I coded for was the presence of a result phrase. These phrases could be PPs, AdjPs, or NPs and must specify some sort of result that can be attributed to the event described by the denominal. Some examples are below in (36), where the ResPs are underlined.

(36) a. But in the 1971 war Indira *bombed* Bijnot Fort to pieces, he said.
(hilal.gov.pk)

b. Wearable technology isn't limited to devices that you *strap* to your arm
(thepu.sh)

c. *Pencil* it into your calendars, all.
(krostech.biz)

d. I felt as though it hadn't been earned, that it was being used as a cheap way to *hammer* home the evilness of the rebels.
(umich.edu)

e. You should have a new batter with solder tabs and *soldered* it in.

(roland-jupiter.org)

f. Sam *clamped* his jaw shut.

(sinful-desire.org)

g. This can be used to *tether* two points together making a tightrope between them.

(d-infinity.net)

Additionally, I coded each token for change of state entailments by inserting the verb into the template “He just *verb*-ed but it is still un-*verbed*”. For some examples the un-*verbed* form was difficult to conceive of so instead I used the template “He just *verb*-ed, but nothing changed [about it].” For example, (37) and (38) both identify a change of state using these two different tests respectively.

(37) a. Once the bees started to settle down, we carefully added them and then *capped* the box.

(whyiamnotdying.net)

b. #He just capped the box, but it is still uncapped.

(38) a. Choose from a great selection of fabulous fall colors and get ready to spice up your wardrobe!

(6te.net)

b. #He just spiced up his wardrobe, but nothing changed about it.

Finally, I coded each token for figurativity. Tokens were coded as literal if the event entailed that a literal instance of the parent noun was involved. If there was no literal noun or if it was unclear, a token was coded as figurative. For example, (39a)-(41a)

were coded as literal since they entail that a literal *knife*, *tile*, and *butter* are involved in the events; whereas (39b)-(41b) were coded as figurative because there is no such entailment.

(39) a. What about the fact that he claims that he *knifed* the guy in the belly and the only reason he didn't kill the guy was because it hit his belt buckle?

(teads.tv)

b. The sound of their feet and their cruelty *knifed* her ears.

(dotmoon.net)

(40) a. Why not *tile* the whole bathroom so that clean-up is just a wipe away.

(bathroomgurureview.com)

b. This program transforms the small Yahoo maps into one larger map that can grab neighboring maps and *tiles* them in the window, letting you build up a larger, more complete map of the area.

(tcl.tk)

(41) a. Place another filo sheet over it, *butter* and continue layering to total 10 sheets of filo, buttering the top of each sheet before placing the next...

(artbites.net)

b. They *butter* up the media with stories, and expect favours in return.

(powerbase.info)

Obviously, this binary coding does not capture all the degrees to which a verb-noun relationship could be transparent. As discussed in Section 2.3, some figurative uses of denominals might be characterized as more opaque than others. However, a graded scale of figurativity proved unreliable across multiple context and verbs. It is difficult to

create objective criteria for how the interpretations of different abstract denominals compare in terms of how metaphorical they are. Therefore, this method was preferred.

3.3 RESULTS

3.3.1 Telicity Entailments

The results of the telicity tests are presented in Table 1 and Table 2 below. All of the verbs could be used with “finish” so that test was excluded. All of the verbs could also be used with “for” phrases so that test was also excluded. Many of the verbs had potential durative interpretations when used with “for” phrases, which Dowty associates with accomplishments. For example, *trap it for an hour* has a durative reading where the object stays in a state of being trapped for an hour. I will mention briefly here that in addition to the “for” phrase test, these durative readings are also somewhat distracting for applying some of the other entailment tests. For example, a durative reading of *leash it* would mean that the object stays in a state of being leashed for a given amount of time. This reading might lead to an interpretation of *x stopped leashing it* to mean that *x unleashed it* such that the state of being leashed has come to an end. These are not the readings that Dowty’s tests are trying to get at. Rather, if we interpret *stop leashing* as involving a leashing event that is interrupted, then we don’t get the entailment that *x did leash it*. Keep this distinction in mind when interpreting the results in Table 1 and Table 2.

