THE ROOT OF IT ALL:
AFFECTEDNESS ACROSS LEXICAL CATEGORIES *

Tom Roberts
UC Santa Cruz
rotom@ucsc.edu

Abstract The inability of some event-denoting nominals to form the 'nominal passive', whereby the internal argument of the verb corresponding to that nominal surfaces in front of the nominal as a possessor (*the city's destruction* but **algebra's knowledge*), has been proposed to derive from the structural deficiencies of such nominals: they violate the Affectedness Constraint (Anderson 1977, 1984), which limits passivization to nominals with sufficiently complex event structure. In this paper, I propose that the Affectedness Constraint can be unified with a superficially different syntactic restriction: partitive case assignment in Estonian. In Estonian, the assignment of partitive case on objects of certain verbs tracks almost precisely with the inability of cognate nominals of those verbs to passivize. This cross-domain commonality suggests that the Affectedness Constraint is sensitive to properties of roots, and not verbal structure as previously proposed.

1   INTRODUCTION

It is well-known that the internal arguments of some nominals derived from transitive result verbs, such as *construction* and *examination*, can surface in front of those nominals as preposed possessors in the 'nominal passive' form (Chomsky 1970; Anderson 1977; Doron and Rappaport Hovav 1991: *et seq.*).

(1)   a.   The aliens constructed the ziggurats.
      b.   The ziggurats' construction was mysterious.

(2)   a.   The doctor examined the patient.
      b.   The patient's examination was lengthy.

(3)   a.   The megalomaniac imprisoned the dissenter.
      b.   The dissenter's imprisonment was unjust.

I use the following abbreviations in interlinear glosses: ACC = accusative, ADE = adessive, ALL = allative, COM = comitative, GEN = genitive, NEG = negative, NOM = nominative, PART = partitive, TRNSL = translative.

This pattern contrasts with transitive stative verbs like *know* and their corresponding nominals like *knowledge.* A direct object of a stative verb cannot appear as a preposed possessor before a nominal which is cognate with that verb.[1]

(4)   a.   Flora knows algebra.
        b.   *Algebra's knowledge is well-established.

(5)   a.   The oboist hates the arid climate.
        b.   *The arid climate's hatred is extreme.

Anderson (1977) observed that the (in)ability of some nominals to passivize correlates with semantic properties of the events described by those nominals. Namely, an internal argument must be 'Affected' by the event in order to permit preposing, in the sense of Doron and Rappaport Hovav (1991) and Sichel (2010):[2]

(6)   **Affectedness**
        An argument y of a $V(x,y)$ is Affected iff there is a subeventuality e of the eventuality e' denoted by V such that y, but not x, is an argument in e.

(7)   **Affectedness Constraint**
        Only Affected arguments of event nominals may prepose.

In other words, 'Affected' objects are those which participate in events with at least two subparts, one of which involves the object but not the subject. The AC also correctly predicts that stative nominals disallow preposing, because stative eventualities are homogeneous: every proper subinterval of a state is also an instance of a state of the same kind (Dowty 1979: *et seq.*), so there is necessarily no subevent of a state that involves the object as an argument to the exclusion of the subject.

      The Affectedness Constraint is often taken to indicate that unpassivizable nominals are deficient in some way that is reflected morphosyntactically, be it their argument structure (Grimshaw 1990: a.o.) or event structure (Doron and Rappaport Hovav 1991; Sichel 2010: a.o.). What is most striking, however, is that a notion quite similar to Affectedness has been argued to play a prominent role in the verbal domain: object case assignment in Finnic. In languages like Finnish, the choice of object case correlates quite closely with 'boundedness' of events, which closely mirrors the subevent condition of the AC.

      In this paper, I propose that Affectedness is not limited to nominals: it also plays a role in the verbal domain, specifically with respect to object case assignment. I demonstrate that in Estonian, in which stative nominals are unpassivizable like English, the notion of Affectedness can also be leveraged to explain the

---

1 There are of course other ways in which stative and eventive nominals differ, but they are not germane here.

2 While these authors couch Affectedness in terms of *events*, I use the more inclusive description *eventuality*, since Affectedness is also highly relevant for states.

distribution of direct objects of verbs which get assigned partitive case, including statives. In so doing, I argue that this cross-domain sensitivity of eventuality-denoting words to Affectedness strongly suggests that what matters for the Affectedness Constraint is the lexical semantics of the nominal root, as opposed to its syntactic argument structure or event structure, in the spirit of Smirnova (2015) and Smirnova and Jackendoff (2017).

The paper proceeds as follows. In §2 I provide necessary background about case assignment in Estonian, and demonstrate that stative verbs and nominals all behave uniformly with respect to case assignment and passivization respectively, even across disparate semantic classes. In §3 I propose that only Affected objects receive partitive case, and demonstrate that this characterization is preferable to other potential accounts of partitive case assignment. In §4 I discuss where the sensitivity of some eventualities to come from, and conclude that it must be localized within lexical semantic properties of eventuality-denoting roots. §5 concludes and points to future directions for cross-categorial work on statives.

2   PROPERTIES OF ESTONIAN STATES

2.1   NO NOMINAL PASSIVE

In Estonian, nominals derived with the suffix -*us* exhibit English-like behavior with respect to argument realization. Like English, Estonian word order is canonically SVO, and direct objects are allowed to prepose event nominals in the genitive case; stative nominals disallow this preposing.

(8) a.   Keskerakond valitses   Eestit.
          Centre.Party governed Estonia
          'The Centre Party governed Estonia.'   EVENTIVE
     b.   Eesti   valitsus   on stabiilne.
          Estonia.GEN government is   stable
          'Estonia's government is stable.'

