On the Categories V and P: Anatomy of a Love Affair*

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1 Introduction

The main purpose of this paper is to seek answers to two related questions:

I . What is special about the relationship between V and P?
II . What is special about the submembers of the P category that become prefixes and particles?

(1) Chomsky (1970)
   a. +N, − V = noun
   b. −N, +V = verb
   c. +N, +V = adjective
   d. −N, −V = adposition

   Jackendoff (1977)
   a. Nouns are +subject, −object
   b. Verbs are +subject, +object
   c. Adjectives are −subject, −object
   d. Adpositions are −subject, +object

   Baker (2003)
   a. Noun is +N (= 'has a referential index')
   b. Verb is +V (= 'has a specifier')
   c. Adjectives is −N, −V
   d. Adposition is part of a different system (functional)

(2) Typical Characteristics of Adpositions (From Svenonius 2006a)
   a. Express binary relations between entities (including events)
   b. Form a syntactic constituent with a DP complement
   c. C-select properties of the complement
   d. S-select properties of the complement

*For discussion and feedback, many thanks to Björn Lundquist, and Peter Svenonius

e. Project XPs which function as predicate or sentential adjuncts
f. Do not combine with tense or aspect morphology

Also, I follow Svenonius in assuming:
The internal argument of P is a GROUND
The external argument of P is a FIGURE
Where these notions are interpreted in the sense of Talmy (1978) and subsequent work.

The external argument of a PP need not be an individual entity, but may be an event entity.

(3) a. Kayleigh threw the ball in the box. DO IS THE FIGURE
b. In the field, Kayleigh could see a a group of boys playing football. EVENT IS THE FIGURE

P is an inherently relational category, but that has more to do with the existence of a GROUND element that the FIGURE is related to. A is not relational in this sense. But this property of P seems rather to be an impediment to unification with V since it forces a DP complement. One of the things that is special about particles is the lack of an overt complement. According to Emonds (1985), particles are simply intransitive prepositions. A can (and indeed usually) appears without a complement, which seems to be an independent precondition for co-optation into the verbal word, but still, A does not combine as well with V as an 'intransitive' preposition does.

Both PP and AP could be argued to have a Davidsonian e position, at least derivatively since they can be used in stage level predications. Also, they both seem to occur with an external subject of predication, whether that subject of predication is licensed syntactically within A and P themselves or not. With respect to their predicational properties then, A and P are not obviously different.

(4) a. John is tired.
b. Mary is in the garden.

Small clause predications can be AP or PP, and both can introduce 'unselected' objects, but the former never give rise to shift.

(5) a. John painted the wall red./*John painted red the wall.
b. Mary handed the results in./Mary handed in the results.

However, it is when we consider their properties as adjuncts, or traditional 'modifiers', then the two categories more clearly divide.

> ...it is cross-linguistically typical of PPs that they form adjuncts (as well as complements) to projections of both verbs and nouns (cf. van Riemsdijk 1998). In this they contrast with DPs and VPs, which do not so freely form adjuncts. pg 15 Svenonius (2006a).

This property is also at the heart of the biggest difference between P and A: the core property of A is to modify DPs, whereas arguably the core property of P is to modify VPs. When APs modify VPs they do not seem to take the event as their external argument, but some individual argument participant in event.

(6) a. John flopped down on the sofa, dog-tired.
b. Clean at last, Mary got out of the shower.

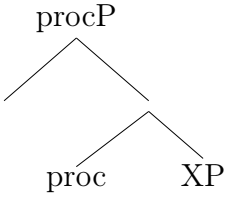
So composing as a secondary predicate within VP does not distinguish AP from PP. But modification in the adverbial sense does make P special.
The correct analysis of particle/prefix use should exploit this core difference, because A just does *not* behave the same way.

Main Claims of this Talk:
•Prefixes and particles are event structure modifiers in a phrasal position, and *not* predicational heads. (contra Ramchand and Svenonius 2002)
•The scalar structure of V and P are completely parallel, unlike that of A.

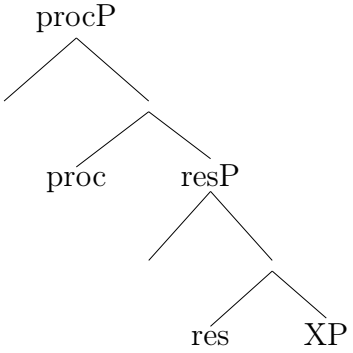
2 The Internal Structure of V

Hypothesis from Ramchand (2008)
VPs (ignoring the initiation component) can be decomposed into process and result portions, giving two types of dynamic event, and one pure stative possibility.

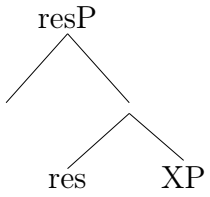
(7) *A. Activity Verb*



(8) *B. Accomplishment/Achievement Verb*



(9) *C. Stative Verb*



Baked into this system is the idea that the compositional semantics interprets embedded predications via a 'leads-to' or 'causational' semantics, and that this is prescribed by UG.

