Smaller syntax for English stative passives: A first report

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Abstract: One of the basic questions in the theory of morphology concerns the nature of word formation: how morphemes are assembled into larger objects, and—- crucially—- whether there are distinct systems in which this occurs (lexicon versus syntax), or just one. Stative (a.k.a. "adjectival") passives like *opened* in *the opened door*, or *flattened* in *the metal is flattened*, have provided an interesting testing ground for questions of this type. Following a period in which such passives were argued to be formed lexically, much subsequent work has developed the idea that they are derived syntactically, in fully phrasal structures. This paper examines a number of properties of English stative passives which raise problems for a fully phrasal treatment. These include (but are not limited to) (i) modification asymmetries relative to eventive passives; and (ii) interactions with *un*-prefixation. The generalizations that are revealed suggest that stative passives are built syntactically, but without phrasal internal structure: what I call *small(er)* syntax. Importantly, small structures are not tantamount to a lexical analysis; I provide a direct comparison that argues that the evidence favors the smaller type of approach. The argument for small structures also has implications for the syntax of Roots that are introduced throughout the discussion.

KEYWORDS: Word formation, syntax vs.lexicon, stative passive, Roots, complex head

1 Introduction

One of the more salient moves in recent grammatical theory is a turn (perhaps a return) to *syntactic* approaches to morphology. Theories that have adopted this position hold that the derivation of all complex objects is syntactic; that is, this work is not split between the syntax and the lexicon. Being syntactic in this sense does not, however, necessarily mean being *phrasal*. To the extent that the theory allows operations that produce internal complexity in heads– what I will refer to here as *smaller syntax*– it is in principle possible for something to be syntactic (=internally complex and

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built in the syntax) but not have phrasal structure. The question of whether operations on heads are in fact part of the syntax is controversial; for theories that allow them, so is the question of precisely how they operate. Abstracting away from these details, the question I focus on in this paper is whether there is evidence in favor of the existence of smaller syntax. Since it is uncontroversial that something like a phrasal syntax is required, the addition of smaller structures must be proven, not assumed.

This paper develops an argument for smaller structures in the domain of stative passives: the participles in *the **unopened** box* or *This tomato is**flattened***. These participles (referred to as "adjectival passives" in much of the literature) figure prominently in a number of discussions of how to divide labor between the lexicon and the syntax, following Wasow (1977) and related work connected to Chomsky (1970). By the time of Levin and Rappaport (1986), perhaps the most prominent view of adjectival passives assuming Government and Binding theory, the central research question was how to make a single lexical rule produce differences between these participles and their verbal passive counterparts. A subsequent shift in another direction occurs in Kratzer (2001), Embick (2004) and related work. Though differing in starting assumptions and focus, both of these papers argue that (at least some) stative passives are formed in the syntax, when a stativizing participle head takes a phrasal complement, an idea that is incorporated in different ways in various subsequent lines of research; see Paparounas (in prep) for review and discussion.

1.1 Analytical focus

The re-examination at the heart of this paper (§§3-4) compares the predictions of three types of approaches. Two are syntactic: one phrasal, and the other small. The third uses lexical rules to derive stative passives in the lexicon. I will conclude that the smaller approach is better than either alternative. The arguments for this conclusion are based on patterns of modification, understood in a very broad sense to include secondary predicates and other types of phrases. In a way that is explained below, both phrasal and lexical analysis make incorrect predictions about how different modifiers interact with stative passives. The small analysis, on the other hand, is able to account for the relevant generalizations in a straightforward way.

Some of the observations and arguments that are considered in §§3-4 have been noted in the literature, but their implications have not been examined in detail. One of my primary goals is thus to synthesize a number of different lines of argument with the phrasal versus small versus lexical comparison in focus. The focus in this paper on modification here leaves to the side another set of effects that has played a role in the literature on stative passives: argument-licensing patterns. As has often been discussed, stative passives do not appear to license the same arguments as the corresponding eventive passives do: cf. *The customers were/*remained shown a new car*. This kind of asymmetry is used in Embick (2004) to motivate something that approaches a small analysis of stative passives; I will touch on this point in §5. While I believe that such patterns may very well constitute an additional argument in favor of a small analysis, it is not possible for me to look at them in detail in this paper, primarily for reasons of space. The present work is thus a first report in the sense that it limits itself to arguments based on modification; I hope to examine argument-licensing and related phenomena (e.g. complementation) in detail in a companion piece.

1.2 Theoretical implications

The analytical core of the paper argues that English stative passives are built syntactically, but small. The implications of this argument concern both these structures themselves, and important develop-

ments in the theory of Roots and their distribution. The following summary points provide context:

- ***Smaller structures:*** As noted earlier, the question of whether syntactic objects can be built in a non-phrasal way has been controversial, as is the larger question of whether the syntax employs operations that combine heads. The demonstration that there are phenomena for which small structures offer better explanations than either phrasal or lexical alternatives provides an empirical basis for incorporating them into syntactic theory.[1]

- ***The syntax of Roots:*** An important question in the syntax of Roots is whether they are the heads of phrases or not. The clearest negative answer to this takes the form of the hypothesis that Roots enter the syntax only by virtue of being adjoined directly to a categorizing head, producing a small structure. The results of this paper provide support for this view. Roots like $\sqrt{\text{FLAT}}$ in *The metal is flattened* behave differently from superficially similar XPs, like the one containing *flat* in *The metal is hammered flat*. The relevant differences are shown to follow if Roots enter the syntax in the small way.

The findings presented here pave the way for a more general line of inquiry that asks which cross-categorial derivations are small. I discuss this and some related implications of the paper in §5.

2 Preliminaries

As a precursor to the main argument, I will first present two types of background information. The first (§2.1) concerns what it means to be *small* in the sense that I intend. The second (§2.2) defines the three types of analysis that are to be examined in this paper, setting the ground for the comparisons undertaken in §§3-4.

2.1 Smaller structures and Roots

Small derivations of the type I have in mind are posited in a line in my own work Embick (2004, 2009, 2016); they also play an important role in Marantz's (2009) analysis of the English *re*-prefix. The implications of a specific type of small analysis are worked out in the most detail by Wood (2023), who argues for this kind of structure for certain nominals in Icelandic.[2] For Wood, these nominals, which have more than one interpretation, are associated with a single structure in which a verbalized Root is directly attached to an n:

(1) small deverbal noun

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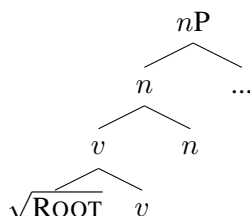
[1]For some relevant context, Chomsky (2001) argues that Head Movement is not a syntactic operation. If the "direct attachment" producing smaller structures is simply the binary version of a unary movement operation like Head Movement, it would be eliminated from the syntax as well on this view.

[2]The nouns in question are typically called *complex event nominals*. Cf. Grimshaw (1990) and much related work; for a recent case-study from German, see Benz (2021).

Syntactically speaking, the key idea in (1) is that these nominalizations contain a verbalizing head v, but not a vP.

This way of thinking about smaller structures is one component of a more general theory of derivational morphology, where a central question concerns how *Roots* are merged into the syntax (see Embick 2021 and references cited there). Some early work adopting Roots assumes that they project phrasal structures, in the same way that other heads do. Without getting too much into the origins of this particular view, a more recent line of work has argued that Roots do not in fact project phrasal structure; this hypothesis is stated in a general form in (2):

(2)   ROOT HYPOTHESIS: Roots do not project phrasal structure.

The Root Hypothesis is proposed in Marantz (2009) where– as is the case in the discussion to come– part of what is at issue is why modification possibilities appear to be sensitive to something that looks like a "word versus phrase" distinction: if all derivation is syntactic and phrasal, it is not clear why this type of sensitivity should be found.

Some further assumptions are required to implement the hypothesis in (2). In line with Embick and Marantz (2008), I will assume that Roots are always *categorized* by a morpheme like v, or n, or a. The technical question is how Roots combine with such heads, if they are not in phrasal projections from which they could move to them. For reasons that are discussed later in the paper, the Embick 2004 analysis of stative passives employs an operation called there *direct merge* (which is perhaps more accurately called *direct head merge*), which attaches a Root directly to a categorizing v head to produce an object that is itself a head (though an internally complex one). So, for example, the verb and resultative part of *hammer the metal flat* are analyzed as in (3):[3]

(3) vP of *hammer flat* in Embick 2004
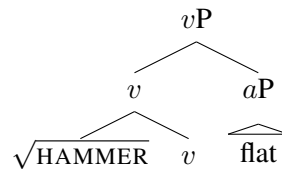
A syntactic operation that attaches heads to heads is also used in the analysis of English *do*-support in Embick and Noyer (2001), where *do* realizes a v head that is attached to T to form a complex head.

