The Event Domain

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1 Introduction

We want our theory to be able to capture generalizations in various empirical areas.

(i) Generalizations about the representations of (verbal) participant relations in the syntax.

(ii) Generalizations about the nature and ordering of morphemes in the verbal extended projection, both free and affixal.

(iii) Generalizations about domains—locality effects as diagnosed in the syntax and morphology

Sheer practical necessity has dictated that different research programmes have emphasized different aspects of (i)-(iii) above.

I take the seminal work of Kratzer (1996) to essentially be about capturing (iii), while I take Harley (1995) and subsequent work within the DM to have been particularly influential in the attention they have paid to (ii). Ramchand (2008) on the other hand makes (i) most prominent. This is of course simplistic, since most work actually wants to account for all three classes of phenomena in some way,— the adoption of the little v label across frameworks and research programs is testimony to that ambition and optimism.
RoadMap:
• Provide a brief summary and deconstruction of the kinds of motivations that led to the representations of Ramchand (2008), located within the context of (i) (Section 2)
• Reassess the cartographic and constructivist enterprise and argue for a new methodological framework for assessing the existence and universality of functional heads. (Section 3)
• Present some novel evidence from the domain of auxiliary constructions in English pertaining to (iii) above (Section 4)
• Return to cartography in the light of the patterns in Sections 2 and 4, in order to decide whether the evidence from (i) and (iii) converges on the same functional head in a leading role.¹

2 Argument Structure and Event Structure

As Levin and Rappaport Hovav (2005) discuss in their important review monograph on argument structure, it seems clear that what is needed to capture the generalizations we need is some kind of structured representation, probably making core reference to notions of causation and embedding. (See also Ramchand 2013).

Quoting from Levin and Rappaport Hovav (2005)

The survey of types of lexical semantic representations in this chapter and the preceding one has also revealed that the semantic notions which figure in argument realization are derived largely from the properties of events which verbs describe.
Levin and Rappaport Hovav (2005), pg 75

... embedding relations among arguments in an event structure are always respected in argument realization, with more embedded arguments receiving less prominent syntactic realizations.
Levin and Rappaport Hovav (2005), pg 183

The event structure syntax I have proposed contains three important subevental components: a causing subevent, a process denoting subevent and a subevent corresponding to result state. Each of these subevents is represented as its own projection, ordered in the hierarchical embedding relation as shown below in (1).

¹Spoiler: “No, it doesn’t”
This ‘decomposition’ of V can be explained informally as follows. ProcP is the label for the projection at the heart of the dynamic predicate; it expresses a changing property, and it is present in every dynamic verb and unergative verbs, but absent in unaccusative verbs. ResP expresses a result state, and only exists when there is a small clause predication expressing a property that comes into existence as a result of the dynamic change in the meaning of the verb.

In addition to representing subevental complexity, as motivated by work on verbal aktionsart (Vendler 1967, Parsons 1990, Pustejovský 1991, Higginbotham 2001), this structure is also crucially designed to capture a set of core argument roles, as defined by the predicational relations formed at each level. Each projection represented here forms its own core predicational structure with the specifier position being filled by the ‘subject’ or ‘theme’ of a particular (sub)event, and the complement position being filled by the phrase that provides the content of that event. The complement position itself of course may also be complex and contain another mini-predication, with its own specifier and complement. In this way, the participant relations are built up recursively from successively embedded event descriptions and ‘subject’ predications.

- **initP** introduces the causation event and licenses the external argument (‘subject’ of cause = INITIATOR)

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2A procP is present in this system regardless of whether we are dealing with a process that is extended (i.e. consisting of an indefinite number of transitions) or the limiting case of representing only single minimal transition such as that found with ‘achievement’ verbs. The difference between achievements and accomplishments in the traditional sense is captured by subsequent anchoring to the time variable, a topic that is beyond this scope of this talk.
• **procP** specifies the nature of the change or process and licenses the entity undergoing change or process (‘subject’ of process = **UNDERGOER**)

• **resP** gives the ‘telos’ or ‘result state’ of the event and licenses the entity that comes to hold the result state (‘subject’ of result = **RESULTEE**).

**Summary of Ramchand (2008):**
An important aspect of this proposal is the claim that there is a general combinatorial semantics that interprets this syntactic structure in a regular and predictable way. Thus the semantics of event structure and event participants is read directly off the structure, and not directly off information encoded by lexical items.

*Causal embedding* combined with *property predication* is the minimal semantic combinatoric glue derives theta role classification and their hierarchical relationships, as well as predicting the natural classes of event types that we find in English.

-From this point of view, there is no evidence that causative embedding should be separated from the predication mechanism that introduces the initiator. Quite the contrary, the system unifies aktionsart and thematic role generalizations precisely because these things go together.