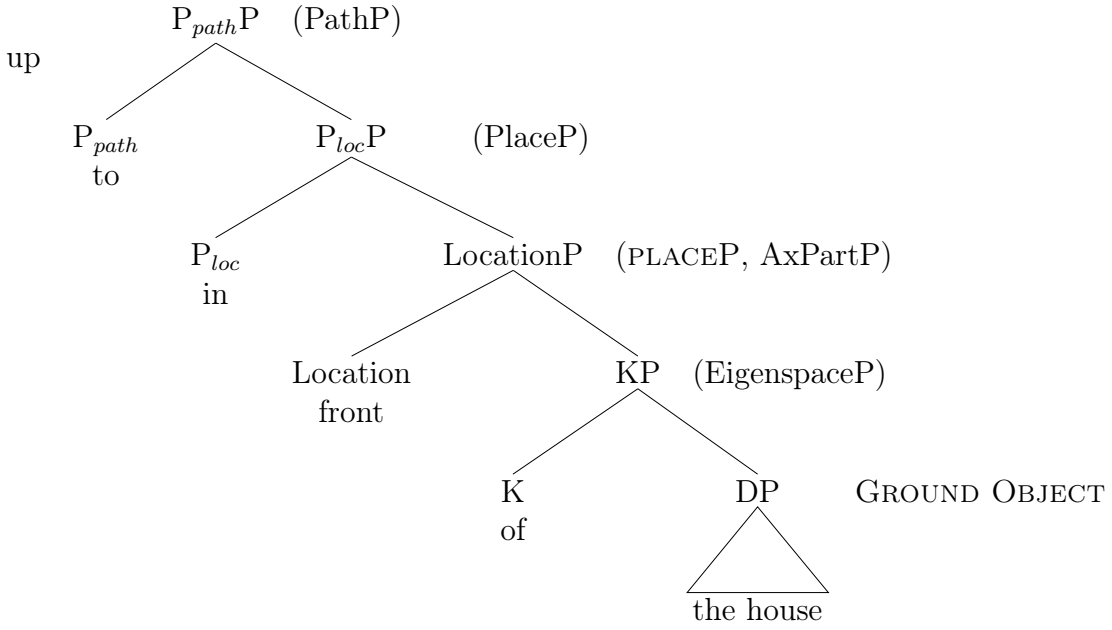
Following von Stechow (1996), Beck and Johnson (2002), I use the interpretation of *again* as a test for small clause subevents.

(10) (a) Kayleigh danced again (repetitive)
(b) Kayleigh pushed the cart again (repetitive)
(c) Kayleigh read the book again (repetitive)
(d) Kayleigh walked the trail again (repetitive)
(e) Kayleigh opened the door again (repetitive/restitutive)
(f) Kayleigh broke the stick again (repetitive/restitutive)
(g) Kayleigh put the book down again. (repetitive/restitutive)

3 The Internal Structure of P

Following the earlier results on the decomposition of PP, Koopman (2000), van Riemsdijk (1990), Svenonius (2010), Kracht (2002), it is assumed that the decomposition of P to include at least a Path Projection which dominates a Place Projection for directional PPs. In languages where distinctive morphology is found, the place morpheme is always closer to the root than path morphology (cf. Svenonius (2010), Kracht (2002)).

(11)



P_{loc}P expresses a spatial relationship to an atomic location. The construction of paths refers to the building up of a complex location consisting of an ordered set of atomic locations. P_{path}P: P_{loc}P can further now optionally combine with a P_{path} head which constructs an ordered set of locations based on P_{loc} and applies it to the FIGURE.

This is also a relational head, which expresses a relationship between a FIGURE and a PATH where we use Zwarts 2005 for the relevant definition of Path. It is a set of locations with an ordering relation imposed on it.

Further, following Svenonius (2010), Svenonius (2006b), I will assume that PlaceP should actually be split further into a P_{loc} and an Axial part projection (possibly also embedding a projection that builds minimal eigenspaces based on the ground object, thus dividing the labour between the location *relation* and the nature of the space that the FIGURE is oriented with respect to. In Svenonius (2008), Svenonius (2006b), genitive K creates an eigenspace from the object (sortally shifts it from the domain of individuals to that of spaces/locations. At this level we get the location actually occupied directly by the GROUND object. In the Kaynean implementation using silent PLACE the KP will be the eventual the possessor of the PLACE and does not denote a location directly (Kayne (2004)).

P_{loc}P: LocationP combines with a P_{loc} which establishes a spatial relationship between a FIGURE and the location. This is the relational head sometimes labelled Place in Path Place decompositions (Kracht 2002, Zwarts 2005), but we will call it P_{loc} here to emphasize the fact that unlike the LocationP which simply denotes a space/location, the P_{loc} is a predicational type. If the LocationP is very richly specified, one can get away with a very minimal relation here, IN; if LocationP is just Eigenspace, then the relation in P_{loc} in turn often needs to be much more specific/richer. We assume that languages and lexical items distribute conceptual content among these parts differently, with the same truth conditional outcomes.

4 Paths Across Categories

The decomposition of Paths into P_{path} and P_{loc} is syntactically and morphologically grounded crosslinguistically. It also receives support in the compositional semantics literature. In Zwarts (2005) and Zwarts and Winter (2000), paths are constructed from place denotations in a compositional fashion. Within this system, it can be shown that Paths themselves can either be bounded (noncumulative) or unbounded (cumulative) (Zwarts (2005)). The Path heads assumed in this system can be (at least) TO, FROM and VIA (according to Svenonius (2010)). Thus, we can have pure P_{loc}P, without a Path component, but also bounded and unbounded paths. In many cases, especially in English, prepositions can be ambiguous between a P_{loc}P denotation and a P_{path}P denotation. Some examples of the different types are given in (12) below.

(12) a. *in the house* is a P_{loc}P
b. *into the house* is a bounded TO P_{path}P

c. *toward the house* is an unbounded TO $P_{path}P$
d. *under the bridge* is ambiguous between being a $P_{loc}P$ or a bounded VIA $P_{path}P$.

