

Up, Up (and Away)

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1 Introduction

In her paper “Building Statives,” Angelika Kratzer argues against giving a compositional meaning to the particle *auf* as in *aufpumpen* (‘pump up’): “If *aufpumpen* had to be syntactically decomposed, the eventive component could be contributed by *pumpen* (‘pump’), but the stative component couldn’t be contributed by *auf*-. In isolation, the prefix *auf*- doesn’t have a denotation at all, hence couldn’t possibly contribute a target-state property” (p. 6). In this paper, I will argue that there is a compositional meaning for such particles in Germanic, although not exactly the meaning that Kratzer argues against.

2 Meaning

Many word combinations are classified as verb-particle constructions. Ray Jackendoff provides the following categories in his paper “English particle constructions”:

- (1) Verb-particle idioms: *pass out, flake out, knock NP out, creep NP out, burn (NP) out, stress (NP) out.*
- (2) Directional particles: *toss/take/put/carry NP up/in/away/back.*
- (3) Aspectual particles: *drink/glue/wipe/pack NP up, sleep/waltz/drink/talk/read/sneeze away, run/sing/talk/work/think/write on.*
- (4) The time-away construction: *sleep [the afternoon] away, twistin’ [the night] away.*
- (5) Idioms consisting of particles plus something other than the verb: *sing/whistle/dream/jog your heart out, write/sleep/draw/edit up a storm.*

To begin with, I will concentrate on the so-called aspectual particle *up*, asking the following question: assuming that the particle has a compositional contribution to the meaning of the sentence, what is this contribution?

One place to look is the difference in meaning between constructions with *up* and ones without it. The particle *up* in some examples seems to indicate that the object of the verb is completely gone:

- (6) a. I used (*up) the flour, but there's half a cup left.
 b. I mopped (*up) the spill, but it's still half there.
 c. Fred ate (*up) his cake, but didn't finish it.

When you try to add a proviso that the object is not gone, the particle is no longer grammatical.

In other sentences, the object has completely reached another target state:

- (7) a. I heated (*up) the soup, but it wasn't hot enough.
 b. I drew (*up) the plans, but I didn't finish them.
 c. I wrote (*up) the contract, but it's not complete.

The soup (with *up*) must be hot enough to eat, so denying this is not felicitous. Similarly, drawing up plans and writing up a contract entail that the relevant items are complete.

There is a somewhat gradual transition from verb particles to totally productive resultative clauses:

- (8) a. Wilma cleaned the spill up/*down
 b. Wilma cleaned her room up/*down
 c. Wilma wiped the counter down/*up.
 d. Wilma drank the teapot dry/??empty
 e. Wilma ran her feet sore/blistered/calloused

As Andrew McIntyre (2002) points out, the word “dry” in (8d) means something more like “empty”; after drinking the teapot dry, it could still have some moisture in it and after drinking a pub dry, it could be sopping wet. Also, it is odd in English to actually use the word “empty” in this situation, echoing the restrictions on which particles are used with which verbs. Some resultative constructions allow a larger range of alternative result adjectives, as in (8e).

3 Analysis

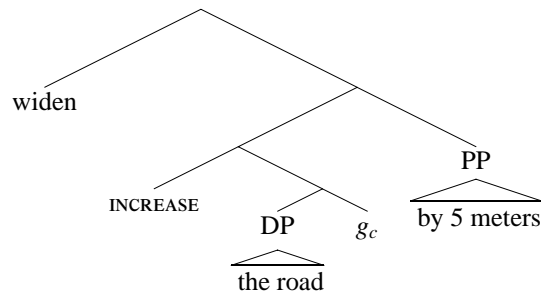
So, what is the common factor in the above examples with *up* that distinguishes them from the examples without *up*? The main idea is that an incremental theme object represents an event of change in degree in a consistent direction. A result adjective or the verb particle *up* marks the end point of this change of state. To formalize this idea, let's look at a proposal by Heim and Kennedy (2002), who analyze verbs with incremental themes thus:

- (9) a. “for any verb of gradual change V_δ with associated gradable property g_v , $[_{VP} V_\delta x d\text{-much}]$ is true of an event e if and only if x increases in g_v -ness by d -much” (p. 5).
 b. $[_{VP} \text{eat } (d\text{-much of } x)] = \lambda e.\text{INCREASE}(\text{eaten}(x))(d)(e)$
 c. $\text{INCREASE} = \lambda P_{(i,t)} \lambda d \lambda e.P(\text{END}(e)) = P(\text{BEG}(e)) + d$

In their analysis, the gradable property g_v comes from the verb. The degree is specified by a measure phrase (“lengthen the rope 5 meters”) or a scalar adverb (“halfway”), or is inferred from the scale involved or from the context. It is unclear in their proposal where the actual meaning INCREASE comes from, but presumably it is in the verb itself as well.