Generalizing the idea that Roots do not project has the consequence that in e.g. a "simple" transitive vP, the phrasal structure for $\sqrt{\text{KICK}}$ in (4) is abandoned in favor of the non-phrasal Root merge shown in (5):

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[3]The Embick (2004) account also posits special interpretive rules for the semantics of direct merge for reasons that are internal to that account.

(4) phrasal Root

```
            vP
          /    \
         v      √P
              /    \
          √KICK    DP
                  /  \
               the ball
```
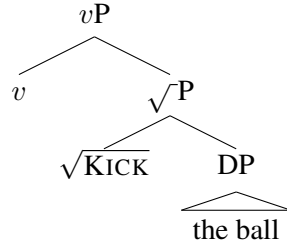
(5) Root directly attached to v

```
            v
          /    \
         v      DP
       /   \   /  \
   √KICK   v  the ball
```
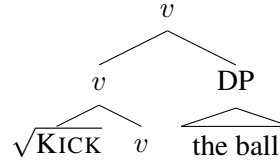
It is not my intention here to dwell too much on the mechanical details of the head-attachment operation here. For the discussion to come what is important is that there be some way of creating syntactic objects that are internally complex but not phrasal, and there are different ways of doing this that could be explored. It suffices for this paper 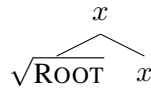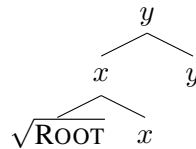to outline a few assumptions that might play a role in such approaches, in the event that they prove useful in attempts to further formalize this approach (or related alternatives).[4]

The first assumption is that terminals v, n, etc. are of the type *head*, as are Roots. The second is that direct-attaching a head to another head produces an object of type head, as shown for a Root and x in (6). If it is further assumed that this process can be repeated, a complex head can be attached to another object of type head, or have a head attached to it, to produce heads like (7) ("category changing"), or (8), where a prefix has been added to a categorized Root:[5]

(6) (Complex) head

```
        x
      /   \
   √ROOT   x
```

(7) category changing

```
          y
        /   \
       x     y
     /   \
  √ROOT   x
```

(8) prefixation

```
          x
        /   \
      pr     x
           /   \
        √ROOT   x
```
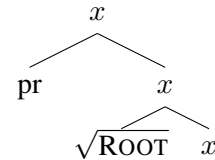
An important final assumption is that if a head combines with something that is unambiguously phrasal, like YP in (9), the result is phrasal:

(9) phrasal structure

```
            xP
          /    \
         x      YP
       /   \   /  \
   √ROOT   x  ...Y...
```
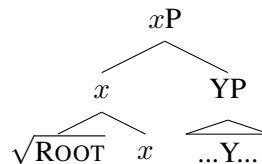
As noted above, there are different ways of formalizing an operation that produces the effects

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[4]On a related note, cf. Lieber (1992); her syntactic approach to morphology assumes that words have complex internal structure that is created by allowing the $\overline{\text{X}}$ schema to recurse on the X^0 level.

[5]The kinds of prefixes that I have in mind here are of the non-category-defining type; e.g. those seen in *be-moan*, *de-stroy*, *re-ceive*, and so on.

outlined above. For my purposes, what is important is that the structures in question are derived syntactically, and that they are not phrasal.

With this working idea of smaller structures at hand, it is now possible to frame the comparisons that occupy the heart of the paper.

2.2 Stative passive: Three possibilities

Starting with the syntactic possibilities, what it means for a stative passive to be *phrasal* versus *small(er)* in the sense that I intend to compare reduces to complement size for the stativizing head, which is given as *Stat*: a phrasal analysis has this head taking a phrasal complement, as shown in (10):[6]

(10) Phrasal syntactic

$$
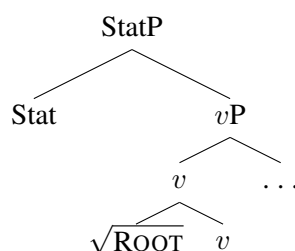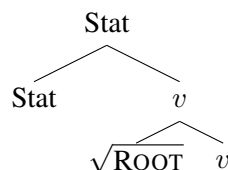\begin{array}{c}
\text{StatP} \\
\diagdown \\
\text{Stat} \qquad v\text{P} \\
\diagdown \\
v \qquad \ldots \\
\diagup\diagdown \\
\sqrt{\text{ROOT}} \quad v
\end{array}
$$

The crucial difference between (10) and a small analysis is the status of Stat's complement; on a small analysis it is internally complex but non-phrasal, as shown in (11):[7]

(11) Smaller syntactic

$$
\begin{array}{c}
\text{Stat} \\
\diagup\diagdown \\
\text{Stat} \qquad v \\
\diagup\diagdown \\
\sqrt{\text{ROOT}} \quad v
\end{array}
$$

Both of (10-11) are vague with respect to certain properties; in particular the presence or absence of other heads (e.g. Voice) often found with verbs. This is because my main concerns are not on which heads are found, but on the phrasal-or-not comparison.

In the interest of clarity, it bears repeating that when I say 'the phrasal analysis of stative passives,' what is at issue is the status of Stat's complement. On both (10) and (11) there is ultimately a stative passive phrase. For this reason, I will sometimes use the term '(phrasal) vP analysis' to refer to the alternative in (10).

Along with these two types of syntactic analysis, it is also important to consider a lexical derivation of stative passives, as schematized in (12). There might be more than one rule involved here if e.g. a passive formation rule precedes a stative formation rule; what is important for my purposes is that all of this action take place in the lexicon, not the syntax:

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[6]Based on the fact that the Stat head shows irregular (i.e. Root-conditioned) allomorphy (in a way that is identical to what is found with eventive passives), I analyzed it as non-cyclic in the phase sense in earlier work (Embick 2003, 2010). The question of how such cycles work in 'small' objects is discussed in Embick (2016) and Wood (2023).

[7]Here and at various points below I am showing the Stat head linearly on the left to facilitate the exposition; it is in fact realized suffixally (*vapor-iz-ed*).

(12) Lexical (Lex)

[Verb] $\xrightarrow[\text{Rule(s)}]{\text{Lexical}}$ [Stativized Verb]

On this view, a stative passive enters the syntax as a kind of derived adjective, and is simplex (i.e., it is a terminal node).

2.3 Plan

The focus of §3 is on the phrasal versus small comparison, with case-studies that examine modification possibilities and *un*-prefixation. In §4 I develop a small versus lexical comparison. A lexical analysis shares certain predictions with the small analysis: both of these hold that there is no phrasal *v*P in stative passives. However, other interactions– in particular, those between stative passivization and Resultative Secondary Predicates– provide a crucial testing ground that provides evidence in favor of small syntax.

3 Small versus phrasal

This section compares the phrasal and small analyses, in the context of different types of modification. Before getting to the comparison itself, some comments are in order concerning (i) what is meant by *modifier*, and (ii) how modification possibilities can be tested.

On the first point, I am using the term *modification* in a broad sense, so that it covers both typical modifiers (e.g. Adverbs and adjunct prepositional phrases) and other phrases in addition to these (e.g. Resultative Secondary Predicates, and very briefly the Agentive *by*-phrase). The basic question is whether stative passives behave with respect to all of these in a way that is typical of structures with *v*Ps like actives and eventive passives.

On the second, point, there are some important factors that must be considered when examining modification in stative passives. These involve differences between how participles behave in attributive versus predicative position. As shown in (13), both of these are possible for stative passives:

(13) a. The **opened** door allowed in a gust of fresh air.
      b. This door is **opened**.

While many prior discussions freely alternate between examples with attributive and predicative participles in motivating particular analyses, there are two reasons to believe that these positions differ in crucial ways. The first is that different interpretations are available in the two positions. In predicative position, verbs that have a natural end state associated with them are felicitious (14a), while those that do not are deviant (14b):

(14) a. The boxes are flattened/packed/opened.
      b. #The boxes are kicked/licked/watched.

However, the same verbs that are deviant in (14) are perfectly felicitous in attributive position:

(15) The violently kicked boxes rolled towards the exit.

Although I cannot go into the interpretation in detail here, the generalization appears to be that stative passives have only a state reading when in predicative position; this is something like a *target state*: the state that the event associated with the verb ends in (cf. Kratzer 2001 and Parsons 1990). However, in attributive position, they have both this stative interpretation and one that is eventive (which has a relation to what Kratzer and Parsons call the *Resultant State* interpretation). The eventive reading is often more salient when there is adverbial modification, as there is in (15).

The second difference between attributive and predicative use of participles is syntactic. In predicative position, post-participle phrasal modifiers are syntactically licit, as shown in (16a). However, such modifiers are uniformly ungrammatical in attributive position (16b). This is a manifestation of a larger generalization about English syntax, which is that post-modifier material is disallowed in attributive position (16c):

(16)   a. This door is painted [with the new model 90 brush].

    b. *The painted [with the new model 90 brush] door looks amazing.

    c. *The cooked [in an oven] fish; *The proud [of her son] woman ...