Consider the Zwartsian pictures underlying paths of different kinds. In the following diagrams, + represents the holding of the property denoted by the embedded $P_{loc}P$, − indicates that the property denoted by the $P_{loc}P$ does *not* hold. A path is therefore an ordered sequence of locations constrained by whether the location denoted by $P_{loc}P$ is at the start, end, or possibly middle of the scale.

(13) TO Path: − − − − − − − − + + + +
FROM Path: + + + + − − − − − − − − −

An analogy with the verbal causational/temporal scale is tempting.

- Gradability seems to be a cross-categorial phenomenon: cf event shape for V (Zwarts 2006), paths for P (Zwarts 2005), temporal traces functions of verbs τ(e) (see Krifka 1992) and of course property scales for adjectives (Kennedy 1999, Kennedy and McNally 2005)

- The scales corresponding to different categories interact in semantically predictable and systematic ways when in close syntactic relationship, often via some kind of homomorphism: VP telicity is affected by the boundedness or quantizedness of the direct object for a certain class of verbs (Krifka 1992); VP telicity is affected by the cumulativity of the PP in complement position to the verb (Zwarts 2005); the telicity/boundedness of a deadjectival VP is determined by the boundedness of the scale of the underlying adjectival property (Hay et al. 1999).

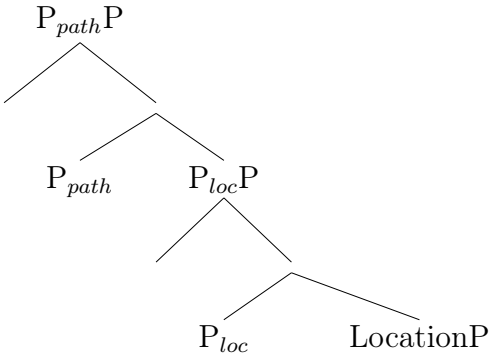
Arguably, the geometric properties of path are independent of the particular sortal domain.

Terminology
A PATH is a set of strictly ordered points in a particular sortal domain (force dynamics (for Verbs), space (for Prepositions) or qualities (for Adjectives)), with direction specified. A PLACE is a single point in a particular sortal domain; it may or may not be a member of a PATH. If it *is* a member of a PATH, it can be an initial point (a SOURCE), a final point (GOAL), or a medial point.

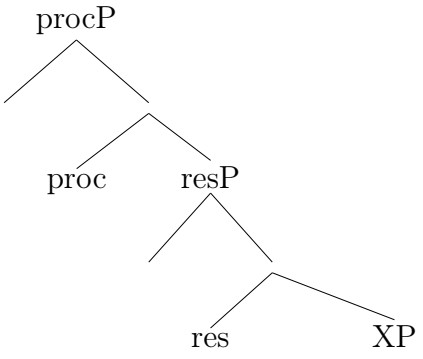
However, the structures proposed in the literature for the decomposition of P do not look perfectly parallel to the VP structures we saw above. Can we reconcile the conventions in some way, or are there actually differences between the two categories? If we kept to standard assumptions about complex vs. simple event structures (cf. also Pustejovsky 1991), and if we proposed that VP and PP were parallel, we would get a somewhat different typology of P expressions.

On analogy with the VP, we can see that the TO Paths have an 'accomplishment' structure, with $P_{loc}P$ embedded under P_{path}, as under standard assumptions.

(14) *B. Closed $P_{path}P$*



B. Accomplishment/Achievement



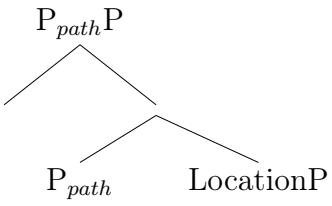
(15)

Acccomplishment PP	Accomplishment/Achievement VP
...into the woods.	...enter the room
...to the store.	write the dissertation.

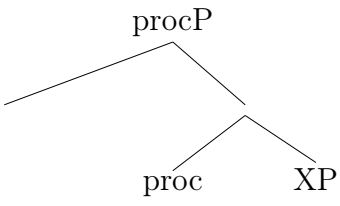
As in the VP domain, the embedding relation is interpreted as 'leads-to', giving resultativity for the VP decomposition and TO-Path in the $P_{path}P$ decomposition.[1]

THROUGH Paths on the other hand are the analogue of Activity verbs, which do not embed a result location, but construct the path directly from the Ground object.

(16) *A. Open PathP*



A. Activity Verb



(17)

Activity PP	Activity VP
...through the garden.	...dance a tango
...along the river	...walk the streets

[1]Source Paths have a more complicated structure. I will assume that they involve a simple TO-Path structure embedded under a reversative head, as in Pantcheva (2011). It is well known that crosslinguistically Goal Paths are more salient and easier to acquire than Source Paths. I take this to be a result of the primacy of the leads-to combinatorics that creates them. Detailed discussion of Source vs. Goal is beyond the scope of this paper.

This means that P_{path} heads like *through*, and *over* cannot not have the GROUND as a complement of an embedded $P_{loc}P$. In fact, we will assume that there is no $P_{loc}P$ in these paths at all. However, the P_{path} needs to combine with something of the sortal type of 'locations', so presumably the functional structure creating a (internally ordered) LocationP will still be necessary, as notated in the tree above.
Can we show that THROUGH paths do not embed $P_{loc}P$ substructure? Let us apply the *again* test from Beck and Johnson (2002) (from von Stechow 1996)

(18) (a) John pushed the cart into the woods again (repetitive/restitutive)
(b) John pushed the cart through the garden again (repetitive)

Can *through* or *across* be given a non-dynamic interpretation? And if so, doesn't this mean that they have to be able to (at least shrink down to) PlacePs?