Below, I present a proposal that attempts to make all the structure and meaning clear for incremental themes. Following Marantz (in class), I will assume that the incremental theme itself is coerced into an event. I will use a null head for this and other purposes, but mostly for convenience of exposition – these meanings could arise from the constructions involved.

(10) a.



b. $[[\text{INCREASE the road } g_c \text{ 5 meters}]]^{(g_c=\text{wide})} =$
 $\lambda e.\text{INCREASE}(\text{wide}(\text{the road}))(5 \text{ meters})(e)$

In the structure above, the gradable property assumed in the Heim and Kennedy analysis is provided by a contextual variable g_c . INCREASE is a null head that combines by functional application with this variable g_c , the object “the road,” and the degree phrase “by 5 meters”. In this case, it might be possible that the verb “wide” itself originates inside the lower clause (perhaps where g_c is) and provides the necessary gradable property. However, since this will not be available in all cases, for now I presume that g_c simply comes to mean “widen” in the context of a widening event. Also, I could have included the null head CAUSE assumed by Kratzer for resultatives, but this might be unnecessary: perhaps both the lower clause (headed by INCREASE) and the upper clause (headed by “widen”) modify the same event variable (by predicate modification). In this system, the *widening* event would be the same as the *increasing by 5 meters in width* event – a reasonable assumption.

A question arises when you replace the degree phrase “by 5 meters” with other similar phrases:

(11) a. They widened the road to a total width of 20 meters.

b. They climbed to a height of 1000 meters.

(12) a. They widened the road from 15 meters (to 20 meters).

b. They climbed from 500 meters (to 1000 meters).

If the degree of change is so integral to the construction, why can it be left out or replaced with one or both of the endpoints? It seems that it is not an integral fact that a degree of change is specified in these constructions. You can also specify a beginning or end point of the change.

A revised definition of INCREASE and the degree phrases is in order, as well as a new structure for the elements of the construction:

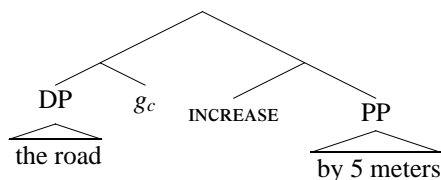
$$(13) \text{ INCREASE} = \lambda P_{\langle i,t \rangle} \lambda e. P(\text{END}(e)) > P(\text{BEG}(e))$$

$$(14) \text{ a. } \llbracket \text{by } d\text{-much} \rrbracket = \lambda P_{\langle i,t \rangle} \lambda e. |P(\text{END}(e)) - P(\text{BEG}(e))| = d$$

$$\text{ b. } \llbracket \text{from } d\text{-much} \rrbracket = \lambda P_{\langle i,t \rangle} \lambda e. P(\text{BEG}(e)) = d$$

$$\text{ c. } \llbracket \text{to } d\text{-much} \rrbracket = \lambda P_{\langle i,t \rangle} \lambda e. P(\text{END}(e)) = d$$

(15)



In this new system, the predicates INCREASE and “by 5 meters” are of the same type $\langle \langle it, et \rangle \rangle$, and therefore can combine by predicate modification to both take the same argument. If g_c is width, then the combined structure with INCREASE and “by 5 meters” means that the width of the road increased and the width of the road changed by 5 meters. In order for predicate modification to occur, though, the two elements must be daughters of the same node, so I have moved INCREASE to a phrase on the other side of the DP. Notice, also, that the degree of change is no longer in the meaning of INCREASE: it must be provided by an additional phrase or phrases.

Following Heim and Kennedy, I assume that certain completive meanings of incremental themes are cancelable implicatures:

(16) (from section 4.5)

a. I straightened the rope, but it isn’t completely straight.

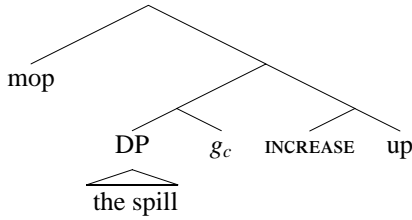
b. The tailor lengthened my pants, but not completely.

c. I ate the sandwich for/in five minutes.