Table 3 shows the rate at which locative and instrumentals behave like accomplishment verbs for each test. All of the denominals tested resemble accomplishments in their ability to be used with “finish.” Most of the time locatives behave like accomplishment verbs on the “in” phrase test (13/16 verbs) and on the progressive entailment test (14/16 verbs). However, the same can be said for instrument behavior on the “in” phrase (16/17 verbs) and progressive entailment tests (13/17). The other three tests have lower rates of accomplishment-like behavior overall, however these tests all identify features that are likely for accomplishments rather than required of them. Accomplishments have the potential to have durative interpretations with “for” phrases,

can have the relevant almost entailment and don't necessarily have the relevant stop entailment. In these respects, locatives are mildly more like accomplishments than instrumentals are, but not by much. Overall, the big takeaway from applying these tests is that *both* types of denominals seem to behave more like accomplishments than not.

Table 1. Telicity Entailment Tests for Locative Verbs

TYPE	VERB	object	“for” phrase modification can be interpreted with “in an hour/minute”		is	Verbing	x almost verbed it can => x started but did not complete
			test	Can be used with “in an hour/minute”	it =>	x stopped verbing it => x did verb it	
			Yes	YES	NO	Not necessarily	YES
			Prototypical accomplishment	No, only repetitive	NO	YES	NO
			Prototypical Activity		YES	YES	NO
LOC	cloak	it	YES	YES	NO	NO	NO
LOC	soap	it	NO	NO	NO	YES	YES
LOC	spice	it	NO	YES	YES	YES	YES
LOC	trap	it	YES	NO	NO	NO	NO
LOC	butter	it	NO	YES	YES	YES	YES
LOC	flag	it	YES	NO	NO	NO	YES
LOC	fuel	it	NO	YES	NO	YES	YES
LOC	plaster	it	NO	YES	NO	NO	YES
LOC	tile	it	NO	YES	NO	NO	YES
LOC	crown	him	YES	YES	NO	NO	NO
LOC	star	it	NO	YES	NO	NO	NO
LOC	bandage	it	YES	YES	NO	NO	YES
LOC	corral	it	YES	YES	NO	NO	YES
LOC	cap	it	YES	YES	NO	NO	NO
LOC	leash	it	YES	YES	NO	NO	YES
LOC	caulk	it	YES	YES	NO	NO	YES
	% verbs that behave like accomplishments		56.25%	81.25%	93.33%	66.66%	68.75%

Table 2. Telicity Entailment Tests for Instrumental Verbs

TYPE	VERB	test object	“for” phrase	is	Verbing	x stopped	x almost
			modification	Can be used	it => has	verbing it	can => x
			can be interpreted	with “in an	it => has	verbing it	started but
			as durative	hour/minute”	it	=> x did verb it	did not complete
			Yes	YES	NO	Not necessarily	YES
			No, only	NO	YES	YES	NO
			repetitive	NO	YES	YES	NO
INST	bomb	it	NO	YES	YES	YES	NO
INST	hammer	it	NO	NO	YES	YES	NO
INST	torpedo	it	NO	YES	NO	YES	NO
INST	towel	it	NO	YES	YES	YES	NO
INST	knife	it	NO	YES	YES	YES	NO
INST	shield	it	YES	YES	NO	NO	NO
INST	snare	it	YES	YES	NO	NO	NO
INST	pencil	it	NO	YES	NO	YES	YES
INST	sandbag	it	NO	YES	NO	NO	YES
INST	solder	it	NO	YES	NO	NO	YES
INST	torch	it	YES	YES	NO	YES	NO
INST	wire	it	NO	YES	NO	NO	YES
INST	clamp	it	YES	YES	NO	NO	NO
INST	gag	him	YES	YES	NO	NO	YES
INST	shackle	him	YES	YES	NO	NO	YES
INST	strap	it	YES	YES	NO	NO	YES
INST	tether	it	YES	YES	NO	NO	YES
% verbs that behave like accomplishments			47.06%	94.12%	76.47%	58.82%	47.06%

Table 3. Percentage of verbs that behave like accomplishments

Type	“for” phrase modification can be interpreted as durative	Can be used with “in an hour/minute”	is Verbing it => has verbed it	x stopped verbing it => x did verb it	x almost verbed it can => x started but did not complete
LOC (n=16)	56.25%	81.25%	93.33%	66.66%	68.75%
INST (n=17)	47.06%	94.12%	76.47%	58.82%	47.06%

3.3.2 Argument expression and change of state entailments

Every token of each verb was coded for argument expression features and change of state entailments. Table 4 shows how many tokens of each type were coded as transitive, how many included a result XP or a particle, and how many entailed a change of state. These results are given as percentages of tokens with the given feature.