(19) (a) The needle is through the pincushion.
(b) The log lies across the river. (after Svenonius 2010)

Not necessarily.
I still assume that we have extended (i.e. PathP) projections here. It is just that in this case, the extended path-like structure is mapped onto the extent of the FIGURE instead of being mapped to a timeline, because the verb is stative (as in Gawron 2003).

Thus, in addition to the P_{path} combining with $P_{loc}P$ to create a derived Path based on a location, we also allow P_{path} to combine directly with a LocationP, on analogy with the verbal domain. In the VP case, particularly salient in the example of creation/consumption verbs, V_{proc} and DP 'Path' combine under homomorphism where the DPs structure is its material part-whole structure. Similarly, P_{path} creates a predication of ordered locations from the internal part-whole structure of the DP. [2]

[2]Ramchand (2008) argues that DP *complements* are rhematic and combine with verbal heads under homomorphism, while DP *specifiers* are subjects of predication. The complementation structure for PPs is uncontroversial in this case. The direct syn-sem analogy to VPs however, appears only under the Ramchand (2008) analysis of creation/consumption verbs.

4.1 Modified Typology of P in English

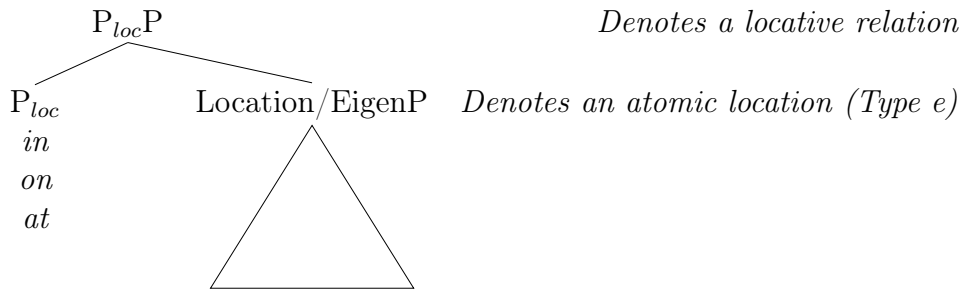
In what follows, I will assume that the best test for determining whether a PP is a $P_{path}P$ or $P_{loc}P$ in English is whether it gives rise to locational or directed motion interpretations under non-inherently directed verbs of motion such as *dance* (cf. Higginbotham 2001).

4.1.1 Simple Locations

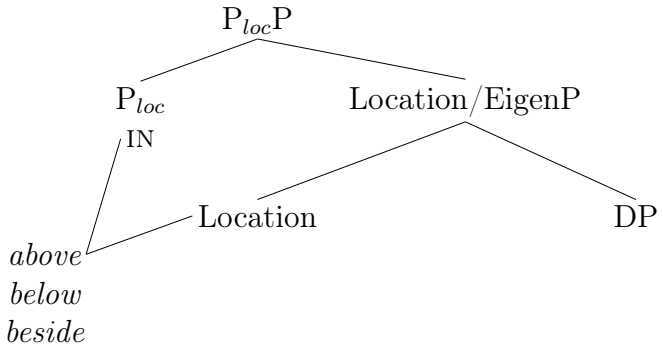
(20) **Located Motion Reading**:

John danced
- in the room
- on the table.
- at the party.
- above the surface of the water.
- below the table.
- beside the table.
- between the trees.

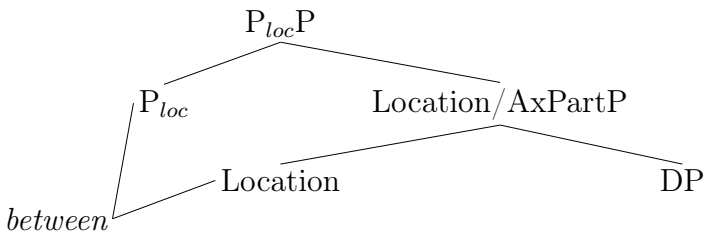
(21) Simple Atomic Locations (a)



(22) Simple Atomic Locations (b)



(23) Simple Atomic Locations (c)



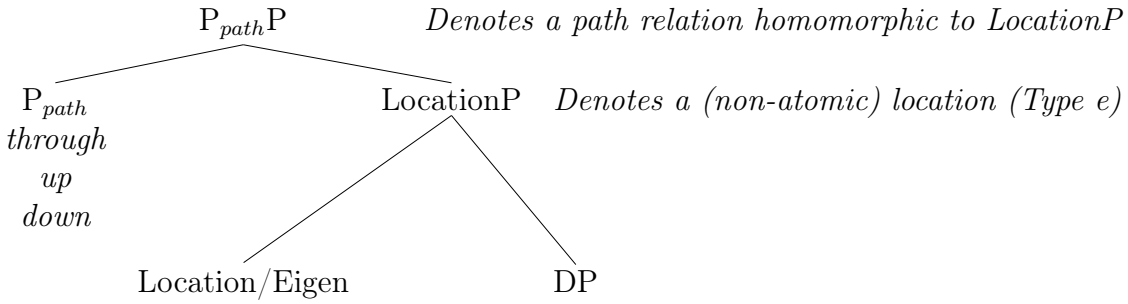
4.1.2 Simple Paths

(24) **Directed Motion Reading**:

