Arguments for Pseudo-Resultative Predicates*

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1 Introduction

The sentence-final predicates in both (1) and (2) pertain to the result of an event:

(1) Mary braided her hair **tight**.

(2) Susan hammered the metal **flat**.

However, while resultative predicates such as *flat* in (2) modify the direct object of the verb, the final predicate *tight* in (1) does not. That is, while the metal becomes flat as a result of Susan's hammering it, Mary's hair does not become tight as a result of her braiding it. Rather, what becomes tight is the braid which is created by the braiding. Yet there is no overt 'braid' DP in the syntax for the adjective *tight* to modify. Thus, these sentences present a puzzle for the syntax/semantics interface - what argument are these modifiers modifying?

Although resultative predicates as in (2) have been much studied (Dowty 1979, Simpson 1983, Kayne 1985, Hoekstra 1988, Carrier and Randall 1992, Levin and Rappaport-Hovav 1995, Kratzer 2005), cases like those in (1) remain relatively uninvestigated. Some have described such cases as adverbial (Washio 1997, Mateu 2000), while Kratzer (2005) has proposed that an even broader range of apparent resultatives are in fact adverbial.

In this paper, I show that predicates such as *tight* in (1) are not resultatives, nor are they adverbial in the sense of being modifiers of the verb[1]. Rather, these 'pseudo-resultative' adjectives modify an individual denoted by the root of the verb. This type of verbal root modification is semantically restricted to the class of implicit creation verbs. I propose a semantic and syntactic decomposition of this class of verbs in order to provide a compositional account for the pseudo-resultative modification. The necessity of such decomposition provides support for the type of decomposition proposed in the work of Hale and Keyser (1993) and Hale and Keyser (2002) as well as for the framework of Distributed Morphology (Halle and Marantz 1993), in particular the theory of category-neutral roots proposed in Marantz (1997) and Arad (2003).

*Draft. Comments welcome.

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[1]I will discuss in section 2.2 the possibility of the adverb form *tightly*.

In section 2, I will lay out the compositionality problem posed by pseudo-resultative predicates, and show how they cannot be assimilated to resultatives or resultative adverbs. In section 3, I present a proposal for the compositional semantics of pseudo-resultatives and the implicit creation verbs that they occur with. Then in sections 4 through 6 I discuss the consequences of the analysis for related data and show how the predictions made are borne out cross-linguistically.

2 A Compositionality Puzzle

In this section, I show that the pseudo-resultative predicates in sentences such as in (3) do not modify any 'word' or phrase in the syntax, and thus seems to pose a problem for compositionality.

(3) a. Mary braided her hair tight.
b. Mary tied her shoelaces tight.
c. Mary piled the cushions high.
d. Mary chopped the parsley fine.
e. Mary sliced the bread thin.
f. Mary ground the coffee beans fine.

2.1 Object DP Modification

Since adjectives of the type found in (3) are most standardly considered to be predicates of individuals, one might assume that the pseudo-resultative is a modifier of the individual-denoting object DP. Other cases where secondary predicates are argued to modify the object DPs that they follows are object depictives (4) and canonical resultatives (5):

(4) Object Depictives:
a. i. Mary hammered the metal$_i$ hot$_i$. $\rightarrow$
ii. The metal was hot.
b. i. Mary cooked the meat$_i$ raw$_i$. $\rightarrow$
ii. The meat was raw.

(5) Resultatives:
a. i. Mary hammered the metal$_i$ flat$_i$. $\rightarrow$
ii. The metal is flat.
b. i. Mary cooked the meat$_i$ black$_i$. $\rightarrow$
ii. The meat is black.

The object depictives modify the direct object such that the property they denote must hold of that object during the event; in (4a-i), the metal must be hot when the hammering event begins. It is clear that pseudo-resultatives do not contribute depictive-like semantics, as the sentences in (3) do not entail that the state denoted by the adjective holds at the beginning of the event. Rather their interpretation is rather closer to that of resultatives. Resultatives modify the state of the object at the end of the event, so that (5a-i) entails that the metal is flat at the end of the event, as a result of that event. In considering examples from Romance similar to those in (3), Napoli (1992) proposes

these are resultatives. However, the following entailments do not hold of the sentences in (3), as they would for sentences with resultatives[2]:

(6) a. Mary braided her hair tight. $\not\rightarrow$ Mary's hair is tight.
b. Mary tied her shoelaces tight. $\not\rightarrow$ Her shoelaces are tight.
c. Mary piled the cushions high.$\not\rightarrow$ The cushions are high.
d. Mary chopped the parsley fine. $\not\rightarrow$ The parsley is fine.
e. Mary sliced the bread thin. $\not\rightarrow$ The bread is thin.
f. Mary ground the coffee beans fine. $\not\rightarrow$ The coffee beans are fine.

Further, in the case of both resultatives and depictives, the adjective can straightforwardly compose with the object DP. Yet the pseudo-resultative predicates in (3) cannot. Not only do they not contribute the same semantics as depictives or resultatives in entailing a state of the object at the beginning or end of the event, in many cases the adjective is not an appropriate modifier for the object in any syntactic environment, as shown in (7) [3]:

(7) a. ? Her hair was tight. / her tight hair
b. ? The cushions were high. / the high cushions
c. ? The parsley was fine. / the fine parsley
d. ? The bread was thin. / the thin bread
e. ? The coffee beans were fine. / fine coffee beans

These data show that pseudo-resultatives are not modifiers of the object DP, and thus we must look elsewhere for the argument that they modify.

2.2 Verb Modification

It was shown in the previous section that the pseudo-resultative does not modify the direct object. Another word that would be in principle available for modification is the verb. Pseudo-resultatives have previously been described as 'adverbial' (Washio 1997, Mateu 2000, Kratzer 2005). Washio (1997) observes that cases like those under consideration here do not have the same semantics as resultatives in that the paraphrase "x causes y to become z" often fails. He suggests that these "spurious resultatives", as he calls them, are adverbial, but does not explore the syntactic and semantic predictions of such an analysis. Kratzer (2005) argues that all true resultatives occur as small clause complements to verbs which do not obligatorily take DP complements, and that apparent resultatives found with obligatorily transitive verbs are thus of a different class and "parsed as adverbs". I will argue in this section, however, that while distinct from resultatives, pseudo-resultatives are not adverbial to the extent that this entails being a predicate of events. Further I will show that they do not syntactically modify an element of the category 'verb'.

[2]Further contrasts between resultatives and pseudo-resultatives will be shown in section 4.

[3]Throughout the paper, '?' is used to indicate semantic ill-formedness, '%' for across-speaker variation in judgments, '#' for availability only of an irrelevant reading, and '*' for ungrammaticality.