Table 4. Percentage of all tokens with syntactic features

Type	Transitivity	Result XP	Particle	Change of state
Locative (n=340)	91.5%	7.65%	16.76%	76.76%
Instrumental (n=340)	89.43%	22.94%	14.41%	85%

Both locative and instrumental denominals demonstrated comparably high levels of transitivity. The biggest difference between the two categories was their usage with a result XP, with instrumentals three times more likely to be used with a result XP. Both

instrumentals and locatives had quite similar rates of particle use, however the distribution of particles was very different across the two categories (Table 5). While the majority of locative particles were *up*, instrumental particles had a much more even distribution.

Table 5. Particle distribution

Type	up	out	off	down	together	over	on	in
Locative (n=57)	47 (82.46%)	3 (5.26%)	5 (8.77%)	2 (3.51%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Instrumental (n=49)	4 (8.33%)	12 (25%)	14 (29.12%)	3 (6.25%)	1 (2.08%)	2 (4.12%)	4 (8.33%)	9 (18.75%)

The same argument structure and entailment features were calculated for only those denominals that were coded as literal, 123 tokens for locatives and 177 tokens for instrumentals. Those results are outlined in Table 6 below.

Table 6. Percentage of literal tokens only with syntactic features

Type	Transitivity	Result XP	Particle	Change of state
Locative (n=123)	89.43%	2.4%	16.26%	97.56%
Instrumental (n=177)	83.05%	28.88%	18.08%	96.61%

Literal tokens were slightly less transitive than total tokens for both locative and instrumentals, although transitivity rates were still high across the board. Particle frequency stayed fairly constant and comparable across literal locatives and instrumentals. However, the most interesting pattern is that of the result XPs. While

instrumental result XP use increased slightly, locative results dropped down to 2.4%, or 3 total tokens.

3.4 DISCUSSION

If locative denominals truly do have underlying accomplishment event structures, we expect them to behave like accomplishments with respect to their argument structures and entailments. The data outlined above present mixed results. In some ways, locatives do seem to behave like accomplishments, and in some ways they do not.

The strongest evidence that locatives lexicalize an accomplishment event structure (unlike instrumentals) comes from the low frequency of result phrases that appear in locative argument structures compared to instrumental argument structures. LRH do not allow accomplishment event structures to be augmented with result phrases, which prevents data like (26c-h) where a result verb is used with a result phrase. So, if locatives truly are accomplishments, we would expect this exact result.

Interestingly, that the gap between instrumental and locative result phrase use widens significantly for literal tokens, totaling only three result phrases for literal locatives. I interpret this as evidence that literal interpretations of locatives consistently lexicalize accomplishment event structures, while figurative uses may allow for slight bleaching of accomplishment templates. The three tokens of literal locative denominals occurring with result phrases are listed in (42). All of these examples were coded as literal because there is a literal instance of the parent noun involved, namely a leash, a bandage and plaster. However, these entities themselves are neither location nor locatum in the underlying event structure. In (42a), the leash is the tool to attach the dog to the waist belt. In (42b), the leaf is being used as a bandage to cover the area. Similarly, in (42c) wet cement is being put onto dry cement in a plaster-like way. So, while each of these examples still involves an event that spatially relates entities and entails a result like we would expect from the accomplishment event structure in (2), the parent noun is not participating directly in those spatial relations. Instead, the result phrases are actually introducing either a location or locatum that is being spatially related to the direct object.

So, we don't have any instances of literal tokens with result phrases when the parent noun is actually being interpreted as a locatum or location.

(42) a. The fact that you leash up your dog (or dogs) to the waist belt keeps your hands free for a wide variety of exercises and or sports.

(petobesityprevention.org)

b. If the area is still sore an hour later don't hesitate to bandage an entire leaf to the area, fleshy side down.

(evitae.org)

c. Otherwise we would leave a cold-joint in the wall where we plastered wet cement onto dry cement.

(aprovecho.net)

The fact that literal locatives resist result phrases supports the idea that these denominals do actually map onto an accomplishment template that lexicalizes result. In contrast, the fact that the instrumental result phrase frequency remains relatively high and stable when controlling for figurativity suggests that instrumental denominals are slotted into activity templates to start with.