The upshot of these observations is that many of the modifiers examined below are XPs, and must therefore be examined in predicative position, where participles have only the target state interpretation. More generally, I interpret the facts just outlined as indicating that there is a single syntactic object– what I refer to as a *stative passive*– that can be interpreted both statively and eventively. The primary claim of this paper is that when this structure appears in predicative position, where it is only interpreted as a state, it does not include phrasal structure.

Turning now to the heart of the comparison, I will begin by reviewing the modification-based arguments for phrasal stative passives in §3.1, and then re-examine these in the light of further facts in §§3.2-3.3.

3.1   Review: Arguments for a phrasal analysis

The points to be considered here are developed in two papers that argue for phrasal structure in stative passives, Kratzer (2001) and Embick (2004).[8] The arguments are based on adverbial modifiers, and on Resultative Secondary Predicates (RSPs), of the type seen in *Susan hammered the box flatter than a pancake*. I will review each in turn.

Kratzer uses adverbs like *schlampig* 'sloppily' to contrast stative passives with 'pure' statives, i.e. adjectives; modification of this type is possible with the former, not the latter:

(17)   Stative passive versus adjective

    a. Die Haare waren immer noch schlampig gekämmt.
        the hairs were still   sloppily combed
        'The hair was still combed sloppily.'

    b. *Die Haare waren schlampig fettig.
        the hairs were sloppily   greasy
        'The hair was greasy sloppily.'

The argument is that since adverbs like *schlampig* cannot modify adjectives like in (17b), it must be the case that the adverb is attached lower than the stativizer: that is, to a phrasal vP in the terms

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[8]For unpublished earlier versions of each of these approaches see Kratzer (1994) (discussed in von Stechow 1996) and Embick (1997).

adopted here. Since the stativizer is assumed to apply to this entire vP, this type of stative passive must be constructed phrasally.

A second argument is based on the stativization of resultatives, as in (18):

(18)   Die Teekanne ist leergetrunken.
       the teapot   is empty-drunk
       'The teapot is drunk empty'.

The reasoning with the resultative is that stativization has applied to the entire phrase [drink the teapot empty]; on the approach adopted here, to (at least) a vP. The same reasoning plays a role in the Embick (2004) analysis, where all stative passives are phrasal, as shown in (19):

(19)   stative passive in Embick (2004)
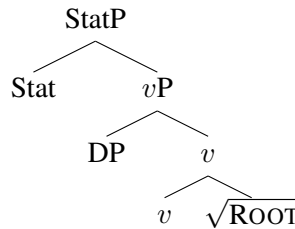
Connecting with §2.1, it is important to note that the Root part of this is not phrasal; as shown in (19), the Root is directly attached to the categorizer v. However, for reasons internal to this account, a DP is posited as the specifier of v, producing a vP that is the complement to the stativizing head. It is this assumption about where the DP is introduced, and not something deeper, that makes this kind of stative passive phrasal; which is to say, if the argument were introduced higher, this stative passive would be small.

Embick (2004), like Kratzer (2001), highlights the observation that stative passives can be formed on verbs with resultative secondary predicates. This is taken as an argument that the stativizing head scopes over phrases– since this is what the verb and resultative are assumed to be– and thus that stative passive formation must be syntactic. The structure that is posited is shown in (20):

(20)   stative passive of *hammer the metal flat*
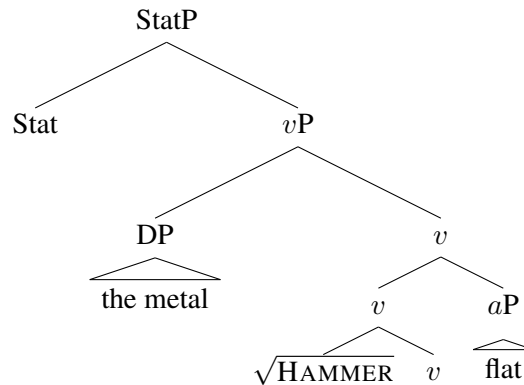
The DP is included inside the vP as in the original. However, unlike what we saw with (19), it is not only the assumption that there is a vP-internal DP that forces a phrasal analysis in (20): it is also

the assumption that there is an aP complement to v (a "complex predicate" analysis) that makes the structure phrasal. Since the aP headed by *flat* is the complement of v, it follows (assuming binary branching) that $\sqrt{\text{HAMMER}}$ has not moved to v from a phrasal RootP. It is thus treated as directly (head) attached, as discussed in §2.

3.2 Modification: A more detailed look

I will now take a closer look at the conclusion that stative passives have phrasal structure. To facilitate the discussion, some initial comments are in order concerning possible attachment sites for modifiers. Structurally speaking, a phrasal analysis makes available the three positions for modifiers shown in (21):

(21) possible modifiers (phrasal account)
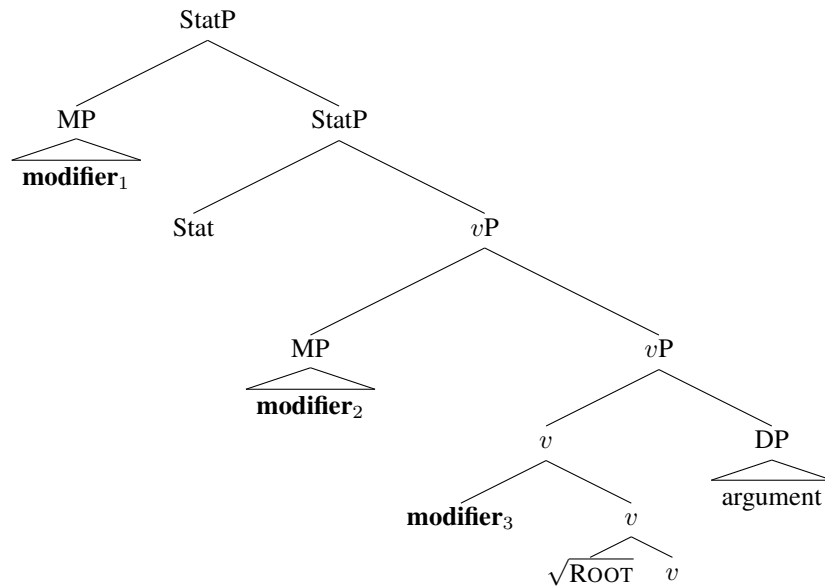
The small analysis, on the other hand, has only two of these:[9]

(22) possible modifiers (small account)

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[9]I am assuming here that the argument is generated either as a specifier of the Stat head, or in that of a higher projection.

```
                        StatP
                   ┌──────┴──────┐
                  MP            StatP
               ┌──┴──┐       ┌────┴────┐
            modifier₁        DP        Stat
                           ┌─┴─┐    ┌────┴────┐
                        argument   Stat        v
                                         ┌──────┴──────┐
                                     modifier₃          v
                                                    ┌────┴────┐
                                                  √ROOT        v
```
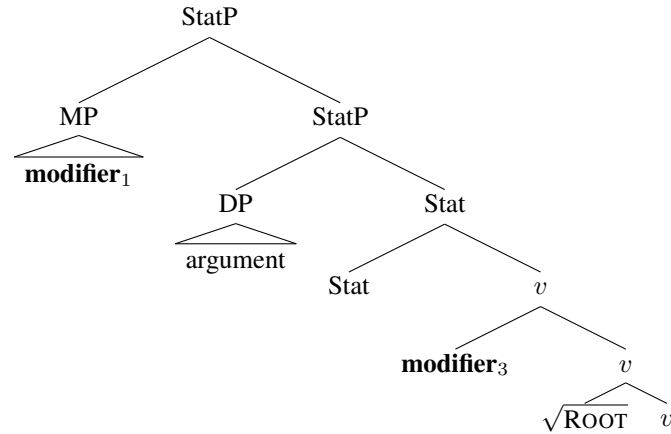
The **modifier**$_2$ position is what is crucially at issue in distinguishing the accounts from one another. Abstractly, the arguments that are advanced below focus on two points. The first concerns the mere possibility of modification– that is, whether stative passives admit the modifiers that occur in typical vPs. The second concerns interpretation. The modifiers in (21-22) are predicted to differ in terms of how they are interpreted, as summarized in (23):[10]

(23) Interpretation

   a. **modifier**$_1$: Modifier of state; indirectly related to vP event.

   b. **modifier**$_2$: Modifier of event   (phrasal)

   c. **modifier**$_3$: Modifier of event   (head)

The facts that are considered in the rest of this section, which concern positions 1 and 2, point to the generalization in (24):[11]

(24) GENERALIZATION: Phrasal modifiers that occur with stative passives are of the **modifier**$_1$ type, not the **modifier**$_2$ type.

That is, such modifiers attach to the StatP, and are interpreted accordingly. The argument is then that this generalization follows from the small analysis, but not from the phrasal alternative.