2.2.1 Pseudo-Resultatives are not Predicates of Events

In the neo-Davidsonian tradition of event semantics (Davidson 1967, Parsons 1990), both verbs and verb modifiers such as manner adverbs are taken to be predicates of events, such that a phrase as in (8a) would have the semantics in (8b):

(8) a. run quickly
b. run(e) & quick(e)

Elements with similar or equivalent semantics to pseudo-resultative adjectives are found with adverb morphology as well (although only some speakers accept the adverb form in post-verbal position as in (9c)):

(9) a. Mary braided her hair tight.
b. Mary's hair is tightly braided.
c. % Mary braided her hair tightly.

This may lead one to believe that all such predicates are predicates of events, like manner adverbs. However, as shown by Geuder (2000) (discussing a different, but related, class of predicates with adverb morphology), even such 'resultative adverbs' are distinct from manner adverbs and are not simple predicates of events. Manner paraphrases, for instance, are not felicitous:

(10) a. ? Mary braided her hair in a tight manner.
b. ? Mary sliced the bread in a thin manner.

This is because the adverb or adjective is truly 'oriented' towards an individual. Geuder analyzes the resultative adverbs in (11) as predicates of events which are associated with a semantic result role in the denotation of the verb. In this way they are oriented towards an individual-like element in the denotation of the verb, without being true predicates of individuals[4].

(11) a. They decorated the room beautifully.
b. She dressed elegantly.
c. They loaded the cart heavily.

[4]Geuder (2000) also considers cases like those in (4), for which he considers *wide* and *tight* to be adverbs, even though they lack adverb morphology.

i a. I opened the door wide.
b. I shut the door tight.

Despite the fact that these predicates are morphologically adjectival, I will not consider these cases here. Note that these are both adjective-derived inchoative verbs, and that these forms of *wide* and *tight* are also possible as modifiers of these adjectives in non-verbal contexts:

ii a. The door is (wide) open (wide).
b. The door is (tight) shut (tight).

The examples in (4) may be more similar to true resultatives where the resultative predicate has conflated with *v* as a manner component, being derived from an LF paraphraseable as 'I opened the door wide open', parallel to 'I pushed the door wide open'.

Geuder's key argument that these adverbs remain predicates of events at all is that they can be syntactically coordinated with manner adverbs, as in (12):

(12) to grind the beans quickly and finely

However, in the adjectival cases under consideration, this does not hold:

(13) a. * Mary braided her hair quickly and tight.
b. * Mary braided her hair tight and quickly.

Thus, whether these are convincing arguments that resultative adverbs are truly predicates of events or not, they do not in any case extend to pseudo-resultative adjectives.

2.2.2 Adjectival Morphology

There is also cross-linguistic morphological evidence for the status of pseudo-resultatives as adjectives, bearing morphology not found on verb modifiers. Although for English one might claim that adverb morphology is 'droppable', in languages such as Catalan and Finnish, pseudo-resultative predicates bear distinctly adjectival morphology. Mateu (2000) observes that pseudo-resultatives like those in (14) from Catalan, which he calls spurious resultatives following Washio (1997), exhibit obligatory adjectival agreement on the predicate [5]:

(14) a. M' he lligat els cordons de les sabates (ben) estrets.
Me-dat have-1st tied the laces of the shoes (very) tight-PL
'I tied the laces of my shoes very tight.'
b. Talla-les menudes.
cut-them fine-PL
'Cut them fine (i.e., into fine pieces).'

One cannot claim that these are adverbs with omitted adverbial morphology. A similar argument can be constructed based on Finnish, where adverbs and adjectives bear distinct suffixal morphology. Adverbs have a *-sti* suffix (15a), whereas adjectival pseudo-resultatives have the illative case marker as in (15b), to be discussed further in section 4.2.1:

(15) a. Mari leti-tt-i hiuksensa tiuka-**sti**.
Mari braid-CAUS-PAST hair-ACC.POSS tight-ADV
'Mari braided her hair tightly.'
b. Mari leti-tt-i hiuksensa tiukka-**an**.
Mari braid-CAUS-PAST hair-ACC.POSS tight-ILL
'Mari braided her hair tight.'

Languages differ with respect to what pseudo-resultative predicates can appear with adjectival morphology (if any), but this set is always to some extent distinct from those which can appear with adverb morphology.

[5] Note that, since the adjective does not semantically modify the argument that it agrees with, this highlights the syntactic nature of agreement. See also section 4.2.1 for a different pattern of adjectival agreement in Norwegian.

2.2.3 The Relation between Adjective and Adverb Morphology

Another indicator that adjectives cannot be treated the same as adverbs is that there is no obvious implicational relation between the availability of the adverb form versus the adjectival form, and thus the availability of the adjective form cannot be in a simple subset relation to adverb forms. Although in many cases adverb morphology is possible on the same predicates that occur as pseudo-resultative adjectives, this is not always the case, as in (16):

(16) a. She piled the cushions high.
b. * She piled the cushions highly.
c. * the highly piled cushions

The adverb form does not seem possible with a resultative adverb interpretation, despite the existence of the form as an intensifier in examples like those in (17):

(17) a. She was a highly esteemed author.
b. It is highly unlikely that he will arrive on time.

Conversely, many of the examples that Geuder discusses, such as those in (11), are not possible without adverb morphology in English:

(18) a. * They decorated the room beautiful.
b. * She dressed elegant.
c. * They loaded the cart heavy.

Thus while there seems to be a relation between pseudo-resultative predicates and 'resultative adverbs', these are not the same modulo a simple 'morphological' difference.

As for the availability of adverb morphology on many of the same predicates which occur as pseudo-resultatives, this is more a syntactic than a semantic matter. That is, as argued also in Geuder (2000), adverb morphology does not indicate the type of semantic argument that an adverb takes, nor does the lack thereof. Morphology like English *-ly* behaves more like inflectional morphology than derivational morphology, as argued recently in Corver (2005) (who cites the earlier works of Emonds (1985, p.201 fn.9) and Sugioka and Lehr (1983)). The impact of the effect of syntactic position on the acceptability of adverb morphology for some speakers shown in (9) above supports such a view; for such speakers, adverb morphology on the relevant class of predicates is acceptable on the predicate before a participle, but not acceptable when following the same verb in finite form. What is crucial is that, while, cross-linguistically, predicates with adjectival morphology do not modify verbs, there is no implication in the other direction, that predicates with adverb morphology necessarily *do* modify verbs. The presence of adverb morphology indicates a syntactic difference between such predicates and pseudo-resultatives, but precisely what that difference is, will not be explored here and is left for future work.

In section 2.2.1 it was shown that pseudo-resultatives do not semantically function as predicates of events. These data also show that pseudo-resultatives are adjectives and not syntactically modifiers of the verbs. Thus there does not appear to be any word in the syntax which pseudo-resultative predicates modify. In the next section I will show how such predicates can be accounted for compositionally as modifiers of verbal roots.