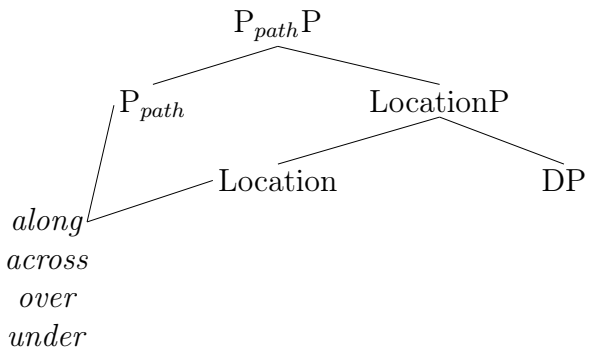
John danced through the streets
along the river.
across the field.
up the street.
down the street.
over the bridge.
under the bridge.[3]

In all of these cases, the sentences above with *again* modification only get the repetitive reading and not the restitutive reading.

(25) Simple Paths (a)



(26) Simple Paths (b)

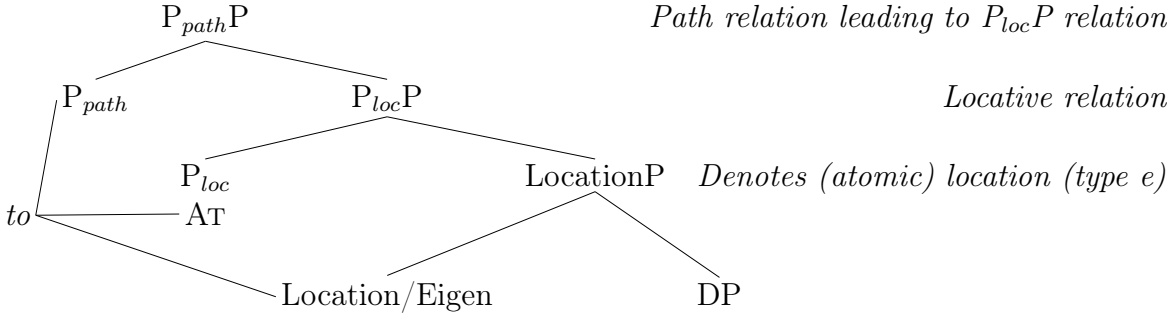


4.1.3 Complex Paths

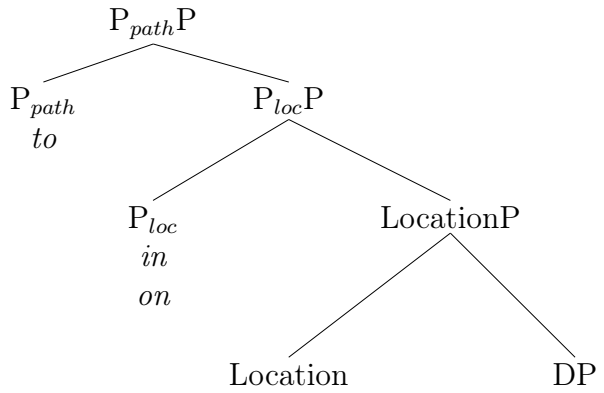
(27) **Directed Motion Reading**:
John danced to the river
into the cave.
onto the platform.

Here the *again* test gives both a restitutive and a repetitive reading.

(28) Complex Paths (a)



(29) Complex Paths (b)

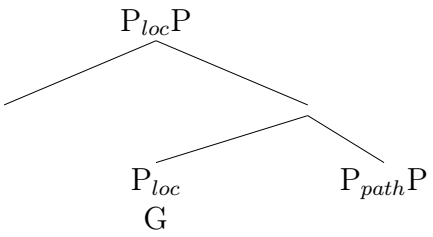


4.1.4 Another Type of Complex Path

Another important way of getting static locations out of pathPs is to create a Cresswellian location, as Svenonius has argued, via a G head which picks out the location 'at the end of an imagined journey along the path'. I assume with Svenonius that this is a P_{loc}, but that is it not simple in the sense that it is actually derived from P_{path} substructure.

(30) (a) The post office is just over the hill.
(b) The band was playing across the field.

(31)



Taking Stock:
-The fact that crosslinguistically, Vs and Ps combine to jointly determine a VP path with fluid boundaries for division of labour also seems to indicate that V and P are lexicalizing the same kinds of Path notions.[4]

4.2 Property Scales and the Category A

But what about Adjectives? Don't they have scalar structure too? And doesn't it just make them the exact equivalent of V and P, but in the property domain?

At least according to Kennedy (1999) and subsequent work, underlying scales are indeed part of the core meaning of all adjectives. In particular, Kennedy and McNally (2005) argue that the scales underlying adjectival denotations come in four main types (where R is an ordering relation and Δ is a dimension).

(32) (a) $< D_{(0,1)}$, R, $\Delta >$ TOTALLY OPEN
(b) $< D_{[0,1)}$, R, $\Delta >$ LOWER CLOSED
(c) $< D_{(0,1]}$, R, $\Delta >$ UPPER CLOSED
(d) $< D_{[0,1]}$, R, $\Delta >$ TOTALLY CLOSED

K & McN use modificational diagnostics to distinguish the different types. Here are some examples of the classification. (NB: The diagnostics do not always give sharp results in all cases).