Before considering new data, a few points are in order concerning the modifier-based argument for a phrasal vP summarized in the last section. Adapting Kratzer's (17) to English, the facts at issue are illustrated in (25), which shows that *carefully* can modify a stative passive but not a simple adjective:

(25) The package remained carefully opened/*open.

This contrast shows that stative passives and pure states differ in at least one way. The question at hand is whether the presence of a vP for adverbs to attach to in the former (and not the latter) is the only possible explanation for this difference. One way of advancing is by asking if there are other phenomena that (i) distinguish between these two types of statives, but (ii) do not plausibly reduce

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[10]The interpretation of **modifier**$_1$ interacts with the attributive/predicative contrast presented at the beginning of this section. In attributives, such modifiers can apply to either the state or event; in predicative position, which I will focus on here, only state modification is possible, as stated in (23).

[11]I will not examine the **modifier**$_3$ type in detail here.

to the idea that stative passives contain a vP. To the extent that there are, it would support the idea that there are alternative explanations of the contrast in (25) to positing a phrasal vP.

As it turns out, there are indeed phenomena of this type. One is *un-* prefixation, which is examined in §3.3 below. Prefixation with *un-* is possible across the board with stative passives (*opened*, *unopened*); but not with adjectives, where it applies to some but not others (cf. *unhappy* but **unopen*). This difference is not one that looks like it could be explained by *un-* having a vP to attach to in *opened* but not in *open*.

A second example of the relevant type is provided by Resultative Secondary Predicates (which are also examined further in §3.3). As can be seen in (26), these secondary predicates must be simple adjectives; stative passives formed on the same Root are ungrammatical:

(26)   a.   Mary hammered the metal flat/*flattened.

      b.   Bill kicked the door open/*opened.

      c.   The assailant shot him dead/*killed.

As with *un-*, it does not look like this contrast derives from the presence of a phrasal vP inside the stative passive participles *hammered*, *kicked*, and *shot*. It clearly has to do with the presence of verbal structure in e.g. *flattened* but not *flat*; but the contrasts in (26) do not require that this be phrasal.

The conclusion to be drawn from these diagnostics is that the grammar distinguishes between stative passives and adjectives with elements above or outside of the stative participle. This means that contrasts in adverbial modification of the *carefully opened/*open* type might be analyzed with the adverb attaching high as well; which is to say, there is an alternative to positing a phrasal vP inside the stative passive for the adverb to attach to. Put another way, phenomena showing sensitivity to the derived/underived state distinction suggest that while the presence of verbal structure (in the form of v) is crucial to differentiate stative passives from adjectives, it does not necessarily follow that there is a phrasal vP.

Given that the vP-attachment and StatP attachment are both plausible analyses for the facts considered to this point, it is necessary to look in detail at whether or not there is evidence in favor of the phrasal vP analysis when additional types of modification are considered. Moving in this direction, a way of illustrating the predictions of the two analyses is by considering other types of cross-categorial derivations. The best-case scenario for a phrasal analysis is that any modifier that can appear in a typical verb phrase (passivized or not) should be possible in the stative passive. This is what is found with gerunds, for example:

(27)   a.   The Romans destroyed the city $\left\{ \begin{array}{l} \text{rapidly} \\ \text{2035 years ago} \\ \text{with fire arrows} \end{array} \right.$.

      b.   The Romans' destroying the city $\left\{ \begin{array}{l} \text{rapidly} \\ \text{2035 years ago} \\ \text{with fire arrows} \end{array} \right.$ ...

      c.   The city's having been destroyed $\left\{ \begin{array}{l} \text{rapidly} \\ \text{2035 years ago} \\ \text{with fire arrows} \\ \text{by the Romans} \end{array} \right.$ ...

12

That is, if it were possible to simply generate a vP and then apply stative passive to it, then (all else equal), no modification differences from typical actives or eventive passives are expected. This is not what is found, though; modification in stative passives (28b) is degraded relative to the corresponding eventive passives (28a):

(28)   a.   The city was destroyed $\left\{ \begin{array}{l} \text{rapidly} \\ \text{2035 years ago} \\ \text{with fire arrows} \\ \text{by the Romans} \end{array} \right.$.

       b.   #The city is destroyed $\left\{ \begin{array}{l} \text{rapidly} \\ \text{2035 years ago} \\ \text{with fire arrows} \\ \text{by the Romans} \end{array} \right.$.

There is a hedge in (28b), in the form of the # judgment. This is because there are circumstances under which certain modifiers of these types are possible. These will be examined as the discussion proceeds. For now, what is at issue is why there should be any differences between (28a) and (28b) in the first place: if they both contain phrasal vPs, this is not what is expected.

One point to pay attention to is that not all of the diagnostics in (28) have the same status. Some, like *with*-instrumentals (and perhaps *by*-phrases), are taken to diagnose the presence of a head introducing external arguments, i.e. Voice. The presence of this head in stative passives is controversial; if it is in fact there (Bruening 2014, Alexiadou et al. 2015), *with* and *by* phrases are expected to be perfectly grammatical.

A further observation is that other types of stativization are in general compatible with most of modifiers of the types seen in (28). This can be seen for the perfects in (29a), progressives in (29b), and the *done* state (Biggs 2021) in (29c): [12]

(29)   a.   The customers have been rapidly poked with sticks.   Perfect

       b.   The customers are being rapidly poked with sticks.   Progressive

       c.   When the customers are done being rapidly poked with sticks...   *done* state

It is thus not higher stativization across the board that produces the deviance in (28b).

Given the deviance of the modifiers in (28b), there are two possible ways to go. One is to maintain the phrasal analysis, and demonstrate that there are principled reasons that account for why stative passives exhibit restrictions on modification relative to eventive passives. The other is to abandon the phrasal analysis, and posit a smaller structure in which vP-level modification would not be possible.

As it turns out, the most successful attempt to explain modification patterns in stative passives, which is brought together in McIntyre (2015), can be interpreted as an argument *against* the phrasal

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[12]For progressive states see work in the vein of Vlach (1981); for perfect states, Parsons (1990) and related work. Perfects disallow specification of a precise date/time, or how long ago in the past the event occurred:

(i)   #The customers have been sprayed with water at 2:37pm/two hours ago.

Other vP modifiers are possible, though:

(ii)   This city has been destroyed with fire arrows by invaders on several occasions.

analysis. McIntyre's proposal centers on what he calls *State Relevance*. The idea is that modifiers are acceptable in stative passives when they "contribute to the description of the state expressed" by the participle, or the description of the theme while the state holds. To see how this works, consider (30):

(30)   Archibald's hair is combed [with his mother's brush].

Out of the blue, this seems odd. But if it is understood that the brush produces special effects–e.g., a zigzag pattern– then it is perfectly felicitous. Adverbial modification behaves similarly. A note that is *hastily typed* can be interpreted easily as one that is sloppy in some detectable and salient respect (e.g., it contains a multitude of typos). Out of context, it is difficult to know how to interpret something like *The note is slowly typed*, since slow typing does not have obvious detectable consequences associated with it. However, if the context supplies relevant information– e.g., that my slowly typed notes are invariably flawless in terms of spelling and punctuation– the modification is felicitous.

There are aspects of how State Relevance works that remain to be explored. It also appears to account for only part of what needs to be explained about modification with stative passives.[13] But the observations that it brings together highlight a crucial point. If vP modifiers could be freely added in stative passives, as the phrasal analysis predicts, it is not at all clear why the generalizations subsumed under State Relevance should hold: modifiers should be interpreted in the same way that they are in eventive passives. On the other hand, if all XP modifiers in stative passives attach at the StatP level (i.e. **modifier**$_1$ above), then it makes perfect sense why they should have to be state-relevant, since it is the state that they are modifying. In short form, the observations that comprise State Relevance constitute an argument against phrasal (21), and in favor of small (22).

The interim conclusion is that modification possibilities pose serious challenges to a phrasal analysis, but are accounted for directly on a small analysis.

3.3   *Un*-prefixation and Resultative Secondary Predicates

This section develops a further argument against a phrasal analysis. It crucially involves Resultative Secondary Predicates (RSPs), of the type seen in e.g. *Mary hammered the metal **flatter than a pancake***. As we saw above, these have been used as an argument in favor of phrasal stative passives, based on the premise that Stat scopes over a vP in examples like the one immediately above.

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[13]For example, it is not clear to me how it extends to cover Agentive *by*-phrases, where (in my view) the facts themselves are not well understood. These are found sporadically in stative passives, unlike in event passives, where they are always licensed:

(i)   Mary is being/#is arrested by the police, so she can't come to the party.

This contrast by itself constitutes another argument against a certain type of phrasal analysis, viz. one in which a stativizer applies to an eventive passive, since there is no reason to believe that stativization in general should produce this effect (cp. *Mary has been arrested by the police* etc.).

Interestingly, it appears to be possible to construct examples in which a *by*-phrase is completely acceptable; consider (ii):

(ii)   The goal of this exercise is to remain undetected by the spotter for as long as possible.