3 The Compositional Semantics of Pseudo-Resultatives

It was shown above that the pseudo-resultative predicate does not semantically modify any 'word' in the syntax. What it modifies instead is the individual or individuals brought about by the event denoted by the verb. In contrast with resultatives, the resultative-like semantics found with pseudo-resultatives are contributed not by the addition of or modification of a resultant state, but by modification of an individual which is created as a result of the event. There are some sentences that are ambiguous between a resultative and pseudo-resultative reading that clearly show the truth conditional differences between the two types of predicate:

(19) She sliced the loaf of bread thin.

On the resultative reading of (19), a baker is making loaves of bread and has sliced a thin piece of dough that will make a thin loaf of bread. Thus the loaf of bread does in fact come to be thin. On the pseudo-resultative reading, a customer who has brought that loaf home has cut it into thin slices. The loaf itself could also have been a very wide loaf, as 'thin' modifies the slices, not the bread. The following entailments hold:

(20) Pseudo-resultatives:
   a. Mary braided her hair tight. → A tight braid was created.
   b. Mary tied her shoelaces tight. → A tight 'tying' was created.
   c. Mary piled the cushions high. → A high pile was created.
   d. Mary chopped the parsley fine. → Fine 'pieces' were created.
   e. Mary sliced the bread thin. → A thin slice was created.
   f. Mary ground the coffee beans fine. → Fine coffee grounds were created.

Geuder (2000) makes similar observations regarding the semantic contribution of resultative adverbs with respect to modification of the created individual. However, he provides a purely semantic account which does not address the compositionality problem posed by these adjectives. In the next section, I will show how pseudo-resultative predicates are able to compositionally modify such 'created individuals'.

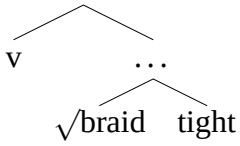
3.1 Root Modification

In the previous section, I showed that the pseudo-resultative predicate is modifying an individual that is entailed by the event denoted by the verb. More specifically, the predicate is modifying the category-neutral root of the verb which makes this denotation available[6]. The pseudo-resultative adjective compositionally combines with the root by merging directly with it. That is, in a sentence such as (21a), the adjective *tight* modifies the individual denoted by the root of the verb *braid*, such that the individual created by the braiding is a 'tight braid', as in (21b):

(21) a. Mary braided her hair tight.

[6] I present evidence that the modified element is a category-neutral root, rather than a noun, in section 5.

b.



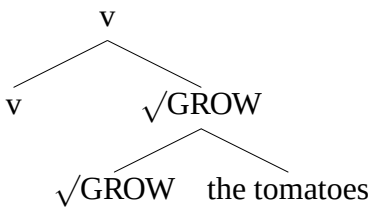
In the next section I will explicate the nature of this category-neutral root and how it comes to be realized in a verbal context.

3.2 The Category-Neutral Root

This analysis is set within the framework of Distributed Morphology as laid out in Halle and Marantz (1993), Marantz (1997) and Arad (2003). A foundational aspect of this framework is the 'single engine hypothesis', that there is one computational system which generates both words and larger constituents. In this framework, words are not built in the lexicon, but rather in the same fashion as phrasal constituents, in the syntax. Words are atomic, but are built from *roots* (see also Pesetsky (1995)), which constitute the atomic syntactic terminals providing the 'lexical' content. These roots do not bear categories like 'verb' or 'noun'. Rather, they seem to 'join' these syntactic categories when they combine with what are considered to be category-specific heads in the syntax. For example, Marantz (1997) argues that the verb *grow* and the noun *growth* are both derived from the root √grow, and thus the words are formally related, but neither is derived from the other. Marantz represents the difference between *grow* and *growth* as in in (22) and (23):

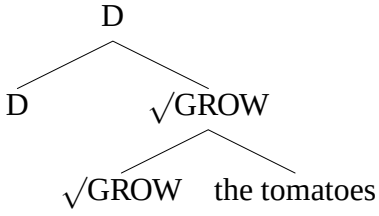
(22) a. grow_V tomatoes

b.



(23) a. growth_N of tomatoes

b.



Thus the apparent category of V ascribed to 'grow' is a consequence of the syntactic environment in which the root is embedded.

For such a case in English, one might be able to say that the root of both of the forms above is pronounceable as 'grow', and that the noun form bears additional overt morphology not found on the verb. It is not always clear where to draw the line between word and root. In Hebrew, however, roots are consonant clusters which cannot be pronounced on their own. This is illustrated in (24) from Arad (2003, p.746), which shows the various words that can be formed from the root √sgr, all related to the concept of closure. The 'template' column lists various templates for deriving words from roots, where C is a variable ranging over root consonants. Thus combining the root

$\sqrt{}$sgr with the template CaCaC produces the word *sagar*, the verb 'close'. It can be seen that $\sqrt{}$sgr itself is not specified for any lexical categories such as verb or noun, as there is no basic word form in common. What these words share is only the root. No word in (24) contains any other word in the table, and thus they are not derived from each other.

(24)

	Template	word	gloss
a.	CaCaC (v)	sagar	'close'
b.	hiCCiC (v)	hisgir	'extradite'
c.	hitCaCCeC (v)	histager	'cocoon oneself'
d.	CeCeC (n)	seger	'closure'
e.	CoCCayim (n)	sograyim	'parentheses'
f.	miCCeCet (n)	misgeret	'frame'

All of the words derived from $\sqrt{}$sgr contain the same root consonants, but different words can be formed from the same root by combination with different heads. Arad (2003) refers to heads such as *v* in (22) 'category heads'. However, this suggests that there is some special formal property of these heads that differentiates them from other heads in the syntax. This is not the case, since as Arad argues, these heads combine both with roots and with other non-atomic and non-lexical syntactic constituents. Thus, in keeping with a strong interpretation of the single engine hypothesis, there need not be any special operation of categorization which applies to roots that is different from syntax as we know it above the word-building level. Heads which seem to serve such a function and may loosely be called 'category heads', or 'categorizing heads', can be viewed as semantically or syntactically contributing to the ascription of what have traditionally been considered 'lexical categories'. For example, one might define *v* heads as any head which can head a complement of a Tense projection, since the ability to bear tense morphology is closely connected to categorization as a verb. These different *v*'s, however, may themselves have diverse semantic and syntactic contributions, and they need not be formally marked, in the lexicon or otherwise, as being categorizing heads.

In the derivation of the verb *braid*, the root $\sqrt{}$braid is embedded within an eventive *v*P, where an event variable is contributed by the presence of an eventive *v* head. However, at an earlier point in the derivation, the category-neutral root bears neither the category 'verb', nor eventive semantics. Rather, as detailed in the next section, the root contributes the denotation of the object which is created as a result of the event. It is at this point when the root of the verb is both semantically and syntactically available for modification by an adjective. On the assumption that adjectives cannot modify verbs, but can modify roots, the root is syntactically available for pseudo-resultative modification. The root is also semantically able to compose with the adjective, as in such cases its denotation is that of a predicate of individuals, as will be shown in more detail in the following section.