(9) a.   Liis armastab matemaatikat.
          Liis loves   mathematics
          'Liis loves mathematics.'   STATIVE
     b.   *Matemaatika   armastus on oluline.
          mathematics.GEN love(N)   is   important
          Intended: 'Love of mathematics is important.' [3]

As we will see, the pattern in (9) is robustly attested for stative verbs and stative -*us* nominals of many different kinds.

---

3 In this example, and many of the examples that follow, it is licit to phrase the subject here as a noun-noun compound in which the first noun is genitive i.e., *matemaatikaarmastus*. While this is superficially similar to the possessor construction, it is prosodically distinct, and also not fully productive, as the first noun in the compound cannot be a proper name or a pronoun.

2.2 States take obligatorily partitive objects

Many Finnic languages, including Finnish, Estonian, Votic, Veps, and Livonian, are well-known for direct object case marking correlating roughly with aspectual properties of the predicate, though a fully predictive description of what those properties are has been famously elusive (Kiparsky 1998, 2001; Tamm 2008; Csirmaz 2012; Lees 2015). Direct objects in Finnic are morphologically marked either with accusative or partitive case. Very roughly speaking, accusative objects mark events that are telic, bounded, or perfective. By contrast, partitive objects mark events that are atelic, unbounded, or imperfective. We will revisit this characterization in §3.

In Estonian, as in the other languages, a large number of verbs (called 'partitive verbs') take only partitive objects, and not accusative ones.[4] Notably, the class of partitive verbs is claimed to include all stative verbs (Erelt et al. 1995; Craioveanu 2014), exemplified by *kartma* 'fear' in (10):

(10) Ma kardan ämblikke/*ämblikkud.
     I fear   spiders.PART/spiders.ACC
     'I'm afraid of spiders.'

2.3 Defining states

Stative verbs, true to their name, are verbs which denote states. States are eventualities which are durative, but do not involve change (Vendler 1967). Another way of saying this is that states are internally homogeneous; every proper subpart of a state is itself a state of the same kind (Dowty 1979; Kearns 1991). From this fact it follows that states do not have natural temporal boundaries: if we cannot tell one subpart of a state from another, then we certainly cannot identify a *transition* from one part of that state to another either.

I demonstrate that the Affectedness Constraint for nominal passives and obligatory partitive case assignment hold robustly for stative verbs of different argument configurations. There are numerous grammatical diagnostics for stativity, largely capitalizing on their homogeneity: they cannot be complements of verbs like *force*, they cannot occur as imperatives, and they cannot be modified by deliberative adverbs such as *carefully* (Lakoff 1966; Dowty 1979). The statives discussed in this section all pass these tests with flying colors, though the application of these tests is omitted for space.

Because we are only interested in what happens to the direct objects of

---

4 Unlike Finnish, Estonian lacks a dedicated morphological accusative case. Rather, non-partitive objects are morphologically genitive when singular and nominative when plural. There is debate in the literature about whether Estonian also lacks a syntactic accusative case, but for our purposes what matters is the contrast between partitive and non-partitive case. I follow Norris (2018) in treating these as morphological realization of syntactic accusative case and gloss them as ACC accordingly.

states, I will not discuss statives which do not take a direct object. In this section, we will see that the generalizations of interest hold robustly for stative verbs of varying argument configurations.

2.4 SUBCLASSES OF STATES

2.4.1 *Subject-experiencer verbs*

Subject-experiencer verbs can be grouped into two categories. The first consists of psych verbs which have nominative experiencers, such as *armastama* 'love' and *vihkama* 'hate', which we have seen assign partitive case to their objects and reject nominal passivization, as in (9).

Estonian also has experiencer verbs in which the experiencer is expressed preverbally and carries non-nominative case, thus it is less clearly a 'subject'. For allative-marked experiencer verbs like *meeldima* 'like' and *meenuma* 'recall, remember', the post-verbal argument generally takes nominative case. In corresponding nominalizations, this nominative object can surface as a preposed possessor.

(11) a. Mulle   meenub minu lapsepõlv.
          1SG.ALL recalls   my   childhood.NOM
          'I remember my childhood.'
      b. lapsepõlve   meenutus
          childhood.GEN rememberance
          'childhood remembrance/memory of childhood'[5]

A small number of verbs, such as *valutama*, also have what appear to be preverbal subjects with adessive case, resembling possessor constructions (Erelt et al. 1995), though it is not clear that these subjects should be considered experiencers. Although the nominal counterpart of *valutama* is not an *-us* nominal, it does allow the postverbal nominal to prepose as well, though notably, is it not necessarily clear that this is a semantic argument of the nominal itself.

(12) a. Mul   valutab hammas.
          1SG.ADE hurts   tooth.NOM
          'My tooth hurts/I have a toothache.'
      b. hamba   valu
          tooth.GEN pain
          'tooth's pain'

In both (11) and (12), we have stative verbs with no partitive arguments, but which do permit the normally postverbal argument to function as a preposed possessor in the nominal domain.

---

5 See the song 'Lapsepõlve meenutus' by Anne Veski (1985).

2.4.2 Object-experiencer verbs

Object-experiencer statives are semantically similar to their subject-experiencer brethren, but assign experiencer roles to their objects, such as *tüütama* 'bother, annoy'. In some cases, these verbs are counterparts of subject-experiencer verbs, in that they describe the same situation but with a reversed mapping of thematic roles onto syntactic arguments (Pesetsky 1995; Landau 2010: a.o.). This is the case for the OE verb *hirmutama* 'frighten', which is the OE counterpart of the subject-experiencer verb *kartma* 'fear'. Notably, few of these verbs, if any, seem to alternate with an *-us* nominal, so it is difficult to assess the Affectedness Constraint for these nominals.