[4] I am thinking here also of the classic Verb framed vs. Satellite framed languages, where languages differ with respect to whether the verb usually lexicalizes PATH notions itself, or whether it relies on other satellites (often in the P domain) to do so.(Talmy 1985)

totally open: *short/long*
upper closed: *safe/dangerous*
lower closed: *loud/quiet*
totally closed: *empty/full*

Note that there are generalizations about the relative vs. absolute nature of the adjective and the nature of the scale. As well as generalizations about complementarity and the nature of the scale.

GeneralizationI: Closed scales give rise to absolute interpretations.
Generalization II: Open scales give rise to relative interpretations.
Generalization III: If two antonymic adjectives have relative standards, you never get perfect complementarity.

Kennedy and McNally take the underlying scale to be part of the core meaning of all positive adjectives (in addition to absolute vs. relative). They can explain generalizations II and III, but not generalization I.

In addiition, a distinction is often made between 'partial' and 'total' adjectives. (Cruse (1980), Yoon 1996 Rotstein and Winter 2004).

(33) (a) Are the toys dirty ? (yes, if some of them are dirty): *partial*
(b) Are the toys clean? (yes means they are all clean) : *total*

Partial adjectives: 'minimum standard' (lower closed) according to Kennedy and McNally
Total adjectives: 'maximum standard' (upper closed)

The upper closed and lower closed scales of Kennedy and McNally correspond to Crusian complementarities where one adjective is total and the other is partial.

However, there are strong reasons to believe that the scalar structure proposed for adjectives here is not a straightforward parallel to the V and P cases. One might even claim that the evidence for path structure as represented phrase structurally is strikingly absent from the category A, when compared to V and P. This either means that Kennedy is wrong about his denotations, or that they are relevant to the underlying semantics and not to the syn-sem computation, or even that they are somehow closed off from interacting with any other system by some opacity introducing head.

For example, following Zwarts and Winter (2000), we might expect that modification by a measure phrase would diagnose the 'vector' or scalar nature of an adjective denotation. In fact, while some open scale adjectives take measure phrases, many (most) do not.

(34) six foot tall/*five foot short.
7 inches deep/*3 inches shallow.
*3 lbs heavy/*3 lbs light.

All comparatives, on the other hand *can* combine with measure phrases. These clearly must denote SCALES/PATHS

(35) five inches shorter.
3 inches shallower.
3 pounds lighter.

To finesse this problem, Schwarzschild (2002)) divides modifiers into *degree* modifiers and *range* modifiers and claims that they actually apply to things of different type.

(36)

Degree Operators	Range Predicates
very	*much*
too	*a lot*
so	*a little*
enough	*little*
-er, more, less	*a bit*
as	*enough*
that	measure phrases (*3lbs*)

In fact, adjectival resultatives denote a stative final property; they do not contribute a property scale of change.

(37) (a) John washed the table clean.
Doesn't mean he washed it cleaner and cleaner
(b) John showered clean.
Doesn't mean he showered cleaner and cleaner
(c) John danced warm.
Doesn't mean that he danced himself warmer and warmer.

Adjectives CAN combine with verbs to give dynamic property predications, but only if the verb already has PATH encoded in it. Even so, I find myself preferring the comparative in clearly atelic contexts such as those below.

(38) (a) The shirt grew/became ?dirty/dirtier and dirtier for weeks before John finally washed it.
(b) The shirt became dirty/clean.

This possibly contrasts with what happens under conflation, where it has been argued that deadjectival verbs carry over the scalar structure of the corresponding adjective (Hay et al. 1999). But the diagnostics here are notoriously wobbly.

totally open: *short/long*

(39) (a) The tailor shortened/lengthened the dress in two minutes flat.
(b) ?They shortened/lengthened the rope for three minutes.

totally closed: *empty/full*

(40) (a) They emptied the tank in two minutes.
(b) They emptied the tank for two hours, but the water still wasn't all gone.

What *is* clear:
(i) Deadjectival verbs have variable telicity
(ii) In cases where we can see a stem difference, deadjectival verbs form from the comparative stem, not the positive one. (See Bobaljik to appear for extensive discussion of this generalization)

Problems with Taking Scales to be Basic for the category A

- Non-gradable adjectives have to be different (but maybe this is ok, they would be the conceptual parallel to stative verbs)
- Cannot capture generalization I without additional stipulation.
- Cannot capture the generalization that upper closed scales are 'total', while lower closed scales are 'partial'.
- We know comparatives must denote scales directly. They always take measure phrases, they do not imply the truth of the corresponding positive adjective. How do we make a difference between adjectives and comparatives, when (at least) half of the adjectives in our lexicon also denote scales?
- Isn't it funny that you have to put an extra layers of structure on an adjective like *tall* to get it to do what it does best, and most primarily, namely predicate a property (degree) of an individual?
- If adjectives can denote in the PATH type directly, why can't they combine more systematically with Vs to contribute a directional component that can then be mapped onto a time line?
- No direct morphological evidence of the analogue of Path embedding the analogue of Place in the AP domain. (Far simpler to assume that adjectives simply *are* simply PlacePs (non-scalar property) and the comparative adds the extra 'Path' structure)

Assuming scales to be basic for adjectives might be pleasing for some semantic reasons and find certain kinds of abstract motivation, but the comparison with the prepositional case is telling. Unlike the situation with P (and V), the decomposition into the equivalent of 'path' and 'place' (i) doesn't make sense of the natural classes within the category A, (ii) doesn't explain the external distribution of measure phrase or other modifiers, (iii) doesn't predict the behaviour of A in combination with other scalar structures (even under conflation) (iv) is not morphologically substantiated across languages. If scales *are* part of the internal semantics of adjectives then they are so in a way that is opaque to the syntax.