### 3 Constructivism, Cartography and Functional Structure

Taking the Minimalist Program seriously, we are forced to reject the rich functional hierarchy as an axiomatic part of UG; there is no plausible evolutionary scenario to support the natural selection of a language faculty with such a highly structured organization of functional features.

But taking the results of the Cartographic enterprise seriously, we are forced to seek a source for the rich functional hierarchy. This holds no matter how much of the specifics of cartography one accepts—even the pared-down C-T-v-V is a functional hierarchy in need of explanation.

In Ramchand and Svenonius (2013), we argued that the rich functional hierarchy has multiple sources, and we suggest that progress will be impeded if the functional hierarchy is ignored (as in some Minimalist work) or taken for granted (as in some Cartographic work).
The most important source that we identify is grounded, we argue, in extralinguistic cognition: A cognitive proclivity to perceive experience in terms of events, situations, and propositions (with analogous ontologies for other extended projections).

Summary of Ramchand and Svenonius (2013):
- First, we accept the evidence of a fundamental tripartition of the clause into a V-domain, a T-domain, and a C-domain (Platzack 2000, Rizzi 1997) and provide this with a formal semantic grounding on a conceptual backdrop; we take events (e), situations (s), and propositions (p) to be conceptual primitives recruited by the language faculty, and we take the hierarchy of C > T > V to follow from the interaction of (i) the way these conceptual primitives are organized in the wetware and (ii) the way they are harnessed by the syntactico-semantic system.
- Second, we show that in some cases, the hierarchy is not in fact fixed; in other cases, there are independent factors giving rise to hierarchical effects.
- Finally, we are left with a residue: Strict hierarchy which does not follow from the e-s-p tripartition, nor from independent factors. For these cases we posit selectional restrictions, which are necessarily language specific. Therefore these cases are predicted to involve points of crosslinguistic variation, and we argue that they do (see also Wiltschko 2013).

So what about little v? Where does it fit in a conceptually grounded cartography?

4 The English Auxiliary System and the Event Domain

Most modern syntactic representations of the phrase structure of the English verbal extended projection simply assume a templatic ordering of Perf over Prog over Pass (Bjorkmann 2011, Sailor 2012, Aelbrecht and Harwood 2012, Bošković 2013), when these elements need to be explicitly represented. Linguists differ with respect to whether they simply represent Perf, Prog and Voice as functional heads (Bjorkmann 2011 and Sailor 2012) and handle the inflectional facts via ‘affix lowering’ or AGREE, or whether they in addition assume separate functional heads hosting -en and -ing (Bošković 2013 and Harwood 2011). The minimalist assumption seems to be that some kind of selection is at work, and does not represent a universal functional sequence,
and these projections are left out even for English when the literal perfect or progressive forms are not expressed in the sentence.

However, looking more carefully as auxiliary selection in English, we can see that it actually provides important evidence for zoning in the functional sequence. Specifically, one can show there is an important syntactic and semantic joint between progressive and perfect in English that should be represented explicitly by an abstract cut-off point in the phrase structure.

*With respect to a number of different linguistic tests, the progressive, unlike the perfect, appears to pattern qualitatively with the main verb and its arguments.*

### 4.1 Expletive Associates

Harwood (2011) notes that the thematic subject of a verb in the expletive *There*-construction in English remains low in the clause and is moreover confined to positions either adjacent to the main verb, passive or progressive participles. It can never surface to the left of the perfect participle.

The examples in (2) with the full complement of possible auxiliaries, show that there is only one position in the sequence for an expletive associate, between Perf -en and Prog -ing (cf. Harwood 2011).

(2) a. *There could have been being a truck loaded.*  
   b. There could have been a truck being loaded.  
   c. *There could have a truck been being loaded.*  
   d. *There could a truck have been being loaded.*  
   e. *There a truck could have been being loaded.*  
   f. A truck could have been being loaded.

Even when the progressive itself is not present, we see that the position to the left of the perfect participle is still unavailable, while the position to the left of the main verb and passive participle is fine, as we see in (3).

(3) a. There could have been a truck loaded.  
   b. *There could have a truck been loaded.*  
   c. *There could a truck have been loaded.*  
   d. A truck could have been loaded.

Similarly, leaving out the perfect and building sentences with just the progressive and the passive as in (4), shows exactly the same restriction: the ‘low’
subject position can surface to the left of the main verb, passive participle or progressive participle.

(4) a. *There could be being a truck loaded.
   b. There could be a truck being loaded.
   c. *There could a truck be being loaded.
   d. A truck could be being loaded.