For McIntyre (and others following him), *by*-phrases are expected to comply with State Relevance. It is not clear to me how this is the case in examples like (ii), though. It thus remains to be seen what a systematic investigation of *by*-phrases (and other phrases apparently related to Agents, e.g. Instrumental *with*) in stative passives will reveal.

However, the situation is more complicated than this. When *un*-prefixation of stative passives is introduced into the picture, its interaction with RSPs produces an argument against the phrasal approach.

Prefixation of *un*- raises several interesting questions, both concerning distribution– recall that *un*- is found with only some adjectives, but all stative passives– and interpretation: contrary with adjectives, contradictory with stative passives. For my purposes the most important point is the distributional one. The observation that *un*-prefixation applies freely to stative passives plays a role in much of the literature on this topic, and has a long history (see Horn (2005) on Jespersen 1917 and Zimmer 1964). Concerning the difference between stative passives and adjectives, it is possible that there are in fact two different heads typically realized as *un*-, one with adjectives etc. that is in a relation to *iN-* (e.g. *im-possible, *un-possible*, though cp. *un-able* but *in-abil-ity*), and one that is invariably *un*-. In the text to come, I will abstract away from this question and simply use *un*-, in place of the wordier 'negative head that is found in stative passives.'[14]

Affixation of *un*- produces striking effects when we consider the interaction of lexical semantics (different types of Roots) with stative passivization. For example, while the stative passives in (31a) are felicitious with *remain*, the Roots in (31b) are not:[15]

(31)   The crates remained __ all day.

    a. flattened, opened, broken, stacked

    b. #kicked, #licked, #watched, #examined

However, the deviance produced with these verbs goes away when *un*- is prefixed, as shown in (32b):

(32)   These crates remained __ all day.

    a. unflattened, unopened, unbroken, unstacked

    b. unkicked, unlicked, unwatched, unexamined

The interpretation of these forms raises some interesting questions that center on how different verbal interpretations interact with the meanings of stative passives. For example, when e.g. a box remains *opened* or *flattened* all day, the most natural interpretation is that a state of having undergone an opening/flattening persists throughout the relevant period; this is what I would take to be a target state interpretation. Since kicking, licking, etc. do not have natural target states associated with them, these verbs are difficult to interpret in (31b).[16] On the other hand, negated participles like *unflattened* or *unkicked* have a salient reading that specifies that the crates have not undergone a flattening or kicking event; this appears to be the negation of the eventive reading introduced

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[14]On the question of how many heads there are, see Nissenbaum (2018), who argues for a single one and includes reversative *un*- (*Bill unbuttoned the jacket*) as well.

[15]Less coercion is required in attributive position, for the reasons noted at the beginning of this section. As noted there, such examples improve considerably in naturalness with an adverb: compare *the violently kicked ball* and *a secretly watched custodian* with their adverb-less counterparts.

[16]Something like a stative reading for e.g. $\sqrt{\text{KICK}}$ can be coerced in other contexts, apparently; cp. *When Mary kicks a ball, it stays kicked.* Here the context provides a way of understanding what a target state of *kick* might be (for me, in flight, or moving at a great velocity).

above in the discussion of attributive/predicative contrasts earlier in this section. The salience of this reading with negation makes the (32a) and (32b) examples equally felicitous.[17]

One aspect of *un-*prefixed stative passives that is generally agreed upon is that *un-* scopes over the stative passive. This means that *unverbed* means 'not in some state S defined by verb' (negated state reading) or 'not in a state of having undergone a verbing event' (negated eventive reading), not 'in the state of not having undergone a *verb-ing* event'.[18]

On the assumption that *un-* attaches above Stat, some basic facts about its interaction with modifiers drive home the primary points of §3.2. As discussed there, typical vP modifiers are quite restricted in stative passives. A phrasal analysis has *un-* scoping over Stat, which in turn takes a vP complement. This analysis thus predicts that the examples in (34) should be grammatical like those in (33), with the meanings 'not in a state of having undergone a sloppy combing event' and 'not in the state of having undergone a painting with the model 90 brush'; but this is not the case:

(33) a. John's hair is/remained sloppily combed.

      b. These new boxes are/arrived painted with the new model 90 brush.

(34) a. *John's hair is/remained sloppily uncombed.

      b. *These new boxes are/arrived unpainted with the new model 90 brush.

The fact that the same modifiers that are licit in the affirmative versions become impossible with negation is a problem for a phrasal approach. Since the modifiers are possible in the affirmative, it is clear that 'other factors' that might restrict possible types of modification have been taken care of. These examples should thus be grammatical.

It is not in general the case that higher negation produces deviance with modifiers, as can be seen in (35):

(35) a. John's hair isn't sloppily combed.

      b. The new boxes aren't painted with the new model 90 brush.

At the same time (and adapting a footnote from Embick 2004), there does seem to be a problem when certain modifiers attach outside of a negated event; cf. *John quickly hasn't become famous*, *Wilmington rapidly didn't arrange the plates*. Putting these points together, the idea is that the pattern evidenced in (33-35) follows from an account in which modifiers attach above *un-*, but not one in which they attach to a vP below it.

I now turn to a further argument based on *un-* and Resultatives (RSPs) that takes more or less the same form. I have singled it out due to the important role RSPs play in the phrasal-versus-not discussion, as we saw above in §3.1. The argument involves a few steps. First, as discussed above,

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[17]It is also possible for the (32a) forms to be interpreted with what appears to be a negated target state. Looking at three boxes, each of which was recently opened, it is possible to indicate one that is closed as *unopened*, i.e. 'not at present in the state resulting from an opening event.'

[18]This latter type of reading, with [Stat [un VERB]], predicts the exists of negated verbs, e.g. *to *unkick*, which are ungrammatical. A complication is that the interpretation of [un [Stat VERB]] and [Stat [un VERB]] are potentially quite similar. If something like *unkicked* means 'not in a state of having undergone a kicking event in some contextually-determined time window', then it could perhaps be recast as 'in a state of not having undergone a kicking event...'; see Adamson (2017) for discussion. With target state interpretations this alternative is not plausible– e.g. *unopened* is 'not in the state that is produced by an opening event', not 'in a state that is produced by not undergoing an opening.' Since the discussion of RSPs in the text involves target state interpretations, I will forgo further discussion of this point, and assume that negation is attached outside of the stativizer.

negative *un-* scopes over Stat (36a). When combined with the further assumption (36b) that stative passive Stat scopes over RSPs, the prediction in (36c) results:

(36)   a.   *un-* ≻ stative passive;   (this section)

         b.   Stative passive ≻ resultative secondary predicate (RSP)   (per phrasal analysis);

         c.   **Prediction**: *un-* ≻ stative passive ≻ RSP.

This is a clear prediction; and it is clearly false:

(37)   a.   The metal is hammered flat.

         b.   This box is kicked open.

         c.   The soles of Mary's shoes are run thin.

(38)   a.   *The metal is/remained/looked unhammered flat.

         b.   *This box is/remained/looked unkicked open.

         c.   *The soles of Mary's shows are/remained/looked unrun thin.

I have given more than one predicate here to give additional texture to this datapoint. In these contexts, the observations adduced above in conjunction with the phrasal *v*P analysis predict that the participle phrases should be grammatical, and mean 'not in a state of having been hammered until flat' etc.; but this is not the case.

In general form, the argument is that any analysis that (i) treats *un-* as realizing a head that takes a phrasal stative passive as its complement, and (ii) attaches RSPs etc. somewhere below this, makes this incorrect prediction. Looking back at prior work for context, *un-*prefixation (and its interaction with RSPs) is used by Kratzer (2001) as evidence for the idea that some stative passives are *lexical*, in contrast to those identified as phrasal above. On one hand, this move is natural in her approach, which is (partially) lexicalist in nature; she is simply adopting a position from earlier lexicalist analyses like Levin and Rappaport-Hovav (1986). In the context of later theories that are fully and uniformly phrasal, though, the *un-* facts take on a renewed importance: they provide clear evidence that something about the phrasal analysis clearly does not work.
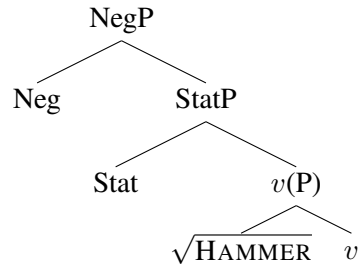
In the abstract, a solution to the scope problem induced by *un-* needs to hold that *un-* scopes over Stat, while **not** scoping over any phrasal material. This is precisely what the small analysis makes possible, as I will now show.