(13)   a.   Ämblikud hirmutavad Priitu/*Priidu.
              spiders   frighten   Priit.PART/GEN
              'Spiders frighten Priit.'

2.4.3 Measure verbs

Measure verbs are those whose complements describe the degree to which a particularly property holds of the subject. Verbs in this class include *kaaluma* 'weigh' and *ulatuma* 'span'. Because the complements of these verbs are typically numerical expressions, it is not straightforward to determine their case, since numerals always assign partitive case to whatever they modify. It is also difficult for this reason to know whether to attribute the badness of the corresponding nominal passive to a clash between possessive genitive case and numerical partitive case.

(14)   a.   Sild   ulatub 10 miili   üle   vee.
              bridge spans   10 mile.PART across water
              'The bridge spans 10 miles across the water.'
        b.   *10 miili   ulatus
              10 mile.GEN span
              Intended: '10 miles' span'

2.4.4 Modal verbs

Modal verbs are a small class, arguably similar to subject-experiencers, though I consider their nominalizations separately following Alexiadou (2011). Like vanilla subject-experiencers and measure verbs, verbs of modal state require partitive objects and their corresponding nominals cannot passivize.

(15)   a.   Lapsed   vajavad armastust/*armastus.
              children need   love.PART/love.ACC
              'Children need love.'

b. *armastuse vajadus
    love.GEN   need
    Intended: 'The need for love'

2.4.5   Spatial-orientation verbs

Kratzer (2000) observed that verbs of spatial orientation often have both stative
and eventive readings; one can force the stative reading with an non-agentive
subject. For instance, *ümbritsema* 'surround' and *hõlmama* 'cover' have both
eventive and stative readings. While both partitive and accusative case are pos-
sible on objects of these verbs, that is only the case if the subject is agentive;
otherwise, only partitive objects are possible.

(16)   a.   Tara   ümbritseb aeda/*aia.
            fence surrounds garden.PART/garden.ACC
            'The fence surrounds the garden.'
       b.   Armee ümbritseb aeda/aia.
            army   surrounds garden.PART/garden.ACC
            'The army is surrounding the garden.'

This dichotomy is also reflected in the nominal passive. The passive forms of
spatial orientation nominals are licit, but only in a context in which it is clear
that the nominal is describing an event. For instance, the Estonian equivalent of
a passive *by*-phrase, a PP headed by the postposition *poolt*, may only contain an
agentive DP when paired with such a nominal passive:

(17)   aia   ümbritsus   *tara/armee poolt
       garden.GEN surrounding fence/army by
       'The surrounding of the garden by the fence/army'

It has been claimed by Tamm (2004) that a subclass of these verbs, namely verbs
of division like *poolitama* 'halve', are unique among stative verbs in that they *only*
admit accusative objects. She does not provide specific aspectual tests to support
the notion that such uses of these verbs are indeed stative, and I have not been
able to replicate her judgments. Rather, I found that a partitive-marked object
with *poolitab* was not only grammatical, but is indeed truly stative. For instance,
poolitama with a partitive object cannot combine with an *in x time* adverbial,
which can only modify telic predicates:

(18)   Jõgi poolitas naabruskonda   kaheks   võrdseks   osaks
       river divided neighborhood.PART two.TRNSL equal.TRNSL part.TRNSL
       (*viie aastaga).
       five   year.COM
       'The river divided the neighborhood in two equal parts (*in five years)'
       (Adapted from Tamm 2004: 101)

Rather than being an accusative-assigning stative, I suggest that *poolitama* is of a kind with other spatial verbs: it has a life both as a stative and eventive predicate, and when genuinely stative, it behaves as other statives and assigns partitive case to the direct object.

2.5 Summary

Across several semantic subcategories, the behavior of stative verbs and their cognate nominals appears to track very closely. If a verb is interpreted statively, it must assign partitive case to its direct object (should it have one); if a nominal is interpreted statively, the equivalent argument to the partitive-marked object of the verb cannot surface as a prenominal possessor. For the handful of stative verbs whose postverbal arguments are non-partitive, such as non-nominative subject experiencers, passivization of the equivalent nominal is possible, suggesting that partitive case assignment in the verbal domain mutually entails inability to passivize in the nominal domain.

3 Affectedness and Partitive Case

3.1 Partitive case beyond states

In what we have seen so far, there is a clear link between stativity and partitivity. However, partitive objects in Estonian also surface in other linguistic contexts. Simplifying quite a bit, while accusative objects mark 'bound' or perfective events, partitive objects tend to correspond either to an imperfective interpretation of the event, or some indeterminate quantity of the object (19). Additionally, partitive case on objects is obligatory under sentential negation, regardless of the aktionsart of the verb (20):

(19)   a.   Arvo kooris kartul.
            Arvo peeled potato.ACC
            'Arvo peeled the potato.'
    b.   Arvo kooris kartulit.
            Arvo peeled potatoe.PART
            'Arvo was peeling the potato.'/'Arvo peeled some of the potato.'

(20)   Liis ei   lugenud   raamatut/*raamatu.
        Liis NEG read.PAST.NEG book.PART/book.ACC
        'Liis didn't read the book.'

We cannot appeal only to stativity itself in generalizing about the partitive case. However, what stativity, imperfectivity, and negation all have in common is the absence of a natural 'endpoint', or what is commonly referred to as 'boundedness' in literature on Finnic. I believe that the close kinship between partitive objects

of verbs and unpassivizability of nominals reveals that the notion of Affectedness itself is the right cut to make:

(21)   **Partitive Case Assignment Generalization (PCAG)**
        Non-Affected direct objects get assigned partitive case.