As Heim and Kennedy say, “The implicature can be explained in terms of principles of informativeness. For example, in the case of scale structure influencing telicity, what is unique about closed-scale adjectives is that the endpoint of the scale is a possible reference point. It follows that the most informative interpretation of, e.g., I emptied the tub, is the one in which [the tub is emptied completely] completely (cf. The tub is empty.)” (p. 11).

With these pieces in place, we can finally turn to the semantics of the particle *up*. The meaning of *up* is exactly the same as the meaning of this implicature: it describes an event where the endpoint of the appropriate scale is reached:

(17)



(18) $\llbracket \mathbf{up} \rrbracket = \lambda P \lambda e . P(\text{END}(e))$ is the maximum on the P -scale (or perhaps the g_c -scale).

Assuming that the contextually specified variable is “CONSUMED,” the meaning for this sentence is that a mopping event caused (or is co-extensive with) an event in which the spill increased in CONSUMED-ness until it reached maximum CONSUMED-ness. This meaning for up could have access to the endpoint of the relevant scale in the same way that the implicature does: the alternatives to the scalar items are preserved in the focus structure.

One prediction of this analysis is that up should only be allowed with scales that have a clear end point. This seems to hold true, for the most part, although such an end point can be provided by context:

- (19) a. *They widened up the road.
 b. *He strengthened up his finger.
- (20) a. They widened up the road just enough to allow trucks through.
 b. After the accident, he had to strengthen up his finger again before he could type.

In summary, the proposal is that an incremental theme is an actual event description, indicating an event where the degree of a contextually specified gradable property increases as applied to the theme itself. The particle up contributes the uncancelable meaning that the end point of this change is the end point of the scale in question.

4 Aspect

In this section, I will examine why up is called an aspectual particle. Heim and Kennedy link the telicity of the VP in question with whether the degree d of change is quantized:

- (21) (=28) *Quantized $d \rightarrow telic VP$*
 a. [_{VP} lengthen the icicle by 3 centimeters]
 b. $\lambda e[\mathbf{long}(\text{icicle})(\text{END}(e)) = \mathbf{long}(\text{icicle})(\text{BEG}(e)) + 3 \text{ cm}]$
- (22) (=29) *Non-quantized $d \rightarrow atelic VP$*
 a. [_{VP} lengthen the icicle (by some amount)]
 b. $\lambda e \exists d[\mathbf{long}(\text{icicle})(\text{END}(e)) = \mathbf{long}(\text{icicle})(\text{BEG}(e)) + d]$

(23) (=5)

- a. A predicate P is quantized if and only if no entity that is P can be a subpart of another entity that is P (see Krifka 1998, p. 200).
- b. An event description R is telic if and only if it applies to events e such that all parts of e that fall under R are initial and final parts of e (see Krifka 1998, p. 207).

However, the direct link with the specific degree of change is not necessary to determine telicity. In the new system outlined above, a clear end point can be indicated by a quantized degree of change, by a direct mention of an end point, by an implicature of completion, or by an aspectual particle. Whenever such a clear end point is indicated, the conditions for telicity are met:

- (24)
- a. They widened the road by 5 meters *for/in two days.
 - b. They widened the road to a total of 15 meters *for/in two days.
 - c. I ate the sandwich in 5 minutes. (for is OK if the implicature is canceled)
 - d. I ate the sandwich up *for/in 5 minutes.

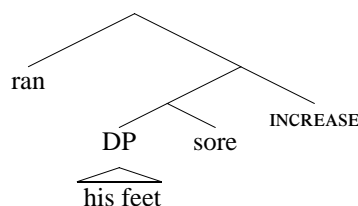
Notice the clear difference in meaning between (24c) and (24d). In (24c) the implicature of an endpoint can be canceled and the VP rendered atelic, but in (24d) the atelic reading of the VP is not possible. However an endpoint is indicated, the indication suffices to render the VP telic.

5 Extensions

5.1 Resultative Adjectives

The simplest explanation for resultative adjectives would be if they simply replaced the contextual variable g_c in the structure:

(25) a.



- b. $[[\text{sore}]] = \lambda x \lambda t$. the positive projection d of x on the soreness scale at time t .