3.3 Implicit Creation Verbs

The verbs which are amenable to this sort of root modification with a resultative-like interpretation are implicit creation verbs (Geuder 2000, Osswald 2005) - that is, verbs which denote activities that entail the creation of an individual, without the expression of that individual as a DP argument[7].

[7]Explicit creation verbs are those where the created individual is realized as a DP argument, such as in (7):

The class of implicit creation verbs which license pseudo-resultative modification coincides to a great extent with the class of verbs classified as 'goal' verbs by Clark and Clark (1979). On Clark and Clark's classification, goal verbs are those for which the verb is derived from a nominal where the nominal names something (the *goal*) which the direct object of the verb (the *source*) becomes. Clark and Clark define the class as follows: "The important characteristic of these verbs is their factivity: the shape, entity, form, or role denoted by the parent noun comes to exist by virtue of the action denoted by the verb" (Clark and Clark 1979:p.774). Thus by definition all of the verbs in this class will involve an individual denotation and an activity that creates it.

Clark and Clark (1979) consider goal verbs to be 'denominal', or derived from nouns, but I show evidence in section 5 that these verbs are derived from roots which are at their core conceptually individual-denoting, rather than activity- or property-denoting. Although such verbs are often zero-related to nouns in English, this is not a pre-requisite for a root having a status as individual-denoting. For example, the verb for *braid* in Japanese, *yu*, shown in (25) does not relate to any noun. One must use an expression such as in (26) to express that a braid is tight with sentential predication:

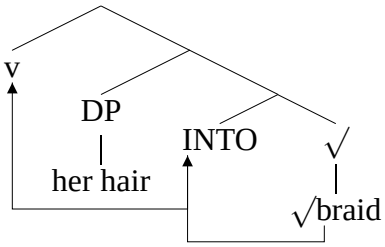
(25) Mary-ga kata-ku gami-o yu-u.
Mary-NOM tight-ADV hair-ACC braid-PAST
'Mary braided the hair tight.'

(26) Yu-i kata-ga kata-i.
braid-i way-NOM tight-A
'The way of braiding is tight.'

There is a verb for braiding, which denotes the event of creating a braid, and yet there is no simple noun 'braid'. What is relevant is whether the concept of the root makes reference to an individual.

The structure of these verbs is as in (27):

(27)



INTO is a null prepositional head which is a constituent in the syntactic and semantic decomposition of the implicit creation verb *braid*. Such an analysis of verbal decomposition is in the vein

i a. Mary built a house.
b. Mary baked a cake.

The same roots which give rise to implicit creation verbs often derive explicit creation verbs as well:

ii a. Mary braided a rope.
b. Mary sliced (Bill) a piece of cake.

However, as the root does not denote the created individual in such cases, they will not be relevant to the discussion here except in counterpoint to implicit creation verbs. It will be shown in section 6 that there is evidence that these classes of verbs vary not only semantically in the roles played by their arguments, but also syntactically, as predicted by a theory where argument structure is determined with the syntax.

of the analysis for location and locatum verbs in (Hale and Keyser 1993, 2002). However, *braid* is not a location verb, and INTO here is not intended as the locative preposition, as in (28a). Rather it is related to *into* as in (28b), where a change of state rather than a true change of location, is denoted:

(28) a. She rolled the ball **into** the woods.
b. She turned the prince **into** a frog.

INTO and the change-of-state *into* share a common core. Both the prince and the ball are changing in some way, the prince is changing his 'state', while the ball undergoes a change of location. The complement of *into* in both cases provides the target of the change. Thus for the change of state, the target state is that of being a frog. For the change of location, the target location is in the woods. Similarly to (28b), the object of *braid* undergoes a change of state, from loose to braided. Thus the target of the change of state is that of being a braid.

As an overt preposition in (28b), *into* relates two individual arguments, *the woods* and *the ball*. Rather than relating them as individuals, however, the lower argument must be interpreted as a state that the higher argument comes to be in. Thus *into* must first 'stativize' its complement, and then predicate this state of its second argument[8]. The same is true of implicit creation verbs, except what must be stativized is a predicate of individuals, such as *braid*. The null preposition INTO relates a predicate of individuals (the 'goal') interpreted as the state of being such an individual with the higher individual (the 'source'). In both cases the resulting semantics are that the higher argument is in a state of being the lower argument that did not hold at a prior point in time. The prince was not in the state of being a frog, but now is; the hair was not in the state of being a braid, but now is.

The *v* that merges above the PP is a causative *v* which introduces an event that causes the state denoted by the PP. The subject of the sentence is the agent of this causing event, as in Pylkkänen (2002).

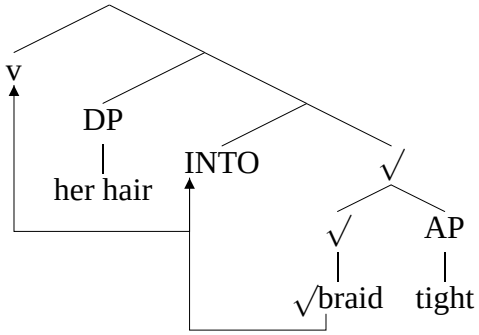
3.4 The Syntax of Pseudo-Resultatives

Given the structure for implicit creation verbs given above, the addition of the pseudo-resultative would be as in (29):

[8]INTO and *into* are most likely complex prepositions, composed of *in*/IN and *to*/TO. The *in*-element performs that stativizing, while the *to*-element contributes the change-of-state semantics. *To* on its own can contribute change-of-state semantics with a complement that already denotes a state, as in (i):

i. The weather suddenly went from hot **to** [$_{AP}$ cold].

(29)



The root must be the head of the predication structure, such that the syntactic category of the root is not affected by the addition of the adjective. That is, this modification more closely resembles DP-internal adjectival predication, where the addition of an adjective does not affect the syntactic category of the larger DP, than a predication structure such as a small clause. If there were some type of small clause, then the head of that small clause would be of a different category than the root itself and would not be selected by the same heads, such as INTO, which select the root $\sqrt{}$braid. To the extent that this modification resembles DP-internal predication, it is in English most like post-nominal modification. This can be seen in examples like (30), which show that plural morphology is possible within the post-nominal modifier, but not the prenominal modifier (Sadler and Arnold 1994):

(30) a. a three foot/*feet high pile
b. a pile three *foot/feet high
c. The pile was three *foot/feet high.

(31) shows that the pseudo-resultative patterns in the same way as post-nominal modifiers[9]:

(31) Mary piled the books three *foot/feet high.

The same is true of resultative and depictive secondary predicates:

(32) She$_i$ entered the school [three *foot/feet tall]$_i$ (and left a foot taller). (Subject Depictive)

(33) They built the tower$_i$ [thirty *story/stories high]$_i$. (Resultative)

3.5 The Semantics of Pseudo-Resultatives

In the derivation proposed, the pseudo-resultative adjective combines with the root before the root itself combines with any categorizing head such as *v* or *n*. At this point, following Arad (2003), all denotations of the root are accessible for the composition of the adjective and the root[10]. One can think of the root as providing a menu of possible denotations from which an element which composes with it must select, such as in (34), where *x* is a variable of type e, over individuals, and *e* is a variable over type s, over events:

	denotation	example usage
(34)	λx_e.braid(x)	'a braid', 'to braid' (implicit creation verb)
	λe_s.braid(e)	'to braid' (explicit creation verb)

[9] I would like to thank Chris Collins for bringing this contrast to my attention.