First, I will assume with Kayne (2017) that *un-* scopes over the things that it c-commands.[19] The question then is exactly what structures this involves; i.e. which kind of configurations *un-* finds itself in. If we just looked at *The metal is unhammered*, we could consider an analysis in which *un-* realizes a phrasal Neg head that takes StatP as its complement:

(39)   *unhammered*, phrasal

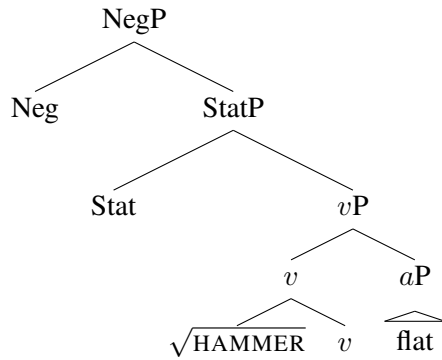[19]Kayne (2017:149) concludes that *un-* appears in a 'very small phrase'; defined by him as a type of object that "...contains no subject position capable of remaining filled," and "allow[s] for few or no movement operations." As will now be shown, the small analysis provides an explanation for why *un-*prefixed words do not have the properties of typical phrases: it is because they are not phrasal.

$$
\begin{array}{c}
\text{NegP} \\
\diagdown \\
\text{Neg} \quad \text{StatP} \\
\diagdown \\
\text{Stat} \quad v\text{(P)} \\
\diagdown \\
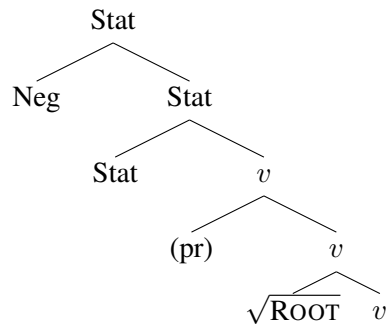\sqrt{\text{HAMMER}} \quad v
\end{array}
$$

However, with *un-* taking a phrasal complement, and RSPs introduced anywhere below this, it is predicted that e.g. **unhammered flat* in (40) should be grammatical, and mean (roughly) 'not in the state of a hammering that ends in flatness':

(40)   phrasal *un-* $\succ$ RSP

$$
\begin{array}{c}
\text{NegP} \\
\diagdown \\
\text{Neg} \quad \text{StatP} \\
\diagdown \\
\text{Stat} \quad v\text{P} \\
\diagdown \\
v \quad a\text{P} \\
\diagdown \\
\sqrt{\text{HAMMER}} \quad v \quad \text{flat}
\end{array}
$$

This structure provides a point of contrast for a small analysis. On such an account *un-* can be direct-attached to Stat. This produces small negated statives like (41):[20]

(41)   negated smaller stative passive

$$
\begin{array}{c}
\text{Stat} \\
\diagdown \\
\text{Neg} \quad \text{Stat} \\
\diagdown \\
\text{Stat} \quad v \\
\diagdown \\
\text{(pr)} \quad v \\
\diagdown \\
\sqrt{\text{ROOT}} \quad v
\end{array}
$$

Crucially, Neg here scopes over the entire Stat– i.e. v and whatever other heads might be there.

When there is an RSP, this can be introduced as the complement to the stative passive.

(42)   negated participle with RSP

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[20]I have included a prefix position *pr* since the prediction is that *un-* should scope over these– as is the case in e.g. *un-re-painted*.

StatP
Stat   aP
Neg   Stat   flat
   Stat v
     (pr) v
         $\sqrt{\text{ROOT}}$ v
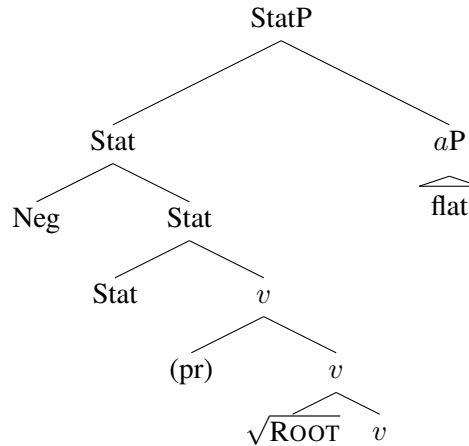
The interpretation that is expected for (42) is deviant: essentially, 'flat as the result of not having undergone a hammering event.' It might be possible that there is a larger generalization at play in explaining this effect.[21] For now, though, what is important is that *unhammered flat* is predicted to be deviant on the small analysis.

On this point, and connecting with §2, the ungrammaticality of *unhammered flat* provides a good example of what it might mean for a Root's distribution to be different from that of a terminal that can appear in a phrasal structure. Specifically, consider a structure in which $\sqrt{\text{FLAT}}$ in *flattened* is introduced in a phrase that is essentially an RSP:

(43) phrasal $\sqrt{\text{FLAT}}$

v
v $\sqrt{}$P
     $\sqrt{\text{FLAT}}$ DP
              ...the metal...
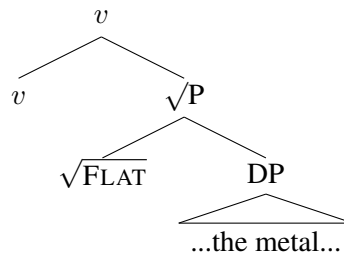
Treating Roots and RSPs as structurally 'the same' in this way leaves us with no explanation for the fact that *unflattened* is grammatical, while *unhammered flat* is not: both should be equally grammatical if Roots appeared in phrasal structures like the one in (43). The only way to exclude RSPs while maintaining Roots would be to hold that Stat can attach to vPs that contain phrases *only if these are Root phrases*. Even putting to the side the question of how Stat would be sensitive to

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[21]The larger generalization might extend to complementation. The deviance of certain negated stative passives with complements has been noted since at least Wasow (1977):

(i)   Mary is (*un)believed/known to be the best candidate.

The same sort of thing occurs with negated adjectives as well:

(ii)   a. Susan is (*un)certain to win the election.
       b. Welly is (*un)ready to travel to Maryland.

These patterns are worth looking into further.

material below v, this is the kind of stipulation that indicates that a generalization is being missed. In contrast, the smaller account makes the correct distinction directly, in a way that follows from basic aspects of syntactic structure.

3.4 Summary

The generalizations brought together in §§3.2-3.3 constitute clear evidence against a phrasal analysis. Taken together, the arguments suggest that stative passives are built small. It should be noted that the small analysis requires that the argument of the stative passive be merged outside of StatP (on this point see also McIntyre 2013).

   The conclusion that the smaller analysis is correct is based on the two lines of argument in the preceding sections. Considering these together is important, as doing so precludes some possible attempts to fix the phrasal approach. For example, a key assumption concerning the interaction of *un-* and RSPs in the small analysis in (42) is that the stative passive head does not in face scope over the RSP in the way that previous analyses had proposed. In principle a phrasal analysis could adopt the same assumption, as shown in (44), where xP is some higher phrase to which the RSP is adjoined:

(44)   Phrasal analysis with high RSP
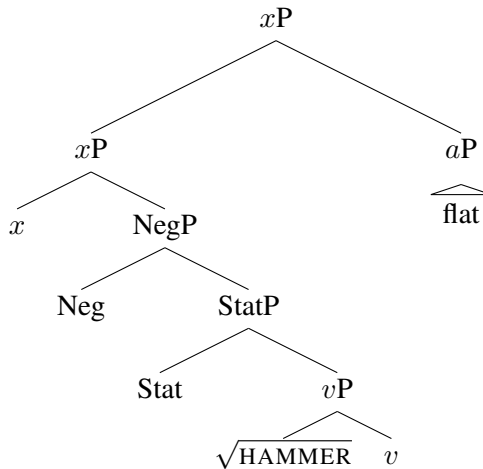
The same type of explanation that the small analysis offers for the deviance of **unhammered flat* is then available for this kind of phrasal approach.

   This is a possible move for *un-* and RSPs, but it provides no explanation for other facts considered in §3.2 concerning modification restrictions in stative passives; it also fails to explain why vP modifiers are not freely allowed with negated participles, as discussed around (33-34). On the other hand, the small analysis provides a compelling explanation for the facts considered in both §3.2 and §3.3.[22]

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[22]One question for further investigation concerns the details of modifier interpretation. If XP modifiers like adverbs and various PPs attach only to StatP in stative passives, how exactly are they interpreted? Consider adverbs– an adverb like *sloppily* in *Mary wrote the note sloppily* is typically regarded as specifying the manner in which the event was performed. In *This note is sloppily written*, though, the AdvP headed by *sloppily* attaches to the StatP level. It is apparently interpreted as a modifier of the state– recall the discussion of State Relevance– and not of the event that produced that state. How precisely this works in the semantics remains to be worked out in detail.

4 Smaller syntax versus lexical rules

The argument to this point makes the case that a smaller syntactic analysis is superior to a phrasal syntactic one. As discussed in the early sections of this paper, there is a further possibility to consider. This is the idea that stative passives are formed *lexically*. It is important to be precise about what sense of lexical is at issue; there are many different ways in which this term has been used, and they are not all equally relevant to the present discussion. The particular form of lexical that I have in mind here, which will be refined as the discussion proceeds, starts with the idea that stative passives are derived in the *lexicon*: by definition a module of the grammar that is distinct from the syntax.