In what follows, I will show that the PCAG can account for object partitivity in Estonian across all three syntactic-semantic environments: in complements of stative verbs, under negation, and in imperfective contexts. I also show that apparent counterexamples to the PCAG, verbs which assign partitive case to their objects are but have Affected objects, are in fact not counterexamples at all. I then compare the PCAG to other semantic generalizations about partitive case assignment, and conclude that the PCAG provides greater empirical coverage.

3.2   NEGATION

The PCAG correctly predicts that the objects of stative verbs are necessarily partitive. Given the assumption that negation 'stativizes' eventive verbs (i.e. turns them into homogenous eventualities), the PCAG also predicts objects under sentential negation to receive partitive case (Mittwoch 1977; Verkuyl 1993). For instance, if we examine a canonical negated event like (22):

(22)   Ta ei   söönud   šokolaadi/*šokolaad.
        3SG NEG eat.PAST.NEG chocolate.PART/chocolate.ACC
        'She did not eat chocolate.'

The structure of the (non-)eventuality in (22), insofar as there is one, is completely homogeneous, perhaps vacuously so. More to the point, in a situation which is completely and accurately described by (22), the chocolate does not change at all. Simply put, there is no sense in which an object can be affected by an event which does not occur.

3.3   IMPERFECTIVE EVENTS

The perhaps most well-known environment in which partitive objects show up in Estonian is in imperfective contexts (Craioveanu 2014 and references therein), exemplified in cases like (23).

(23)   Arvo kooris kartulit.
        Arvo peeled potato.PART
        'Arvo was peeling the potato.'

Roughly speaking, the imperfective is an aspectual category which makes 'explicit reference to the internal temporal constituency of a situation', in contrast

with the perfective, which 'presents the totality' of an eventuality , in the words of Comrie (1976). There are as many theories of the imperfective as there are papers written about it, and its empirical profile exhibits a good deal of cross-linguistic variation (Arregui et al. 2014). What is relevant for our purposes here is whether sentences like (23) involve affectedness of the direct object.

Recall that the object of (23) is Affected if there is a subevent of the eventuality described by the sentence in which the potatoes are an argument and Arvo is not. The reasonable candidate for such a subevent would be the result state of the peeling event, in which the potatoes are peeled but Arvo is uninvolved, analogous to other accomplishments. In other words, does the situation described by (23) result in *culmination* of the peeling event?

Decisively, the answer is no. It is contradictory to follow an utterance of (23) with an assertion that the potato is indeed peeled. On the other hand, this follow-up is *not* contradictory after a minimally different version of (23) in which the direct object is accusative.

(24)   a.   Arvo kooris kartulit,   #nii kartul on kooritud.
            Arvo peeled potato.PART so   potato is peeled
            'Arvo was peeling the potato, #so the potato is peeled.'
       b.   Arvo kooris kartul,   nii kartul on kooritud.
            Arvo peeled potato.NOM so potato is peeled
            'Arvo peeled the potato, so the potato is peeled.'

I take this to provide evidence that the imperfective event described by (23) does not include the result state of peeling. What is not immediately clear is whether it is (phonologically null) imperfective aspect which licenses partitive case on the object, or the semantics of partitive case within the VP compositionally deriving imperfectivity. While both possibilities are compatible with the PCAG, they do have very different consequences for the syntax and semantics of object case assignment; I leave this important question to further research.

3.4   Potential Counterexamples

So far, the PCAG seems to hold of states, negated objects, and imperfectives, though other environments for partitive objects have been claimed. Notably Erelt et al. (1995), in the Estonian grammar *Eesti Keele Grammatika*, claim that a significant number of partitive verbs–verbs whose objects must be partitive–are in fact eventive, though do not receive inherently imperfective interpretations.

Their list of non-stative partitive verbs can be broadly divided into two categories. The first category consists of Vendlerian activities like *kahjustama* 'damage' and *kaunistama* 'decorate'. If these verbs do indeed only take partitive objects, this is a problem for the PCAG, because transitive activity verbs can reliably be coerced into accomplishments; however, as Tamm (2004) notes, one does not

have to look far to find naturally-occurring examples of these verbs occurring with accusative objects. Moreover, the arguments corresponding to the direct objects of these verbs can surface as preposed possessors of cognate nominals.

(25)   a.   Rahe kahjustas autosid/autod.
            hail   damaged cars.PART/cars.ACC
            'Hail damaged the cars.'
       b.   autode   kahjustus
            cars.GEN damage
            'the cars' damage' (the damage the cars received)

(26)   a.   Sisekujundaja   kaunistas tuba/toa.
            interior.designer decorated room.PART/room.ACC
            'The interior designer decorated the room.'
       b.   toa   kaunistus
            room.GEN decoration
            'the room's decoration' (by the interior designer)

This suggests that this subclass of 'partitive verbs' are really not partitive verbs at all, but rather fairly ordinary activities: though they lexically describe atelic eventualities can receive telic (and thus bounded) interpretations given the right context. For instance, the verb (26a), when it occurs with an accusative object, is interpreted as an accomplishment consisting of two distinct subevents: an activity in which the room is being decorated, and a result state in which the room has been successfully turned from drab to fab. The latter state satisfies the AC, so it does not receive partitive case.

The second subclass of non-stative partitive verbs, and more challenging for the PCAG, are semelfactives: verbs which describe punctual or instantaneous events[6] with no internal structure, such as *noogutama* 'nod', *helistama* 'ring, call', *vangustama* 'shake (one's head)', and *liputama* 'wave, wag' (see discussion of semelfactivity in Comrie 1976).[7] A core property of semelfactive verbs is that they can be used in ways which combine with durative adverbials like *for x time*, in which case they typically receive an iterative interpretation. In effect, the semelfactive predicate describes a minimal non-durative event, which can be coerced into an activity if interpreted iteratively (Levin 1999).