So what is the alternative to building in some notion of scale into the denotation of A? There is actually a tradition of this in the literature, going back to McConnell-Ginet (1973), Kamp (1975), Klein (1980), which has been called the partial function analysis of gradable adjectives. This kind of approach builds vagueness directly into the meaning, but does not have a variable in the representation that corresponds to the scale. In such a view, the 'scale' is a general cognitive notion that underlies our understanding of property meanings.

(41) (a) $[[\ \phi(\text{x})\ ]]^c = 1$ iff x is in the positive extension of ϕ at c.
(b) $[\ \phi(\text{x})\ ]]^c = 0$ iff x is in the negative extension of ϕ at c, and
(c) $[\ \phi(\text{x})\ ]]^c$ is undefined otherwise.

The problem with this view is that it has problems dealing with comparatives and the manipulation of non-context dependent intervals on a particular scale.

A promising alternative would be to say that adjectives primarily *all* lexicalize atomic properties, even the relative standard ones. as Kamp (1975) and Klein (1980)[5] would have it, but then allow scalar denotations to be systematically built up from those atomic properties with universal functional structure, but only when either explicitly built by a comparative head or a null morpheme triggered by the addition of a measure phrase (subject to conventionalization).
Under this view, it is the comparative that forces the building of goal and source paths, and derives measurable scales. Also, certain measure phrases would have the ability to create suitable path structure, modulo encyclopedic well formedness. Adjectives in their normal predicative use are just atomic properties, adjectives themselves do not decompose into scalar and non-scalar projections, or have phrase structurally represented path structure in the same way as P and V.

Conclusion: Adjectives are Different
•Adjectives do not have parallel internal decompositional structure matching what we find in P and V
•Adjectives cannot take events as their external argument.

5 What is Special About Particles/Prefixes?

As mentioned before, particles can be thought of as 'intransitive' prepositions (as in Emonds 1985). The list of particles as given in Svenonius (2010): *up, down, on, off, in, out, away.* Svenonius shows that particles are in fact primarily Path-like, rather than Place like. They are able to get path-like readings in the *dance* examples. A located motion reading is simply not available in this context.

(42) He danced up/down/on/off/in/out. PATH READING ONLY

[5]See also Chierchia and Turner (1988) for a view which takes properties to be atomic members of our semantic ontology.

But particles can be used purely statively too, although in this case, Svenonius (2010) argues that these are conventionalized and idiomatic, and do not have a primarily spatial interpretation.

(43) (a) She's off. (*off shift, mistaken*)
(b) He's up. (*awake*)
(c) He's down. (*depressed*)
(d) She's in/out. (*at, or not at work/home*)
(e) We're on. (*performing*)
(f) She's over. (*here visiting*)
(Data lightly adapted from Svenonius (2010))

Particles are (nearly)always substantially overlap with the prepositional inventory of a particular language. If we consider the typology of prepositions offered in section 4, we see that particles are drawn from all possible subtypes in this typology: *in/on* seem to be simple P_{loc}Ps, *up/down* are simple P_{path}Ps; *out/off* are complex P_{path}Ps (I haven't talked about these but I assume that they are 'complex' plus reversative, to get the source interpretation, as in Pantcheva 2011). However, if we are to find some generalization, it might be possible to say that none of the 'particles' actually lexicalizes 'location' —- just P_{path}, or even P_{loc} (the more abstract relational heads). The elements that have particle uses are ones that can either underassociate their spatially rich LOCATION head, or never had one to begin with.

In Svenonius (2010) we also see that particles can modify both P_{path}Ps, and P_{loc}Ps. In the examples below I show them modifying simple P_{loc}Ps and simple P_{path}Ps in turn (according to the classification discussed above).

(44) (a) We ate our dinner in among the trees.
(b) John ran in through the tunnel.
(c) We were down in the valley.
(d) We ran down through the forest.
(e) There are flowers out in the garden.
(f) We carried the dog out through the tunnel.

Svenonius (2010) argues that on the Place modifying meaning, the particles in question still contain Path structure; they get their purely locational interpretations via the derived G-location reading, as given in (31) above. If this is true, then particles *always* lexicalize a P_{path} feature.[6]

To summarize, then, even before considering their combination with verbal projections, particles have the following distinctive properties.

- Particles lack an overt Ground (crucially, not merely a contextually dropped Ground DP, but an incorporated or radically absent one).

[6]However, the particles *in* and *on* in English might possibly be problematic for this account since they do not have any non-particle uses that have P_{path} structure at all. In the Scandinavian languages however, there are morphologically distinct 'particle' versions of 'in' and 'on', so it might not be so strange to argue that English just has an idiosyncratic gap here.