In all other domains that were considered, locatives and instrumentals had similar behavior. Both had high rates of transitivity. We might interpret the modestly higher transitivity in locatives as evidence that the accomplishment template requires that a direct object surfaces to name either a location or locatum (y in the event structures in (2)). However, the difference in transitivity is too mild to really support this idea. The same could be said for the slight discrepancy between change of state entailments for the two categories but, again, since these rates were so high it is difficult to draw any substantial conclusions due to ceiling effects. One reason why change of state entailments were particularly high was likely that the tests to diagnose change of state are difficult to apply, especially to figurative uses, so I was liberal in what I coded as a change of state. Perhaps a more refined test looking for particular types of state changes, for example

only looking for change in possession or change in location entailments, could elucidate a difference between the two categories.

Both types of denominals also had comparable rates of particle use. However, locative denominals mostly occurred with *up*, while instrumentals occurred with a wider range of particles. This can be explained by looking at how particles interact differently with activity and accomplishment verbs. When a particle is added to an activity verb, it yields an accomplishment. This is a type of template augmentation that the LRH allow for. And we do see this happening when we add particles to instrument verbs. Consider for example (43). Without the particles we get atelic readings. However, when the particles are added they telicize the events like we would expect of an activity becoming an accomplishment.

- (43)
- a. *She toweled it in 5 minutes
 - b. She toweled it off in 5 minutes
 - c. *She strapped herself in 5 minutes
 - d. She strapped herself in in 5 minutes
 - e. *She torched the lock in 5 minutes
 - f. She torched the lock off in 5 minutes

The same can't be said of locative verbs that are combined with *up*. For example, consider (44) below. The particle *up* isn't serving to telicize the events in this case, since they were already telic. Instead, the particle might be adding emphasis or making the result more extreme.

- (44)
- a. She leashed the dog in 5 minutes.
 - b. She leashed the dog up in 5 minutes.
 - c. She bandaged her wounds in 5 minutes.
 - d. She bandaged her wounds up in 5 minutes.
 - e. She spiced the soup in 5 minutes.
 - f. She spiced the soup up in 5 minutes.

The fact that locatives aren't combining with telicizing particles suggests that they lexicalize accomplishment event structures. The fact that instrumentals can be telicized by the addition of a particle suggests they lexicalize activity event structures.

None of the data above strongly disproves the idea that instruments are built on activity event structures while locatives are built on accomplishment event structures. Locatives did generally behave like we would expect accomplishment verbs to behave. The fact that instruments also pattern like accomplishments means that they are subject to template augmentation in the way that LRH suggest. However, the fact that instruments are augmented to accomplishments as frequently as they are potentially tells us something about the nature of denominal verbs themselves. Perhaps converting nouns into verbs is simply a strategy that we tend to use to describe change-of states. If this is the case, then the idea that different types of denominals map onto different templates becomes more or less irrelevant.

4. Conclusion

This study provides modest evidence for attributing accomplishment event structures to locatives and activity event structures to instrumentals, especially for literal uses of these verbs. This study only considered two common categories of denominal verbs. A next step for the project could involve gathering data across a wider range of denominal categories. Clark & Clark's goal/source type denominals have sometimes been conflated with locatives under the umbrella 'change of state.' Perhaps we would see their argument structures pattern similarly. It also seems like agentive denominals rely heavily on idiosyncratic properties of the root, so perhaps we would see them patterning like activity verbs. If these effects were consistent and strong enough, another potential project would be to typologize denominals based on their argument structure tendencies alone, eliminating the need for intuition-based classifications of the thematic roles of parent nouns. Using the corpus as the means through which to classify denominals also has the potential to find new clusterings of denominal types.

Another obvious variable to look at would be the actual content and variation of the patients that these verbs are selecting for, which could affect a verb's willingness to drop its object. For example, if *floss* only selects for an extremely restricted set of complements and almost always selects *teeth*, then dropping the object will not be detrimental to the listener's interpretation of the verb. It would be interesting to see how restricted complements pattern across the denominal dataset. We could also look into the types of obliques that are used across categories, which could help create finer grained distinctions between types of denominals and help us find consistent semantic elements contributed by the verb.

Denominal verbs have been at the forefront of English word formation and lexical semantic literature. English speakers constantly utilize conversion from nouns to create new verbs, and listeners are extremely adept at interpreting these innovations. A systematic study of conventionalized denominals like this helps us to understand how this process is so productive by clarifying how we map nouns to verbal meanings. Ultimately, more in depth study of the conventionalized denominal lexicon, and the features that empirically define categories of denominals, will help us to understand the process that speakers go through to create new denominals in context.