If the PCAG were merely sensitive to predicate (a)telicity, as opposed to Affectedness, we would expect that non-iterative semelfactives would not take partitive case, assuming that instantaneous events are telic and therefore bounded. However, we see that objects of these semelfactive verbs are obligatorily partitive regardless of whether the event is interpreted iteratively (as with a *for x time*

---

6 That is to say, perceptually instantaneous.

7 Erelt et al. do not claim that *every* semelfactive is a partitive verb, though their list includes many semelfactives. A study of semelfactive verbs at the scale of the entire lexicon is needed to decisively determine whether all semelfactives only take partitive objects.

adverbial) or non-iteratively:

(27)   a.   Mees vangustas pead/*pea   kaua aega.
            man shook   head.PART/ACC long time
            'The man shook his head for a long time.'
      b.   Mees vangustas pead/*pea   ainult üks kord.
            man shook   head.PART/head.ACC only   one time
            'The man shook his head only once.'

The partitivity of semelfactive verbs like *vangustama* demonstrate that atelicity is indeed not the right characterization of the environment in which partitive objects appear. However, although the event described by (27b) is punctual, and therefore telic, it does not involve an Affected object. A man can shake his head as many times as he wants, but that does not entail a change of state of his head. Though in practice the man might get a bit dizzy, his head remains fundamentally unchanged before and after being shaken. In the absence of this kind of change of state, there is no subevent one can identify which has the man's head as a semantic argument, but not the man himself.[8]

    Summing up, an examination of Erelt et al.'s potential counterexamples does not reveal genuine threats to the PCAG. Of the verbs they claim are partitive, some are stative (and indeed genuine partitive verbs which obey the the PCAG), some are activities which admit accusative objects when interpreted as accomplishments, and some are semelfactives, which although they have a life as telic predicates, they crucially do not entail Affectedness of their direct objects, and thus are partitive verbs as the PCAG would have it.

3.5   Alternative generalizations

I have proposed that the (lack of) Affectedness of an object is the relevant notion which determines whether it gets partitive case. I examine here other prominent generalizations, and argue that they do not achieve the same empirical coverage as the PCAG.

3.5.1   *Syntax is not enough*

Syntactic proposals which explicitly analyze partitive case assignment Estonian (as opposed to Finnish) are relatively rare, though a notable attempt to unify the disparate environments for partitive case assignment in Finnish and Estonian is that of Craioveanu (2014). He proposes formal 'non-quantization' feature $[\beta]$ is responsible for partitive case. In his proposal, there is an unvalued $[u\beta]$ feature

---

[8] This is not merely because the man inalienably possesses his head, as partitive objects are also obligatory in other semelfactive predicates such as *helistama kella* 'ring the bell'. Erelt does not claim that all semelfactives are partitive verbs, although the current analysis would predict that.

on the head of every KP (Case Phrase) which must probe for a $[i\beta]$. If $[\beta]$ on DP becomes valued, this results in partitive case assignment. Crucially, he proposes that $[i\beta]$ can be present on verbs, inner aspect, negation, or be DP-internal–covering the bases of contexts where partitive case appears.[9] Stative verbs, then, come packaged with $[\beta]$ in Estonian, though not necessarily so in Finnish.

Though a robust account of how partitive case is assigned in the syntax is no doubt necessary, we cannot have an adequate account of the Estonian partitive without appealing to semantics. Indeed, while it is commonly assumed that partitive is a structural case on direct objects (see e.g. Kiparsky 2001), partitive case assignment in Estonian and Finnish has an undeniable semantic flavor. Craioveanu acknowledges that his $[\beta]$ must have a potent semantics, and though he explores possible options, he stops short of outright committing to one.

3.5.2 Partitivity as Parthood

Krifka (1992) was the first to explicitly formalize a proposal about Finnish partitive case assignment in purely semantic terms. Essentially, he proposes that partitive case denotes a 'parthood' predicate modifier:

(28) $[\![\mathrm{PART}]\!] = \lambda P \lambda x' \exists x [P(x) \wedge x' \sqsubseteq x]$ (Krifka 1992: 47)

PART applied to a one-place predicate denotes the set of entities which are subparts of the entities in the set denoted by that predicate. This formulation is explicitly analogized as a sort of nominal imperfectivity; the imperfective for Krifka denotes a similar parthood operator over events. Thus, our familiar potato-peeling example could have the denotation in (29b), modulo tense and assuming indefiniteness of the object for ease of composition:

(29)   a.   Arvo kooris kartulit.
                 Arvo peeled potato.PART
         b. $\exists y[\exists x[\mathbf{potato}(x) \wedge y \sqsubseteq x] \wedge \mathbf{peel}(a)(y)]$

This is equivalent to saying that there is some potato of which Arvo peeled a part. But as Kiparsky (1998) points out and Krifka shows, in order for partitive objects to yield genuinely imperfective readings on Krifka's account, we need certain assumptions about the relation between events and partitive objects. Namely, there is a relation between event-parthood and object-parthood of the following sort: an event of peeling part of a potato is part of an event of peeling a potato, and vice versa. With these assumptions, (29) has a denotation which is indistinguishable from the Krifka imperfective (his PROG), which is identical to PART except ranges over events instead of individuals:

---

9 This also has the consequence of requiring a model of Agree which is both cyclic (Béjar and Rezac 2009) and bidirectional, since some elements which host $[\beta]$ are below K, and others above.