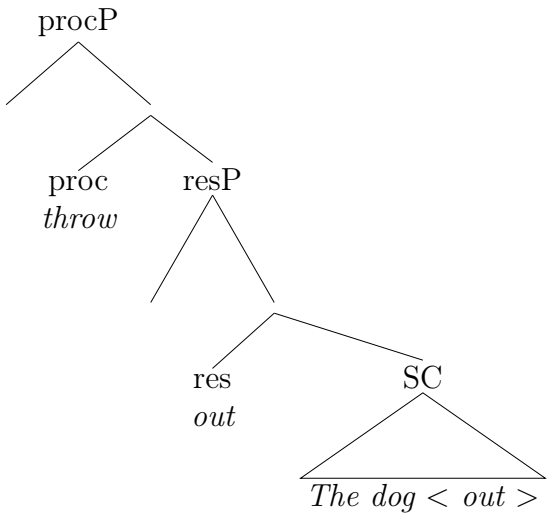
- Particles have a P_{path} feature which is closely semantically/algebraicly parallel to ProcP in the verbal domain
- Particles don't just lack a Ground DP, they also seem to lack obligatory LOCATION information

Turning now to the main topic of this workshop, particles combine with Vs to create apparently extra predicational structure, extra directional interpretations, and aspectual modificatory effects on the VP. In English this close relationship manifests itself as particle shift, but in many other languages the equivalent is often prefixation.

(45) (a) John handed in the money.
(b) John pushed down the lever.
(c) John looked up the number.
(d) John threw out the dog.

In Ramchand and Svenonius (2002) we argued that the particle was the head of a resultative small clause that sat in the complement position of the verb. We derived the shifted particle position via head movement of the particle to the head of *res* in the verbal decomposition proper.

(46)



The problems with that account are that it does not generalize to all types of particle/prefix interpretations (and is designed only for the most common type found in English). We now think the head analysis of particle placement is probably wrong, although the licensing of small clause structure by particles is still correct.

We have seen that particles modify both $P_{loc}P$ and $P_{path}P$. We have also seen that two main factors distinguish P from A: matching scalar structure with V, taking an event as an external argument, and the ability to syntactically *modify* V. We should assume that these properties are not independent.

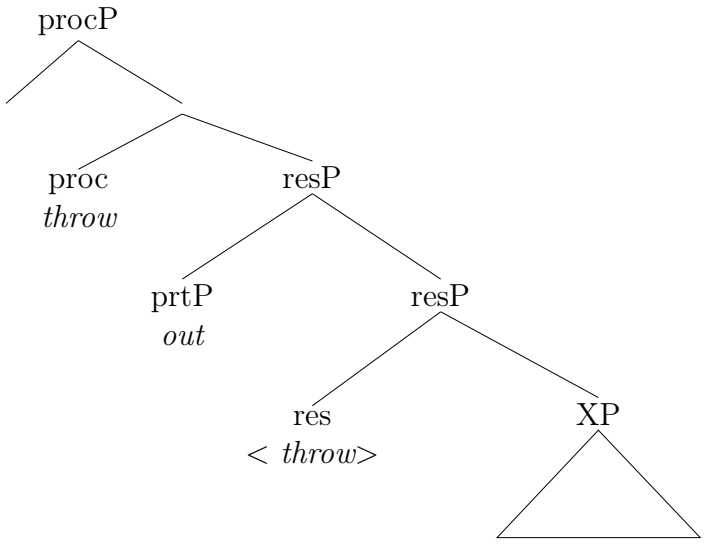
Given that the properties of V closely match those of P, and given that particles can modify

both $P_{path}P$ and $P_{loc}P$, we should assume that particles can also 'modify' ProcP and ResP too (and possibly even initP).

The cleanest analysis would be that particles are in the same 'modifying' position in both PPs and VPs. If so, then we have the following clear possibilities:
-P_{path} particles modifiers of ProcP
-P_{path} plus G-location modifiers of ResP

I am using 'modifier' here as a pre-theoretic descriptive term that refers to an element in phrasal position that is a non-selected adjunct to another phrasal projection. I assume that the modifier combines with the modifiee by simple semantic conjunction of properties, but that there is a sortal/compatibility condition on adjunction in the first place. I assume that whatever syntactic representation is appropriate for the particle modifiers of (subparts of) PPs in sentences like (44), it is also what is found when the particle modifies subparts of VPs as in (45). Returning to the common particle construction originally analysed as above by Ramchand and Svenonius, I offer the following alternative in the spirit of the phrasal modifier analysis. The particles in English which introduce resultative substructure are actually adjuncts of resP.

(47)



Either the verb itself heads the resP, as in *throw*, or the head of the resP is simply implicit as in *hand the results in*. I assume that particles can license implicit resultative structure in general because of their own internal structure contains a derived result location (Svenonius's G-locations). Particle 'shift' in this case could arise from the choice of spell out position of the internal argument DP, i.e. whether it spells out in spec, resP (presumably below the particle), or spec, procP (above the particle).

While this is only the sketch of a strategy for understanding the syntax of particles and how they are integrated into the VP, it seems to me to be an important analytic option to explore, given the fact that particles do behave this way when modifying PPs. Of course particles and PPs also occur in complement positions, and head predicative projections in

their own right. However, I have speculated that this possibility is not the source of the 'special relationship' between V and P, since APs form secondary predications to V equally easily. Rather, it is the modificatory possibilities that are the clue to P's close relationship possibilities with V, and it is *this* that drives prefixation.

6 Conclusions and Speculations

Particles are modifiers of Path structure and sit in a phrasal position; they are not heads in the event structure decomposition.

Once you remove the LOCATION/SPACE/EIGENSPACE complement structure from P and allow it to take a spatial eventuality as an argument, then P is identical to the lower portions of V.

Even though the particle sits in a *phrasal* position, it is head-like in the sense that is has no syntactic complement structure. It is this property of particles that allows them to participate in word formation with the verbal heads they modify, or to have distinctive word order possibilities more generally even in languages where they are not prefixed.

In Svenonius (this conference), we will hear a more detailed set of answers to these word order issues.

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