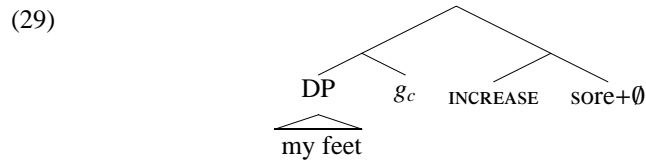
However, this does not explain all the behavior of resultative phrases, which seem to mark an endpoint, like the particle *up*:

- (26)
- a. * I drank the teapot dry, but there was still some tea left.
 - b. ?? I hammered the metal flat, but it wasn't entirely flat.
 - c. ? I ran my feet sore, but not completely.

- (27) a. I drank the teapot dry in/*for one hour.
 b. I hammered the metal flat in/*for one hour.
 c. I ran my feet sore in/*for one hour.
- (28) a. I was drinking the teapot dry \Rightarrow I have drunk the teapot dry.
 b. I was hammering the metal flat \Rightarrow I have hammered the metal flat.
 c. I was running my feet sore \Rightarrow I have run my feet sore.

The resultative construction does not react well to the provisos in (26) or the duratives in (27). Also, like other telic predicates, the imperfect tense does not imply the perfect.

One possible solution to this problem is that there is a null morpheme (as often posited for adjectives) that when applied to an adjective evaluates to the maximal degree on the adjective scale (or the “cut-off” point for applying the adjective). The adjective is in the same position as *up*, and we see the return of the contextual variable g_c :



In most cases, g_c will be the same as the adjective, but this bifurcation may explain why “dry” in “drink the pub dry” can mean something more like empty, as described above.

This does not explain why particles can appear directly after the verb, but not resultative adjectives; however, it may explain why a resultative cannot appear with a particle or a degree phrase:

- (30) a. I ran (*up) my feet sore (*up).
 b. I tutored him smart (*by 20 IQ points).

5.2 Other Particles/Meanings

Other particles can have the same meaning as *up*:

- (31) a. The fire burned (*down) the house, but most of it was untouched.
 b. The waiter poured (*out) the champagne, but some kept some for himself.
 c. My neighbor fenced (*in) his yard on one side.

Burning down means the house is gone, pouring out means the champagne is gone, and fencing in means the yard is surrounded. These would receive the same semantic treatment as *up*. Perhaps there is some principled explanation for why certain constructions prefer one particle to another, or perhaps there is simply some sort of selectional restriction between the verb and the particle.

Sometimes, *up* can indicate a movement towards a state, but not achievement of that state:

- (32) a. Barney cleaned (?up) his room, but it was still messy.
 b. Barney cleaned (*up) his room, but it didn't get noticeably cleaner.
 c. * Barney cleaned the spill up, but it was still there.

Cleaning up your room may mean that its cleanliness increased, but was not complete, whereas cleaning up a spill means that it is gone. This points to uses of *up* to indicate a (noticeable) change, but not necessarily a complete change.

As an interesting side note, notice the following facts:

- (33) a. Barney cleaned (up) his room.
 b. Barney cleaned *(up) the spill.

The distinction in whether *up* indicates an end point may be related to whether the particle *up* is required: it is required when the object is “the spill”, but not when the object is “his room.”

In addition to *up* in “clean up your room,” other particles seem to indicate a continuing process or path:

- (34) a. The band played (*on), starting at 10 PM.
 b. The stream flowed (*on) from the top of the mountain to the valley.
 (35) a. I hammered away *(at) the metal for/*in an hour.
 b. I gnawed away *(at) the meat for/*in five minutes.

Adding material that indicates the starting point of the activity or path makes the sentences with *on* sound odd. *Away* constructions cannot take a direct object or an *in*-phrase. These particles seem to be full event descriptions in themselves, and hence they preclude a direct object.

6 Conclusion

This paper is more of a proof of concept than anything else. I have proposed a possible semantics for incremental themes and aspectual particles that seems to work in most cases. However, to become a real proposal, I would have to undertake a more thorough investigation of the syntax of the constructions involved. What is the status of the null elements involved? How does the contextual variable get its value? What allows the particles to appear in positions not allowed for resultative adjectives? If predicate modification is involved, then why can't several several particles, adjectives and degree phrases stack? Why does one verb “prefer” a certain particle over another? Other remaining questions: How do other change-of-state verbs fit into the structure proposed above? How does the relevant scale get exposed to be used in implicatures and in the semantics of aspectual particles.

7 References

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