(30) $[\![\mathrm{PROG}]\!] = \lambda P \lambda e' \exists e [P(e) \wedge e' \sqsubseteq e]$ (Krifka 1992: 47)

This is a reasonable proposal for incremental themes like *peel*, but as Kiparsky notes, the parthood analysis makes problematic predictions about complements of stative verbs, since there is not a straightforward sense in which a stative relation 'only' holds of subparts of the direct object of a stative verb. For example, it is not at all clear that *loving mathematics* can be true if one loves Fermat's Last Theorem and detests all other things mathematical. It would also be difficult to explain why partitive case should be required on objects of negated verbs, where ostensibly parthood is not a relevant consideration.

    In all, Krifka's analysis captures the intuitive facts about imperfectivity with some verbs, but appears to derive intuitively incorrect meanings with stative verbs, and struggles to unify imperfectivity with other uses of the partitive case. On the other hand, the PCAG appears to capture more of the relevant data.

3.5.3 Diversity, divisiveness, and cumulativity

Kiparsky (1998), for his part, proposes that partitive objects are licensed only in 'unbounded' predicates, again in Finnish. A predicate P is unbounded iff it has the three following properties:

(31)   a. $\forall x[P(x) \wedge \neg atom(x) \rightarrow \exists y[y \sqsubset x \wedge P(y)]]$ DIVISIVENESS
        b. $\forall x[P(x) \wedge \neg sup(x,P) \rightarrow \exists y[x \sqsubset y \wedge P(y)]]$ CUMULATIVITY
        c. $\neg(\forall x \forall y[P(x) \wedge P(y) \wedge x \neq y \rightarrow \neg x \sqsubset y \wedge \neg y \sqsubset x])$ NON-DIVERSITY

Divisiveness and cumulativity conspire to ensure that if an event of *peeling a potato* can be unbounded even if the entire potato, or the smallest possible subpart of the potato, was peeled. The condition on non-diversity simply ensures that if the direct object which does not have proper subparts (i.e., it is purely atomic) the event as a whole is bounded.

    Kiparsky's analysis again fares well with incremental theme verbs, although it is less clear how well this generalization holds up for stative verbs. The non-diversity condition is tailor-made to treat predicates with definite direct objects as bounded. But as we have seen, proper names in Estonian, like other nominals, obligatorily receive partitive case as objects of stative verbs. A verb phrase like *love John*, for instance, would seemingly violate the non-diversity condition, unless we somehow say that loving John involves loving subparts of John.

    Finally, the partitive under negation is also problematic (though not insurmountably) if we assume that the locus of partitive case assignment is strictly about the predicate (i.e., the VP), since partitive objects under negation are required regardless of the boundedness of the predicate.

    In sum, semantic generalizations about partitive case assignment which operate only at the level of predicates or nominal parthood both struggle to capture
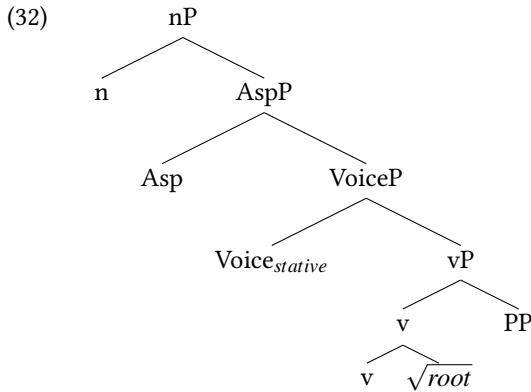
the behavior of Estonian stative verbs, whereas the PCAG can not only unify partitive case assignment across objects in various contexts, but also relate commonalities between behavior in the verbal and nominal domains.

4 Whence the Affectedness Constraint?

It is generally believed that the Affectedness Constraint in the nominal domain is a reflex of deficient argument or event structure, it is no surprise at all that the nominal passive is impossible for statives (e.g. Grimshaw 1990; Doron and Rappaport Hovav 1991; Sichel 2010). For instance, it has been proposed that some or all statives lack Davidsonian eventuality arguments altogether (e.g. Kratzer 1995; Maienborn 2005). And if the AC for nominals can be unified with the PCAG for verbs, it stands to reason that the source of the AC must derive from some commonality between these two domains. This is not a straightforward question to answer, as it is debated whether or not eventive/stative nominals are derived from verbs or acategorial roots. If these nominals are verb-derived, then whatever shared component which is sensitive to Affectedness could live in the verbal projection. On the other hand, if both nominals and verbs are root-derived, then clearly the AC must be derivable from properties of roots. In this section, I suggest that the latter is more plausible.

4.1 The root of the AC

The question of what, exactly, is responsible for the AC is perhaps easiest to investigate stative nominals because of their presumed structural simplicity. Though explicit characterizations of the structure of stative nominals are relatively scant, a prominent exception is Alexiadou (2011). Building on Borer (2005), she proposes that statives in Greek in both the verbal and nominal domains contain some event structure, though not much: namely, they contain of an Asp(ect)P projection. Transitive statives include a Voice$_{stative}$ projection which introduces the external argument, and the second argument is introduced with a (possibly null) preposition. Corresponding nominals simply compose AspP with a nominalizing *n*. Her resulting structure for a transitive stative nominal (in Greek) is as follows:

(32)

```
                nP
              /    \
            n       AspP
                  /      \
               Asp        VoiceP
                        /        \
                Voice_stative     vP
                                /    \
                               v      PP
                             /   \
                            v    √root
```

The chief argument that AspP (and therefore verbal event structure) is present in stative nominals is the compatibility of such nominals with *for x time* adverbials (Borer 2005). While Alexiadou claims these constructions are good in Greek, in Estonian, such adverbials are judged to be fairly degraded with stative nominals:

(33) ??Marja   armastus matemaatika   vastu kaua aega
      Marja.GEN love   mathematics.GEN for   long time
      'Marja's love of mathematics for a long time'

Beyond these adverbials, there is little overt evidence in Alexiadou's analysis which supports the claim that stative nominals contain any verbal structure. For Estonian, there is a lack of compelling language-internal reasons to believe that *-us* nominals are verb-derived. As Iordachioaia et al. (2015) argue for psych verbs, I propose instead that stative nominals, and indeed perhaps event nominals, in Estonian are root-derived across the board.