[10] See section 5.1 for more details on Arad's proposal and the implications for the data considered here.

The denotation as predicate of individuals in (34) would be the one found when $\sqrt{}$braid is found in a nominal environment in cases like *a braid*. The direct merge with *v* would be the denotation of the activity with its 'manner' specified by the root, which corresponds to *braid* as an explicit creation verb as in (35):

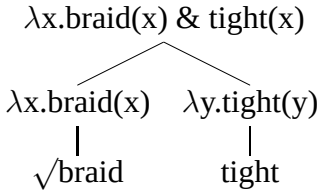
(35) She braided Mary a necklace.

Here the root does not denote the created object; instead the goal argument is contributed by the direct object, here *a necklace*. The root describes the manner in which the necklace was created, by braiding, rather than beading, for example.

This is in contrast with implicit creation verbs, where the root must bear a relation to the source DP, i.e., the material that makes up the braid. In such cases, the root is embedded in a prepositional structure before being embedded in a verbal environment. Since the root of the verb denotes a created object, the predicate of individuals, not the predicate of events, will be selected.

Thus in some cases, the root may be directly merged with so-called 'categorizing heads', as has been proposed for manner modification of *v* (Marantz 2005), or may be merged first with other material, such as a complement or modifier of the root. Whatever first merges with the root will combine with any available denotation that it can compose with. In the case of pseudo-resultatives, since the root *braid* will include a property denotation mapping individuals to truth values, of type <e,t>, the adjective, also a property of type <e,t>, can combine via intersective modification:

(36)



This constituent will be of the same type as the root alone, <e,t>, and thus the semantic composition can continue in the same manner as when the pseudo-resultative is not present.

Since at a later point in the derivation the root will be embedded within a verbal environment, it must be compatible with a categorizing *v* head higher in the structure. That is, the denotation that is selected by the adjective must also be a denotation that is compatible with the particular *v*. The denotation of the root accessed by the adjective is also consistent with the denotation of the root in the verbal structure.

4 Pseudo-Resultatives vs. Resultatives

In section 3, I proposed that the resultative semantics contributed by pseudo-resultative predicates is of a different nature from that of resultatives, in that the former only modify a resultant individual, while the latter modify, or even supply, a resultant state. This difference in semantics predicts differences in the syntax of these constructions as well. In this section, I show the differences between the resultative construction as it has been analyzed in the literature and the proposal given here for pseudo-resultatives.

4.1 Source of Resultative Semantics

Resultative predicates are introduced into the sentence along with additional causative semantics that are not inherent to the main verbal predicate. Dowty (1979) provides a complex predicate analysis of resultatives, whereby a rule relates the adjective with the verb along with the addition of causative and inchoative semantics. Kratzer (2005), adopting a small clause syntactic approach to resultatives, argues that the resultative semantics for the construction come from a causative head which relates the result state with the event of the verb. In both, the causative semantics is introduced by the 'construction', either via a rule or a causative head, so that there is causativity present in (37b) that is not present in (37a):

(37) a. She drank the tea. (no causative semantics)

b. She drank the teapot empty. ≈ Mary caused the teapot to become empty by drinking from it.

However, sentences with pseudo-resultative predicates do not have any additional causative or resultative semantics that is not already present in the sentence lacking the modifier:

(38) a. Mary braided her hair. ≈ Mary caused her hair to be in a braid.

b. Mary braided her hair tight. ≈ Mary caused her hair to be in a tight braid.

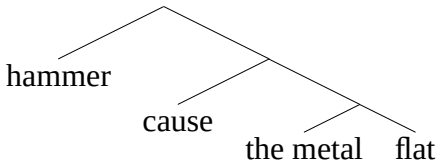
The causative semantics that are present are independent of the presence of the pseudo-resultative predicate. The resultative-like interpretation comes from the fact that the modifier modifies the created object implied by the verb. Since the predicate modifies the created object, which does not exist until the event has taken place, the predicate has a result-modifying interpretation.

This difference between resultatives and pseudo-resultatives is captured by the fact that the pseudo-resultative comes into the derivation as a predicate modifying the root, without contributing an additional state and unaccompanied by an additional causative head. This is in contrast with the semantic analyses of resultative semantics found in Dowty (1979) and Kratzer (2005).

4.2 Syntactic Contrasts

Two prominent traditions in the syntactic analysis of resultatives are the 'small clause' analysis (Kayne 1985, Hoekstra 1988, Kratzer 2005) and the 'complex predicate' analysis (Marantz 1989, Larson 1991, Carrier and Randall 1992, Embick 2004). In the small clause analysis given by Kratzer (2005), the resultative predicate is the predicate of a small clause which the 'object' DP is a subject of, as in (39). The causative head relates the small clause to the event introduced by the verb.

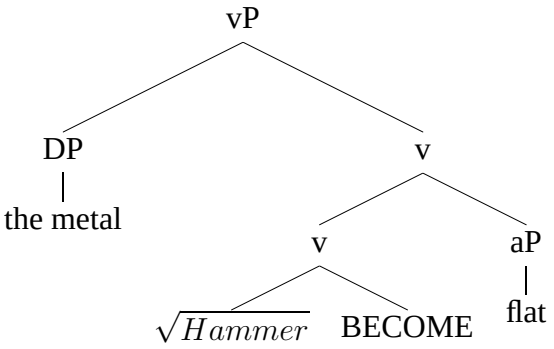
(39)



In the complex predicate analysis as presented in Embick (2004), the verb mediates a predication relation between the object DP and the adjectival predicate[11].

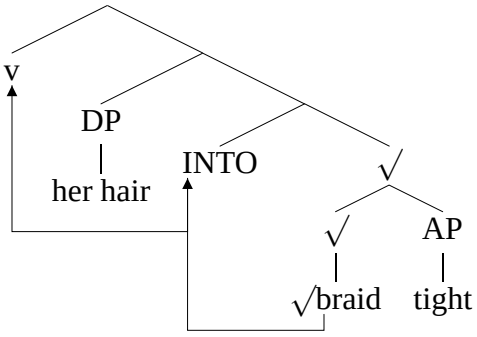
[11] Embick (2004) calls the BECOME operator 'FIENT' to dissociate it from BECOME operators which have telicity entailments.

(40)



For both structures, the syntactic relation between the adjectival predicate and the verb and direct object differ from that provided here for pseudo-resultatives:

(41)



Such structural differences predict correlated syntactic differences both within and across languages. In the rest of this section it will be shown how these predictions are borne out.