Bibliography

- Adams, V. (1973). *An introduction to modern English word-formation*. London: Longman Group Limited.
- Clark, E., & Clark, H. (1979). When nouns surface as verbs. *Language*, 55 (4), 767-811.
- De Swart, H. (1998). Aspect shift and coercion. *natural language & linguistic Theory*, 16(2), 347-385.
- Dowty, D. (1979). *Word Meaning and Montague Grammar*. Dordrecht, Holland: D.
- Fillmore, C. J. (1968). Lexical entries for verbs. *Foundations of language*, 373-393.
- Fillmore, C. J. (1971). Some problems for case grammar. *Monograph Series on Languages and Linguistics*, 35.
- Gehrke, B., & McNally, L. (2019). Idioms and the syntax/semantics interface of descriptive content vs. reference. *Linguistics*, 57(4), 769-814.
- Gottfurcht, C. A. (2008). *Denominal verb formation in English*. (Doctoral Dissertation, Northwestern University).
- Hale, K. L., & Keyser, S. J. (2002). *Prolegomenon to a theory of argument structure*, 39. MIT press.
- Hale, K., & Keyser, S. J. (1993). On argument structure and the lexical expression of syntactic relations. In K. Hale & S. Keyser (Eds.), *The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger* (pp. 53-109). Cambridge, MA: MIT Press.
- Harley, Heidi. (2005). How do verbs get their names? Denominal verbs, manner incorporation, and the ontology of verb roots in English. In N. Erteschik-Shir & T. Rapoport (Eds.), *The syntax of aspect*, (pp. 42-65). Oxford.
- Hovav, M. R., & Levin, B. (1998). Building verb meanings. *The projection of arguments: Lexical and compositional factors*, 97-134.
- Hovav, M. R., & Levin, B. (2010). Reflections on manner/result complementarity. *Syntax, lexical semantics, and event structure*, 21-38
- Jackendoff, R. (1988). *Conceptual semantics* (pp. 81-97).
- Jespersen, O. (1942). *A Modern English Grammar. Part VI, Morphology*. Ejnar Munksgaard, Copenhagen.
- Kiparsky (1997) Remarks on denominal verbs. In A. Alsina, J. Bresnan, & P. Sells (Eds.), *Complex predicates*, (pp. 473-499). Stanford, CSLI.
- Krifka, M. (1998). The origins of telicity. In *Events and grammar* (pp. 197-235). Springer, Dordrecht.
- Levin, B. (1993). *English verb classes and alternations: A preliminary investigation*. University of Chicago press.
- Levin, B., & Hovav, M. R. (2005). *Argument realization*. Cambridge University Press.
- Levin, B., & Hovav, M. R. (2013). Lexicalized meaning and manner/result complementarity. In *Studies in the composition and decomposition of event predicates* (pp. 49-70). Springer, Dordrecht.
- Lieber, R. (2004). *Morphology and lexical semantics*. Cambridge: Cambridge University Press.

- Marchand, H. (1969). *The categories and types of present-day English word formation: A synchronic-diachronic approach, 2nd ed.* München: C.H. Beck'sche Verlagsbuchhandlung.
- McIntyre, A. (2002) Article 79: Denominal verbs. In P. Müller, I. Ohnheiser, S. Olsen & F. Rainer (eds.) *Word-Formation: An International Handbook of the Languages of Europe*. Berlin: Mouton de Gruyter.
- Pinker, S. (1995). *The language instinct: How the mind creates language*, Penguin UK.
- Plag, Ingo (1999). *Morphological productivity: Structural constraints in English derivation*. Berlin and New York: Mouton de Gruyter.
- Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech, and Jan Svartvik (1985) *A comprehensive grammar of the English language*. London and New York: Longman.
- Reyburn, S. (2018, October 6). Banksy Painting Self-Destructs After Fetching \$1.4 Million at Sotheby's. *The New York Times*. Retrieved from <http://www.nytimes.com>.
- Rimell, L. D. (2012). *Nominal roots as event predicates in English denominal conversion verbs* (Doctoral dissertation, New York University).
- Rose, J. H. (1973). Principled limitations on productivity in denominal verbs. *Foundations of Language*, 509-526.
- Rothstein, S. (2004). Verb classes and aspectual classification. *Structuring events: A study in the semantics of lexical aspect*, 1-35.
- Titone, D. A., & Connine, C. M. (1999). On the compositional and noncompositional nature of idiomatic expressions. *Journal of pragmatics*, 31(12), 1655-1674.
- Vendler, Z. (1967) *Linguistics in Philosophy*. Cornell University, Ithaca, New York.