One piece of evidence comes from the absence of unambiguous verbal morphology in stative nominals. Nominals which can be stative or eventive generally display no clear morphological alternation (see §2.4.5), and some nominals cognate with stative verbs have idiosyncratic interpretations which are not explicitly derivable from their verbal counterparts; indeed, a number of them do not clearly refer to eventualities at all (cf. Smirnova and Jackendoff 2017).

(34) *teadus*   'science'   (cf. *teadma* 'know')
      hoius   'bank deposit' (cf. *hoidma* 'hold, keep')
      katus   'roof'   (cf. *katma* 'cover')
      tunnus   'feature'   (cf. *tundma* 'feel')

While we should not stake our claim that stative nominals don't contain verbal elements purely on the existence of lexical exceptions, more challenging for the view that stative (or indeed eventive) nominals must contain verbal con-

tent is that some eventuality-denoting *-us* nominals either lack a clear verbal counterpart to begin with, or alternate with a verb that contains explicit verbalizing morphology, such as the suffix *-stama*, which derives verbs from nouns or other verbs (Erelt et al. 1995), suggesting that these stative nominals are not verb-derived.

(35)   *vargus*   'theft'   (cf. *varas* 'thief', *varastama* 'steal')
             kurbus   'sadness'   (cf. *kurb* 'sad', *kurvastama* 'sadden')
             ausus   'honesty'   (cf. *aus* 'honest')
             iharus   'lewdness'   (cf. *ihar* 'lewd')

We also cannot simply chalk stativity up to the influence of *-us* itself, as the Estonian lexicon is replete with nominals derived from nouns and adjectives which do not refer to eventualities:

(36)   *jumalus*   'deity'   (cf. *jumal* 'god')
             värvus   'color (mass)'   (cf. *värv* 'color (count)')
             sõrmus   'ring'   (cf. *sõrm* 'finger')

A final nail in the coffin for the notion that stative nominals necessarily contain verbal structure is that stative *-us* nominals can be modified by adjectives but not adverbs, unlike gerundive *-ine* nominals, which do permit adverbial modification.

(37)   a.   valuline mälestus   sõja
              painful   remembrance war.GEN
              'painful remembrance of the war'
      b.   *mälestus   valusalt sõja
              remembrance painfully war.GEN
              intended: 'painful remembrance of the war'

(38)   mälestine   valusalt sõja
        remembering painfully war.GEN
        '(the) remembering painfully of the war'

I take the total of these observations to indicate that stative *-us* nominals are simply derived by combining with roots directly, crudely schematized as follows:

(39)   a. $\sqrt{\text{ARMAST}}$ + *-us* = *armastus* 'love (N)' (cf. *armastama* 'love (V)', **armast*)
      b. $\sqrt{\text{EELIST}}$ + *-us* = *eelistus* 'preference' (cf. *eelistama* 'prefer, **eelist*)
      c. $\sqrt{\text{US}}$ + *-us* = *usus* 'faith' (cf. *uskuma* 'believe', **us*)

I make no claim about the locus of this derivation, be it in the syntax proper or in the lexicon, if those are indeed distinct. However, the fact that stative nominals are robustly sensitive to AC, even if they contain no embedded verbal structure, leads to the conclusion that the locus of the Affectedness Constraint must be within the stative roots themselves.

5   CONCLUSION

Though stative verbs remain relatively understudied in work on argument and event structure, their aspectual homogeneity and restricted syntactic distribution render them a valuable testing ground for theories on the relationship between phrasal syntax and argument/event structures.

Statives in Estonian have a deficient syntactic profile compared to eventives in both verbal and nominal domains: stative verbs can only assign partitive case to direct objects, and stative nominals cannot passivize. Case assignment and the nominal passive have been argued, on independent grounds, to be restricted by similar constraints on event structure. In the absence of strong evidence for deriving stative nominals from their verbal counterparts (or vice versa), I suggested this leads us to conclude that the syntactic effects of Affectedness must come from the lexical semantics of roots, given that nominals which are sensitive to the AC don't seem to have verbal structure, although it is an open question what precise component of the lexical semantics gives rise to the AC.

It also remains to be seen how well the PCAG can be extended to other languages, notably Finnish. The comparison between the two could prove enlightening, because while the facts of partitive case in the two languages are very similar, they have crucial differences; for instance, some stative verbs in Finnish permit accusative objects (Craioveanu 2014). Future work will be needed to determine the extent to which these potential counterexamples pose a problem for the PCAG, and if they do, how this generalization will needed to be revised.

Finally, this proposal is in large part consonant with frameworks like Distributed Morphology (Halle and Marantz 1993: *et seq.*), in which words are composed of acategorial roots which combine with functional heads which turn the root into a lexical category, such as noun or verb. More generally, if this work is on the right track, it suggests that while functional elements may do a significant amount of heavy lifting in constraining linguistic structure, ultimately, lexical semantics is at the root of it all.

REFERENCES

Alexiadou, A. (2011). Statives and nominalization. *Recherches Linguistiques de Vincennes*, 40:25–52.