4.2.1 The Morphology of Pseudo-Resultatives

The syntactic differences between resultatives and pseudo-resultatives presented above predict morphological and syntactic differences between the two types of predicate within a language. This cannot be seen in English, since there is no case or agreement marking on adjectives. However, it can be seen in other languages such as Finnish and Norwegian that this is borne out.

Finnish In Finnish, resultative predicates of different types are all marked with translative case, as in (42):

(42) Finnish:

a. Mari joi teekannu-n tyhjä-ksi.
Mari drank teapot-ACC empty-TRANSL
'Mari drank the teapot empty.'

b. Mari hakkasi metalli-n litteä-ksi.
Mari.NOM hammered-ACC metal-ACC flat-TRANS
'Mari hammered the metal flat.'

c. Mari nauroi itsensä käheä-ksi.
Mari laughed herself hoarse-TRANS
'Mari laughed herself hoarse.'

d. Joki jäätyi kiinteä-ksi.
river froze solid-TRANS
'The river froze solid.'

e. Tuuli jäädy-tti joe-n kiinteä-ksi.
wind freeze-CAUS river-ACC solid-TRANS
'The wind froze the river solid.'

However, in examples like (43a), translative case is not possible:

(43) a. * Mari leti-tt-i hiuksensa tiuka-ksi.
Mari braid-CAUS-PAST hair-ACC.POSS tight-TRANS

b. * Jussi sitoi kengännauhansa tiuko-i-ksi.
Jussi tied shoelaces-ACC.POSS tight-PL-TRANS

c. * Mari kasasi tyynyt korkea-ksi.
Mari piled pillows high-TRANS

These examples semantically fall into the class of pseudo-resultatives, since the predicate would not be modifying the direct object as a result. Some of these sentences can be formulated with an adjectival predicate, however the adjective must be marked with illative, rather than translative, case[12]:

(44) a. Mari leti-tt-i hiuksensa tiukka-**an**.
Mari braid-CAUS-PAST hair-ACC.POSS tight-ILL
'Mari braided her hair tight.'

b. Mari sitoi kengännauhansa tiukka-**an**.
Mari tied shoelaces-ACC.POSS tight-ILL
'Mari tied her shoelaces tight.'

[12]The example in (43c) cannot be formulated with illative case:

(1) * Mari kasasi tyynyt korkea-an.
Mari piled pillows high-ILL
'Mari piled the pillows high.'

As in English, the adverb is not possible either:

(2) * Mari kasasi tyynyt korkea-sti.
Mari piled pillows high-ADV
'Mari piled the pillows high.'

It is not clear why an illative-marked adjective is not possible in (1). Nevertheless, the lack of availability of translative case in this and other cases supports the conclusions drawn above regarding English and the contrasts between resultatives and pseudo-resultatives.

This shows morphological support for the contrast in structure between resultatives and pseudo-resultatives[13][14].

As mentioned in fn. 7, the same roots that form implicit creation verbs sometimes can also form explicit creation verbs, where the goal is realized as a direct object and the source argument is optional:

(45) She braided a necklace (out of wire). (i.e., a necklace was created by braiding)

For such cases, it is predicted that pseudo-resultatives are possible on the implicit creation verb reading while true resultatives are also possible with the explicit creation verb reading. This is supported by the fact that, in Finnish, translative case is possible when the created object is realized as the DP object argument of the verb:

(46) Mari leti-tt-i leti-n tiuka-ksi.
Mari braid-CAUS-PAST braid-ACC tight-TRANS
'Mari braided the braid tight.'

Norwegian A contrast between the morphology of resultative predicates and pseudo-resultative predicates can also be found in Norwegian. In Norwegian, resultative predicates are not marked

[13]Some speakers accept illative case marking also in cases like (13), which seems to receive a manner adverb interpretation:

i % Mari juoksi nopea-an.
Mari ran quick-ILL
'Mari ran quick.'

ii Mari juoksi nopea-sti.
Mari ran quick-ADV
'Mari ran quickly.'

However, illative case marking is not generally available for manner adverbs:

iii * Mari juoksi hitaa-seen.
Mari ran slow-ILL
'Mari ran slow.'

iv Mari juoksi hitaa-sti.
Mari ran slow-ADV
'Mari ran slowly.'

[14]Some of the examples that are possible as pseudo-resultatives in English are possible with resultative morphology in Finnish:

i. a. Mari viipal-o-i leivä-n ohue-ksi.
Mari slice-CAUS-PAST bread-ACC thin-TRANS
'Mari sliced the bread into thin slices.'

b. Mari silppusi persilja-n hieno-ksi.
Mari chopped parsley-ACC fine-TRANS

This may be due to a difference in the specifics of the verbs and/or adjectives and the grammatical realization of these concepts in Finnish vs. English.

with any special case. However, they do exhibit adjectival agreement with the argument that they modify, as shown in (47). In the case of pseudo-resultatives, no such agreement is found (48). Instead there is default singular neuter agreement, no matter the phi-features of any DPs in the sentence (49). In order to illustrate this, all of the objects given have phi-features other than singular neuter, so that such morphology must indicate the default. [15]:

(47) a. Marit drakk flaskene tomm-e.
Marit drank bottle-DEF.PL empty-PL
'Marit drank the bottle empty.'

b. Marit banket dem flat-e.
Marit hammered them flat-PL
'Marit hammered them flat.'

(48) a. * Marit flettet krøllene sine stramm-e
Marit braided curls-DEF.PL REFL tight-PL
'Marit braided her curls tight.'

b. * Marit knøt skolissene sine hard-e
Marit tied shoelace-DEF.PL REFL hard-PL
'Marit tied her shoelaces tight.'

c. * Marit stablet putene høy-e
Marit piled cushions-DEF.PL high-PL
'Marit piled the cushions high.'

(49) a. Marit flettet krøllene sine stram-t
Marit braided curls-the REFL tight-NEUT.SG
'Marit braided her curls tight.'

b. Marit knøt skolissene sine hard-t
Marit tied shoelace-DEF.PL hers-PL hard-NEUT.SG
'Marit tied her shoelaces tight.'

c. Marit stablet putene høy-t
Marit piled cushions-the high-NEUT.SG
'Marit piled the cushions high.'

Such an agreement contrast is unsurprising, considering the fact that the pseudo-resultative does not semantically modify the direct object. However, Norwegian shows a different agreement pattern than Catalan, where adjectival agreement is also possible with pseudo-resultatives. The two languages must have different syntactic agreement requirements, where agreement in Norwegian may be more sensitive to semantic modification, while Catalan agreement is more purely syntactic Agree operation.