In the light of the conclusions of §3 there are clear reasons to (re-)consider a lexical approach. For one, a lexical account does not posit a phrasal vP in stative passives; rather, the stative passive enters the syntax as a syntactic terminal. It thus makes the same predictions as the smaller analysis for many of the facts concerning modifiers discussed above. The main focus of the rest of the section is thus devoted to one area where the smaller and lexical analyses appear to make different predictions. This involves the interaction of stativization, Resultative Secondary Predicates, and *un-*prefixation; a further development of §3.3. For this interaction the smaller and lexical accounts have different things to say, and the evidence supports the former kind of analysis.

4.1 Stativization and resultative semantics

It is useful to begin with a question about how resultative semantics interacts with stativization; in particular, concerning the relative height of the stativizing head Stat and the locus of resultative semantics. Adopting the view articulated in Williams (2015), resultatives involve at least three eventualities: a Means event M, a Result state R, and a causing event C that relates the two. In e.g. *hammer the metal flat*, M is *hammer* and R is *flat*; C is not pronounced independently, but its presence can be detected through a number of diagnostics discussed by Williams. Informally speaking, the R has to be understood as the end of the M event; the C is required to connect the two events in the appropriate way but is independent of each of them.

The key question in comparing accounts concerns where the resultative semantics relating these eventualities is introduced. To see what is at issue, recall first that as shown in §3, the interaction of *un-* prefixation and RSPs in stative passives motivate an analysis in which the RSP attaches to StatP in the way shown in (45):

(45)   Stative passive with RSP
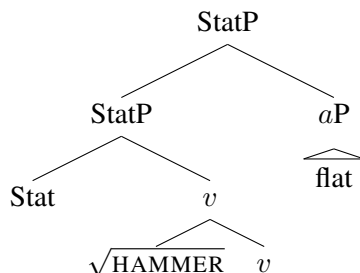
In the abstract (i.e. without worrying about the details of denotations), there are two ways of thinking about how the causal relation connecting the RSP to the participle is introduced. These differ in terms of whether this relation is introduced with the verb (i.e. the participle), or higher:

(46) a. OPTION 1: LOW, inside StatP, which would mean something like 'hammer into a state X', with the RSP combining to specify the state X.

   b. OPTION 2: HIGH, which is to say, above the participle. In (45) this would mean either at the highest StatP, or in the aP that this dominates (the difference between these options is taken up below).

In principle both of these options are available on the smaller view. On the other hand, the type of lexical analysis I am interested in is one that is committed to Option 1, which is forced on any analysis that adheres to the principle in (47):[23]

(47) LEXICALIST/PROJECTIONIST PRINCIPLE (APPLIED TO RESULTATIVES): Resultative meaning in a clause with RSPs projects from the verb.

In a generalized form, this principle plays a defining role in what are often referred to as *lexicalist/projectionist* theories of argument structure. The central intuition at play in this line of work is that the argument- and event-structural properties of a clause are 'projected' from a lexical representation; i.e. from a single syntactic terminal, typically the verb. For discussion directed at Resultatives in particular see Simpson (1983), Levin and Rappaport-Hovav (1995), Wechsler (2005), Müller (2006) and related work.

The approach to be considered assumes (47) and produces stativization/RSP interactions in the way schematized in (48). The basic idea is to start with a transitive verb like *hammer* in (48a), and derive from this a transitive verb that also requires an RSP; this is *hammer+* in (48b). It is this verb that appears in clauses like *Mary hammered the metal flat*. This verb can also undergo the stative passive rule, to produce (48c) *hammered+*, a stative passive participle:

(48) a. hammer(x) $\Rightarrow$ *Rule for Resultatives*

   b. hammer+(x)(RSP) $\Rightarrow$ *Stative passive rule*

   c. hammered+(x)(RSP)

It is this participle *hammered+* that appears in *The metal is hammered flat*, where it finds the argument (*the metal*) and the RSP (*flat*).

This analysis is capable of deriving stativized participles that appear with RSPs without assuming that the former contain phrasal vPs. It does this by having the stative rule apply after the Resultative rule in the lexicon; this theory's version of having one head scope over another.

4.2 *Un*-prefixation redux

The interaction of stativization, RSPs, and negation analyzed in §3.3 provides an argument against (47), and in turn against the LOW option in (46).[24] In the discussion of that section, the ungrammaticality of examples like (49) was adduced as evidence against a certain type of phrasal analysis:

(49) *This tuba is unhammered flat.

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[23]The view defined in (47) is a subcase of what Williams (2015) calls a *partly lexical* theory of resultatives; the *partly* qualification is due to the fact that this type of theory still treats the Means and Result elements as separate lexical items, not a single one. See his Chapter 13 for extensive discussion.

[24]See Williams (2015) for a related line of argument in the analysis of resultatives.

The interesting point to be made now is how the same facts provide an argument against the LOW option in (46). To see this, it is necessary to consider what an explanation for the ungrammaticality of examples like (49) might look like. I sketched one of these in §3.3; a small syntactic analysis with the resultative semantics introduced HIGH can appeal to a generalization along the lines of (50):

(50)   Result states cannot be produced by negated eventualities.

It is not the case that negation is somehow incompatible in general with resultatives; sentential negation can clearly appear with resultatives, whether stativized or not:

(51)   a. Mary hasn't kicked the door open for several weeks now.
       b. This metal isn't hammered flat; what will we do?

The problem is that the negation in examples like *unhammered flat* attaches to the means verb before it is connected to the result state.

On this theme, it is important to observe that the deviance of *unhammered flat* is not due to the semantics not making sense intuitively. It is true that in a typical context, it does not seem entirely sensible to speak of the metal being flat as the end state of a hammering that did not occur. However, there are indeed scenarios in which this intended meaning is plausible. For instance, consider a situation in which there are metal sheets that are flat, and require hammering in order to take on their desired (shaped) form. It would make sense under these conditions to speak of some sheets that had not undergone this treatment as being *unhammered flat*; that is, still flat as a result of not having been hammered. But this is not a possible interpretation of *unhammered flat*. It appears that a negated means predicate simply cannot enter the resultative relation, as stated in (50).

In short, while different principles might be invoked in order to derive (50) formally, it provides a compelling explanation for the facts under consideration.

Consider now what happens on a LOW analysis, using the schematization in (48) for illustration. Here, the *hammer* in e.g. *hammered flat* is *hammer+*, which requires an RSP in the syntax. This *hammer+* can be used in stative passives as *hammered+*, a stative passive that requires an RSP, as explained above. The question then is what prevents *hammered+* from being negated. *Un-*prefixation is another rule that would be assigned to the lexicon. The fact that it is possible to derive *unhammered* etc. points to this rule following the stative passive rule (recall the ungrammaticality of the verb *to unhammer*). Attaching negation to *hammered+* should thus produce a participle *un-hammered+* that requires an RSP. This is problematic: it produces ungrammatical *unhammered flat*. It is not clear that this outcome can be avoided without assuming (52):

(52)   The *un-* rule can attach to stative passives like VERBED, but not stative passives that un-dergo the RSP rule like VERBED+.

This is a stipulation– the (non-)interaction follows from nothing. The heart of the matter is the interaction between negation and the rule that creates resultative verbs. If the resultative semantics must be in the verb per (47), and such verbs can be stativized, there is no generalization like (50) that can be appealed to to explain *unhammered flat*.

A possible move in the lexicalist analysis would be to hold that there is an RSP rule that applies to stative passives in addition to the one that applies to verbs– call this RSP$_{stat}$. It would then be possible to say that RSP$_{stat}$ applies to typical stative passives, but not to negated ones, with an appeal to something like (50). Positing a second rule of this type abandons the 'unity of process'
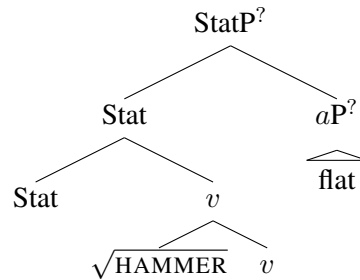
in the analysis of resultatives; two rules applying to different objects (verbs and derived adjectives) produce the same effect. This is an interesting point to consider, as it might also arise on the smaller analysis, as will be seen in §4.3. In any case, there are reasons to believe that the lexicalist analysis augmented with RSP$_{stat}$ is still less explanatory than a smaller analysis. It produces the desired effect by stipulating an ordering among lexical rules. This ordering does not follow from anything else; which means that it could have been otherwise. This is not the case for how the smaller analysis relates to (50). On the smaller analysis, the fact that Stat cannot scope over RSPs follows directly from the syntax: the RSP is phrasal, and hence must be attached at StatP (or higher).