Anderson, M. (1977). NP pre-posing in Noun Phrases. In Stein, M., editor, *Proceedings of NELS 8*, pages 12–21.

Arregui, A., Rivero, M. L., and Salanova, A. (2014). Cross-linguistic variation in imperfectivity. *Natural Language and Linguistic Theory*, 32:307–362.

Borer, H. (2005). *The Normal Course of Events*. Oxford: Oxford University Press.

Béjar, S. and Rezac, M. (2009). Cyclic Agree. *Linguistic Inquiry*, 40(1):35–73.

Chomsky, N. (1970). Remarks on nominalization. In Jacobs, R. and Rosenbaum, P., editors, *Readings in English Transformational Grammar*, pages 184–221. Waltham: Ginn.

Comrie, B. (1976). Aspect: An Introduction to the Study of Verbal Aspect and Related Problems. *Cambridge: Cambridge University Press.*

Craioveanu, R. (2014). Levels of Aspect in Finnish & Estonian. Master's thesis, University of Toronto.

Csirmaz, A. (2012). The Case of the Divisible Phase: Licensing Partitive Case in Finnish. *Syntax*, 15(3):215–252.

Doron, E. and Rappaport Hovav, M. (1991). Affectedness and externalization. In Sherer, T. D., editor, *Proceedings of NELS 21*, pages 81–94.

Dowty, D. (1979). *Word Meaning and Montague Grammar*. Reidel, Dordrecht.

Erelt, M., Kasik, R., Metslang, H., Rajandi, H., Ross, K., Saari, H., Tael, K., and Vare, S. (1995). *Eesti Keele Grammatika II*. Tallinn: Eesti Teaduste Akadeemia Eeesti Keele Instituut.

Grimshaw, J. (1990). *Argument Structure*. Cambridge, MA: MIT Press.

Halle, M. and Marantz, A. (1993). Distributed morphology and the pieces of inflection. In Hale, K. and Keyser, S. J., editors, *The View from Building 20*, pages 111–176. Cambridge, MA: MIT Press.

Iordachioaia, G., Alexiadou, A., and Soare, E. (2015). The structural source of stative nominalizations from psych verbs. In Labeau, E. and Zhang, Q., editors, *Taming the TAME Systems*, pages 137–160. Amsterdam/Philadelphia: Rodopi.

Kearns, K. (1991). *The semantics of the English progressive*. PhD thesis, Massachusetts Institute of Technology.

Kiparsky, P. (1998). Partitive Case and Aspect. In Butt, M. and Geuder, W., editors, *Projecting from the Lexicon*, pages 265–307. Stanford: CSLI.

Kiparsky, P. (2001). Structural Case in Finnish. *Lingua*, 111:315–376.

Kratzer, A. (1995). Stage-level and individual-level predicates. In Carlson, G. N. and Pelletier, F. J., editors, *The Generic Book*, pages 125–175. Chicago University Press.

Kratzer, A. (2000). Building statives. In Conathan, L. J., Good, J., Kavitskaya, D., Wulf, A. B., and Yu, A. C. L., editors, *Proceedings of the Berkeley Linguistic Society 26*, pages 385–399.

Krifka, M. (1992). Thematic relations as links between nominal reference and temporal constitutions. In Sag, I. A. and Szabolcsi, A., editors, *Lexical Matters*, pages 29–53. Chicago: CSLI.

Lakoff, G. (1966). Stative adjectives and verbs in English. In *Mathematical Linguistics and Automatic Translation*. UC Berkeley.

Landau, I. (2010). *The locative syntax of experiencers*. Cambridge, MA: MIT Press.

Lees, A. (2015). *Case Alternations in Five Finnic Languages: Estonian, Finnish, Karelian, Livonian and Veps*. Brill's Studies in Language, Cognition and Culture, Volume 13. Leiden: Brill.

Levin, B. (1999). Objecthood: An event structure perspective. In *Proceedings of the Chicago Linguistic Society 35*, pages 223–247.

Maienborn, C. (2005). On the limits of the Davidsonian approach: the case of copula sentences. *Theoretical Linguistics*, 31(3):275–316.

Mittwoch, A. (1977). Negative sentences with *until*. In *Proceedings of the Chicago Linguistics Society 13*, pages 410–417.

Norris, M. (2018). Non-autonomous accusative case in Estonian. *Finno-Ugric Languages and Linguistics*, 7(2):7–38.

Pesetsky, D. (1995). *Zero Syntax: Experiencers and Cascades*. Cambridge, MA: MIT Press.

Sichel, I. (2010). Event-structure constraints on nominalization. In Alexiadou, A. and Rathert, M., editors, *The Syntax of Nominalizations Across Languages and the Lexicon*, pages 151–199. Berlin: Mouton de Gruyter.

Smirnova, A. (2015). Nominalizations in English: Semantic restrictions on argument realization. *Linguistic Inquiry*, 46(3):568–579.

Smirnova, A. and Jackendoff, R. (2017). Case assignment and argument realization in nominals. *Language*, 93(4):877–911.

Tamm, A. (2004). *Relations between Estonian aspect, verbs, and case*. PhD thesis, Eötvös Loránd University.

Tamm, A. (2008). Partitive Morphosemantics across Estonian Grammatical Categories, and Case Variation with Equi and Raising. In Butt, M. and King, T. H., editors, *Proceedings of the LFG08 Conference*, pages 473–493. Stanford: CSLI.

Vendler, Z. (1967). *Linguistics in Philosophy*. Cornell University Press. Ithaca, New York.

Verkuyl, H. J. (1993). *A Theory of Aspectuality*. Cambridge University Press.