Because there is no morphological distinction between resultatives and pseudo-resultatives in English, there are some sentences which are ambiguous between resultative and pseudo-resultative readings, as was shown in (19) above. As predicted, this ambiguity does not occur when there

[15]Due to the lack of adverb morphology equivalent to *-ly* in Norwegian, it is not trivial to say whether these forms are parallel to morphological adjectives or adverbs in English.

is morphological distinction between the resultative and pseudo-resultative as in Norwegian. In the following Norwegian examples, (50a) with zero agreement on the adjective can only have the resultative interpretation, whereas only a pseudo-resultative interpretation is only available with the default non-zero agreement that marks pseudo-resultatives as in (50b):

(50) a. Marit skjærte kaka tynn-∅.
Marit cut cake-DEF.F thin-M/F.SG
'Marit cut the cake into thin slices.'

b. Marit skjærte kaka tyn-t.
Marit cut cake-DEF.F thin-NEUT.SG
'Marit cut the cake thin.' (i.e., the entire cake is made thin)

4.2.2 Cross-linguistic Availability of Pseudo-Resultatives

The semantic and syntactic differences between resultatives and pseudo-resultatives predict that they might have a different distribution cross-linguistically. As shown by (Mateu 2000), Romance languages such as Catalan lack canonical resultatives (51), but, as shown in in section 2.2.2 and repeated in (52), do have pseudo-resultatives:

(51) a. * El cambrer fregà els plats secs.
the waiter wiped the dishes dry-PL
'The waiter wiped the dishes dry.'

b. * El gos bordà els pollastres desperts.
the dog barked the chickens awake-PL
'The dog barked the chickens awake.'

c. * El riu es congelà sòlid.
the river ES-REFL froze solid-SG
'The river froze solid.'

(52) a. M' he lligat els cordons de les sabates (ben) estrets.
me-DAT have-1st tied the laces of the shoes (very) tight-PL
'I tied the laces of my shoes very tight.'

b. Talla-les menudes.
Cut-them fine-PL
'Cut them fine (i.e., into fine pieces).'

In this section it has been shown that the analysis proposed here makes many correct predictions regarding the contrasts between resultatives and pseudo-resultatives. In the next section it will be shown how the analysis of pseudo-resultatives as modifiers of roots also makes correct predictions, in comparison to an analysis which might analyze implicit creation verbs as denominal and pseudo-resultatives as noun-modifiers.

5 Root-Derived vs. Noun-Derived Verbs

In this section I show further evidence that the implicit creation verbs under consideration are root-derived, rather than noun-derived or 'denominal' in a strict sense.

5.1 Semantic Effects of Categorization

One piece of evidence that implicit creation verbs are root-derived rather than noun-derived comes from the fact that there are verbs such as *chop* for which the zero-related noun does not have a canonical interpretation equivalent to the object(s) created by the event denoted by the verb:

(53) She chopped the parsley fine. $\nrightarrow$ a (fine) chop (of parsley)

Although *chop* can be used as a noun, it is not used to describe the pieces of parsley created by the chopping event. It is in its noun usage more restricted to cuts of meat or the motions of a knife or some other instrument. Arad (2003) argues that such a semantic disconnect between related forms is evidence for independent derivation from the same root, rather than derivation of one form from the other.

Previous to the birth of Distributed Morphology, Kiparsky (1982) argued that, of verbs in English which appear to be zero-derived from nouns, some are actually denominal while others are verbs not derived from nouns. In the framework of Distributed Morphology, this contrast can be viewed as one between noun-derived and root-derived verbs, where the latter are derived directly from a category-neutral root, and the former are derived from a category-neutral root which has already combined with a categorizing *n* head.

Arad shows with evidence from Hebrew and English that, although one root may have different meanings and spellouts associated with it, once the root combines with a categorizing head, the meaning is frozen to be the one that is consistent with that head. The broad range of possibilities for derivation from a root was illustrated in (24). The root can give rise to words of different syntactic categories, with different meanings. However, when there is affixation to an already categorized word, the derived word may only use the denotation associated with that categorization. For example, Arad draws a contrast between root-derived and noun-derived verbs. The root $\sqrt{}$sgr gives rise to many forms, including the noun *misgeret*, 'frame'. There is then a noun-derived verb based on the word *misgeret*, *misger*, which cannot be derived directly from the root $\sqrt{}$sgr. This verb, meaning 'to frame', cannot, for example, also mean 'to close', although 'close' is a verb based on the same root, $\sqrt{}$sgr, in the form of *sagar*. Arad argues that this is a general property of word-derived categories as opposed to root-derived ones, which should extend to English as well, although the morphological derivation from the root to various categories is not always so transparent.

Arad (2003) proposes the following locality constraint, based on Marantz (2000):

(54) Locality constraint on the interpretation of roots: roots are assigned an interpretation in the environment of the first category-assigning head with which they are merged. Once this interpretation is assigned, it is carried along throughout the derivation. (Arad 2003:p.747)

On the current view, there is nothing 'special' about categorizing heads, and on a strict interpretation of the single engine hypothesis, one would not expect to find a special constraint which

applies only to word formation. However, this effect would be expected to emerge from syntactic and semantic composition. While a root may be linked with multiple possible interpretations, on standard assumptions of semantic composition, in order to compose with another element, one of these interpretations must be selected. As the interpretation is built from the bottom up, no changes can be made to earlier stages of the composition. This in essence achieves the effect of the Arad's constraint without making special reference to roots, with the difference that there are no special category-assigning heads with special status to mark a locality domain.

The approaches do, however, make different predictions. If Arad's locality constraint holds as formulated in (54), and *v* is a category-assigning head, then the root $\sqrt{}$braid should not be determined for interpretation until *v* merges. Thus given the structure argued for above, it should be able to vary in interpretation for several 'steps' in the derivation. As I have formulated the constraint here, the interpretation will be set as soon as $\sqrt{}$braid merges with any head that unambiguously selects one of its interpretations. So, when the root merges with INTO, which selects for an element of type <e,t>, then the root must from that point on be interpreted with the relevant type and denotation. Similarly, in case a pseudo-resultative adjective is merged, it will also compose with an element of type <e,t> and thus determine this interpretation of the root. Thus, Arad's constraint predicts an amount of interpretive flexibility in between the point of merge of the root and merge of a category-assigning head for any structure in which the root is not immediately merged with a category-assigning head which my formulation of the constraint does not predict. I have not found any evidence for such variability of interpretation of the root as predicted by Arad within the data covered here, but these predictions must be explored further in future work.

5.2 Irregular Verbal Morphology

On Kiparsky's (1982) view of denominal verbs, irregular past tense morphology is an indication that a word is not denominal. This is based on the assumption that verbs which are built from nouns in the syntax do not have irregular verbal forms listed in the lexicon. Truly denominal verbs will always have regular morphology which is affixed to the nominal form. As proposed by (Rimell 2006), within Distributed Morphology, this can be reinterpreted as evidence for derivation from the root rather than from a noun.

In the composition of implicit creation verbs, it is the predicate of individuals denotation that is initially selected by INTO, yet the final spellout is that of a verbal syntactic context. This can be seen with implicit creation verbs which have irregular past tense morphology such as *grind*:

(55) a. He grinds the coffee fine.
b. He ground the coffee fine.