I take the arguments advanced in this section to show that– in spite of being similar in not positing phrasal vP– the smaller approach is superior to this type of lexical treatment.[25]

4.3 HIGH resultative semantics

An implication of this argument is that the semantics of resultatives is not introduced in the LOW way in (46a), but instead must enter HIGH. In principle this means either in the interpretation of the StatP that dominates the participle and the RSP, or in the RSP itself:

(53) Resultative semantics?

$$
\begin{array}{c}
\text{StatP}^? \\
\diagdown \\
\text{Stat} \qquad a\text{P}^? \\
\diagdown \qquad \triangle \\
\text{Stat} \qquad v \qquad \text{flat} \\
\diagdown \\
\sqrt{\text{HAMMER}} \quad v
\end{array}
$$

The RSP option appears to be problematic, at least for languages like English (cf. Williams (2005) for a broader cross-linguistic view). Such an analysis would require the aP to be interpreted as 'flat as the result of a causing event.' This is, however, the meaning associated with *flattened*, not *flat*. And (as discussed earlier) it is quite generally the case in English that stative passive participles are ungrammatical as RSPs:

(54) *Mary kicked the door opened/*shot the cockroach killed/*pounded the metal flattened.

This suggests to me that the aP is not itself introducing resultative semantics.

The conclusion is that the resultative semantics come in at the StatP, a point that implicates several interesting questions. While a comprehensive analysis is beyond the scope of this paper, it is worth raising at least one of these, since it connects with the discussion of stative passive interpretations at the beginning of §3. On the face of it, the interpretation of (53) looks like it might involve a state (denoted by the participle) being interpreted as the cause of another state (denoted by the RSP). This could be brought about by identifying a state that is the end of the *hammering* with the RSP (a kind of "State Identification"; cf. the rule of Event Identification employed in Kratzer 1996). While it is certainly possible to identify states in this way, such an analysis raises a number subtle questions about the precise interpretation of resultatives. One of the most interesting is that it would introduce resultative semantics in a stative passives in a way that differs from what happens

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[25]A similar argument can be made on the basis of *re*-prefixation and its interaction with RSPs and related phrases; see Marantz (2009).

in typical verbal clauses like *Mary hammered the metal flat*, where the relation is between an event and a state.

On this last point, the discussion of stative passive meanings in §3 points to a possible way forward. As outlined there, it appears that stative passives can have a purely eventive reading, in addition to a stative one. If the eventive meaning of the participle *hammered* is available in phrases like *hammered flat* like (53), then it is possible to interpret this phrase in the same way as verbal *hammer the metal flat* is: the participle denotes an event, and the *a*P a state. Though I cannot explore the technical details of this (or the State Identification) proposal here, both of these ideas are worth a closer look in the context of a more general discussion of the semantics of stative passives.

4.4 Summary

In the abstract, an argument against a phrasal analysis of stative passives like §3 leaves open two possibilities: smaller syntax, or a lexical derivation. The argument of this section is that in spite of sharing important properties (like not positing a phrasal *v*P), the smaller and lexical analyses make different predictions for some of the key interactions examined in §3. In particular, the smaller analysis is able to offer a principled explanation for the ungrammaticality of negated stative passives of the **unhammered flat* type. A lexical treatment can rule these out only by stipulation. The available evidence therefore comes down in favor of the smaller analysis.

5 Discussion

The primary argument of this paper is that English stative passives are built syntactically, but without a phrasal *v*P; at a minimum, a complex head like (55). As noted earlier, other heads could be present with *v* (e.g. various prefixes, perhaps Voice), but not phrasal structure:

(55)   Smaller syntactic analysis

```
              Stat
             /    \
          Stat      v
                   /  \
               √ROOT    v
```
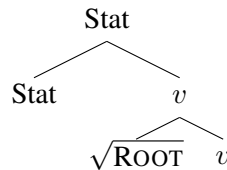
This small syntactic analysis was shown to make better predictions than both phrasal and lexical alternatives for interactions between stative passivization and various types of modification. In concluding the paper I will look first at a possible extension of the analysis, and then review some implications, and the directions for future work that they point to.

5.1 Extensions

Some work remains to be done before it can be claimed that there is a fully worked out small analysis of stative passives. As I noted in §1, this paper takes a narrow focus, and does not consider all possible phenomena that have played a role in the literature on this topic. A case in point is argument-licensing patterns. An important set of explicanda identified in early work (Wasow 1977; Dowty 1978,1979) concerns why it is that only certain arguments are available in stative passives relative to their eventive passive counterparts. The arguments that do occur are later called *direct* arguments in Levin and Rappaport 1986 (cf. Marantz 1984): these are defined as arguments that

receive their thematic interpretation from the verb. *Indirect* arguments, which acquire their thematic role from another element, are excluded. So, for instance, ditransitive *show* in *They showed the customers the cars* allows stative passives for the patient (*recently shown cars*) but not the goal (**recently shown customers*). The former argument is direct according to the view just outlined, and the latter indirect; the key question then is whether the direct/indirect distinction can be made to follow from something.[26]

There are reasons to believe that a small analysis will be successful in explaining such effects. Looking back at my own attempt to address these phenomena, the Embick (2004) analysis holds that the vP in stative passives has a special head that takes only Roots or RSPs as a complement; the argument in the stative passive is merged immediately above this:

(56)   Stative passive vP in Embick (2004)

$$vP$$

DP v

v $\{\sqrt{\text{ROOT}}, \text{RSP}\}$
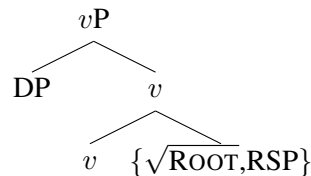
Restricting the complement of Stat in this particular way derives certain argument-licensing patterns. It predicts that the arguments that occur with stative passives are those licensed by the $[\sqrt{\text{ROOT}}\ v]$ (or by other heads attached to this). Arguments that require vP-internal phrasal structure to be licensed–i.e., the kind of structure typically posited for the goal argument of *show*– are predicted to be impossible. This is a good prediction, but it is produced by a stipulation: in particular, the structure in (56) allows v to have a phrasal complement, but specifies that this must be an RSP, and no other type of phrase (cf. §3.3). This restriction follows from nothing else in the approach.

As shown throughout this paper, though, the phrasal part of this analysis makes incorrect predictions. When we dispense with the vP analysis and move to the small analysis in (55), the stipulation highlighted above is no longer required. This seems like a step in the right direction; the prediction about phrasal licensing then follows from the structure.

Given these positive first indications, it will be interesting to see what is revealed in a comprehensive probe of argument-licensing (and, relatedly, complement licensing) that assumes a small analysis.

5.2   Implications and further questions

The theoretical questions identified in §1 concern first, the existence of smaller syntactic structures; and second, the syntax of Roots.

Beginning with the latter, the discussion around (56) highlights one of the main points of §2. As discussed there, the Root Hypothesis precludes Roots from having phrasal structure, and hence the distribution of phrases. This is exactly what is posited in (56), where a Root has the same distribution as an RSP. As stressed in §3, a theory that allows this possibility for Roots has no way of accounting for the fact that e.g. *unflattened* is grammatical, while **unhammered flat* is not. This is a clear illustration of the general interest of the Root Hypothesis: the difference that is manifested in these examples results from the fact that Roots have small syntax.

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[26]The same kind of question arises for Dowty's approach, where it surfaces as the question of why certain arguments figure in "lexical rules", while others do not.

On this last point, it is the move to smaller structures– the main point of this paper– that provides the key tool for understanding both the syntax of Roots and the behavior of stative passives. Prior analyses of the latter agree on the idea that they are de-verbal: that is, that they contain a v head, on the assumptions that are adopted here. The small analysis is able to account for the deverbal nature of these statives, but without making the incorrect predictions of phrasal vP accounts.

This kind of result connects with others in a way that points to several lines of future work. One is cross-linguistic. Paparounas (to appear) and (in prep) presents several arguments in favor of small structure for stative passives in Greek. Bešlin's (to appear) analysis of stative passives in Bosnian-Croatian-Serbian, on the other hand, posits large phrasal structures. This contrast suggests to me that a broader cross-linguistic investigation of stative passives focused on the small versus phrasal question is likely to produce important results; if certain types of are small, while others are phrasal, it remains to be seen what will explain this difference.

A generalization of this question would look at other types of 'cross-categorial' structures. An important case in point is Wood's (2023) analysis of complex event nominals in Icelandic, which argues that these contain a v but not a phrasal vP. Benz's (2022) analysis of German nominals arrives at the same conclusion. The significance of these lines of argument is that there are other types of deverbal nominals that appear to be phrasal; gerunds for example. The more general question then, which is examined in Marantz (2022), is why certain types of derivations should be small, while others are phrasal; i.e, what this might follow from. By showing in detail the motivations for a smaller syntactic analysis this paper takes a step towards making the larger questions concrete in a novel domain, and provides a basis on which competing hypotheses concerning the nature of cross-categorial derivation can be tested in future work.

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