This irregular morphology is evidence that *grind* is not a denominal verb, but rather is derived from the root.

These data also support the Distributed Morphology hypothesis that there is late insertion of phonological information, since it is the larger syntactic context which determines the spellout of the root. If spellout of a root were determined at merge, then the phonological form would be strictly tied to the selected denotation. However, we see here with the case of *grind* that there is not a one-to-one mapping between the denotation and the spellout.

Alternatively, it is possible that the implicit creation verb context is separately listed for the root and happens to share the same spellout as the explicit creation verb spellout. If this were the case,

we would expect to find a language where the two receive different spellouts. I am not currently aware of any such data.

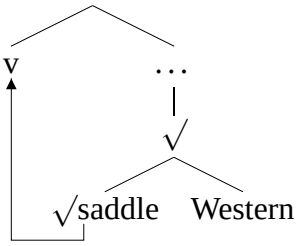
5.3 Modifier Stranding

Arguing against syntactic lexical decomposition of verbs, Kiparsky (1997) poses the question of why sentences like (56) are not possible:

(56) * She saddled the horse Western.

That is, if the roots of verbs are syntactically active, why can't they be modified and 'stranded' such that (56) has the structure in (57)?

(57)



I have shown evidence here that such structures do exist, in the case of pseudo-resultatives. However, it remains that these are limited to the class of implicit creation verbs, and are not possible with locatum verbs like *saddle*. It is clear that no resultative-like semantics would be possible in a sentence such as (56), since there is no created individual to be modified. However, there is no a priori reason that a depictive-like interpretation should not be possible, especially if we use a stage-level predicate such as *wet*, which cannot receive this interpretation either, though it otherwise is a possible depictive predicate:

(58) # She saddled$_i$ the horse wet$_i$.

This is a puzzle regarding the source of the semantic restrictions on root modification which remains to be solved.

However, it may be that the restriction is in particular related to the possibility of stranding the adjective when the root merges with the verb. Note that it is possible to form a nonce compound verb from *saddle* and a modifier:

(59) She Western-saddled the horse.

If such a compound is derived from modification of the root, then this means that root modification is possible, but stranding of the modifier is what is semantically restricted to implicit creation verbs.

6 Syntactic Parallels

The syntactic proposal here makes sentences such as (60) very much like sentences such as (61):

(60) She braided her hair (tight).

(61) She made her hair into a (tight) braid.

(61) is essentially a syntactically less conflated version of a sentence with an implicit creation verb, with an overt *into* instead of INTO and the same source and goal arguments. With implicit creation verbs, the goal merges with *v*, but in (61), *v* is spelled out as *make* and the goal is realized as a DP argument. These similarities predict further syntactic and morphological parallels between sentences with implicit creation verbs and those in (61), as opposed to other paraphrases such as in (62):

(62) She made a (tight) braid out of her hair.

In this section I will show how this prediction is borne out, and also show that sentences like (62) pattern similarly with explicit creation verbs.

6.1 Finnish Illative Case

As shown in section 4.2.1, Finnish pseudo-resultatives are marked with illative case. This illative case marking relates in this and other contexts to the INTO head proposed in the structure of implicit creation verbs. In the Finnish parallel to (61), the created object and its modifier are also marked with illative case, just as the English example has an overt instance of the preposition *into*, as seen in (63):

(63) a. Mari leti-tt-i hiukse-nsa tiukka-**an**.
Mari braid-CAUS-PAST hair-ACC.POSS tight-ILL
'Mari braided her hair tight.'

b. Mari pisti hiukse-nsa (tiukka-**an**) letti-**in**.
Mari put hair-3SG.POSS (tight-ILL) braid-ILL
'Mari put her hair into a tight braid.'

This supports the hypothesis that sentences like (63a) are derived from an underlying structure that is very similar to that in (63b).

6.2 Availability of Passive

Also predicted by the structure for implicit creation verbs is the availability of passivization of the source argument. This is in fact possible, as opposed to failure of source passivization in the structure with the created individual as direct object:

(64) a. **The string** was braided by Mary.

b. **The string** was put/made into a braid by Mary.

(65) a. * **The string** was made a braid out of by Mary.

6.3 Unavailability of Low Applicative Arguments

The structure for goal verbs as implicit creation verbs predicts that they differ syntactically from explicit creation verbs, since the relationships expressed in the decomposition of the verbs with source direct objects would be distinct from those with goal direct objects. One way in which this contrast is borne out is in the unavailability of low applicatives (or 'double objects') with implicit creation verbs:

(66) a. * I braided Mary the string. (where 'string' is the source, or object being braided
b. * I put/made Mary the string into a braid.

This is in contrast with a structure in which the goal is the direct object, either in the paraphrase or with an explicit creation verb:

(67) I made Mary a braid out of her hair.

(68) I braided Mary a necklace. (where the 'necklace' is the goal, or the created individual formed by braiding)

6.4 Availability of Depictives

Another way in which this is borne out is in the availability of object depictives. These are available as modifiers of the goal object:

(69) a. I braided her hair$_i$ (tight) wet$_i$.
b. I made her hair$_i$ into a braid wet$_i$.

However, they are not possible as modifiers of the source embedded in a PP, or of goal objects (which in any case do not exist at the beginning of the event):

(70) * I made a braid out of her hair$_i$ wet$_i$.

(71) * I braided her a necklace$_i$ wet$_i$.

6.5 Obligatory Arguments

The structure for goal verbs given above predicts that, as the verb *make* in the relevant paraphrase requires two DP arguments, the goal verb requires one. This is due to the fact that the preposition in both structures requires two arguments, whether the preposition itself is overt or covert. In the case of goal verbs, one of these arguments is realized as the verb. In the case of *put*, or *make* in the relevant usage, both arguments are realized as DPs.

(72) a. I braided *(her hair).
b. I put/made *(her hair) into a braid.

Make with a created individual object or *braid* as an explicit creation verb do not require an overt source argument, again showing that it patterns differently from goal verbs:

(73) I made a braid (with her hair).

(74) I braided a necklace (out of wire).

7 Conclusion

The picture that emerges from the data presented here is one where word-formation is a syntactic process, which proceeds in the same manner as other syntactic phrase building, as proposed with Marantz's (1997) single engine hypothesis. Words which contain lexical material are built from roots, which do not bear categories of the type 'verb' or 'noun' in the lexicon, but rather form their own category of lexical root, a syntactically well-behaved category in their own right. The manifestation of syntactic categories such as 'verb' is a consequence of the syntactic environment in which such roots are merged. However, no new mechanisms are required to handle this categorization.

It has also been shown that the interpretation of the subconstituents of words proceeds in the same manner as other semantic compositions. Such assumptions allow for a compositional analysis of pseudo-resultative predicates, which otherwise appear to be a counterexample to compositionality. Future work in this vein will hopefully be able to shed light on a variety of apparent puzzles for compositionality which find a solution in recognizing the syntactic and semantic import of roots.

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