4.2 VP fronting and pseudoclefts

It has been argued by Sailor (2012) that VP fronting and specificational pseudoclefts can target a constituent between Perf -en and Prog -ing (cf. Sailor 2012). In (5) we see the constituent headed by -ing undergoing fronting, and in (6) we see it forming a grammatical cleft. Crucially, in these two examples, the constituent selected by the perfect auxiliary, and that selected by the modal, cannot be targeted in these constructions.

(5) If Mary says that the cakes will have been being eaten, then . . .
   a. * . . . [eaten], they will have been being.
   b. . . . [being eaten], they will have been.
   c. * . . . [been being eaten], they will have.
   d. * . . . [have been being eaten], they will.

(6) A: John should have been being praised. B: No, . . .
   a. * . . . [criticized] is what he should have been being.
   b. . . . [being criticized] is what he should have been.
   c. * . . . [been being criticized] is what he should have.
   d. * . . . [have been being criticized] is what he should.

When the progressive is not present, we see that in fact the constituent consisting of the passive participle can also be fronted like the progressive participle phrase, but still the perfect participle phrase and the infinitival phrase selected by the modal are not legitimate targets.

(7) If Mary says that the cakes will have been eaten, then . . .
   a. . . . [eaten], they will have been.
   b. * . . . [been eaten], they will have.
   c. * . . . [have been eaten], they will.

The examples in (8) show that when both the progressive and passive are present in the absence of the perfect, it is still the -ing phrase that fronts.
The fact that the passive participle phrase does not front on its own seems to indicate that what is being targeted here is the maximal phrase of a certain type.

(8) If Mary says that the cakes will be being eaten, then . . .
   a. * . . . [eaten], they will be being.
   b. . . . [being eaten], they will be.
   c. * . . . [be being eaten], they will.

These facts show that there is a privileged boundary at the point between Perfect -en and Progressive -ing which is not dependent on the surface presence of any specific aspectual feature or morphological exponent. The facts can be modeled by assuming that the main verb, and passive participle and progressive participle when they exist lie within one distinguished domain which is targeted by these fronting operations. The maximal such domain is what is fronted in ‘VP-fronting’, and what is clefted in the pseudocleft construction.

4.3 British nonfinite do-substitution

Finally, we turn to a novel argument from British nonfinite do-substitution, which exposes the same essential division. Some background description of the facts is first in order. In British English, do is an abstract pro-form that substitutes not just for eventive verbs but for stative verbs as well, after an auxiliary.

(9) a. John might leave, and Mary might do also.
   b. John might really like oysters, and Mary might do also.

Although British English do can replace stative verbs as we have seen, it is confined to main verbs and never substitutes for an actual auxiliary. In other words, it is in complementary distribution with stranding by auxiliaries.

(10) a. John might have seen the movie, and Mary might (*do) also.
    b. John might be singing a song, and Mary might (*do) also.

However, even within these constraints, not all nonfinite verbal forms may be substituted for by do:

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3Note that the mismatched reading in 12(a) where do is construed as substituting for a main verb in nonfinite form after the modal auxiliary, is marginally possible here, but is irrelevant and will be ignored in what follows. The reading where it substitutes for the auxiliary phrase is robustly ungrammatical.
(11)  a. John might leave, and Mary might do also.
    b. John has left, and Mary has done also.
    c. John is leaving, and Mary is (*doing) also.
    d. John was arrested, and Mary was (*done) also.

British nonfinite *do* can substitute for an infinitive modal complement or a perfect participle, but not for a progressive or passive participle; hence it, too, motivates a cut between Perf and Prog. This diagnostic is in some sense the converse of the previous one: the very constituents that could participate in the fronting constructions are the ones that British nonfinite *do* cannot substitute for.

(Note that Baltin (2006) shows that British *do*-substitution does pattern like a pro-form, rather than ellipsis with respects to the tests in Hankamer and Sag (1976).)

### 4.4 Two Domains

We thus have robust evidence for two distinct domains from three independent sets of grammatical facts. In each case, the facts point to a joint between the progressive participial phrase and the perfect participial phrase when they exist (and we assume that the joint exists even when the morphological evidence is not so articulated).

- *-ing*-Phrases, Passive *-en*-phrases and main verb phrases all form a unit with respect to independent mobility

- *-ing*-Phrases, Passive *-en*-phrases and main verb phrases all contain a base position for the external argument

- *-ing*-Phrases, Passive *-en*-phrases and main verb phrases cannot be substituted by the pseudo-auxiliary verb *do* in British English

Thus, with respect to a crude macro division of the clause into a VP-domain and a TP-domain, it seems as if the progressive and passive forms lie within the former unit, while modals and the perfect lie within the latter. British English nonfinite *do*-substitution is a pro-form for the higher, but crucially not the lower domain.\(^4\) If we locate passive *-en* in *-en\(_{pass}\)*\(^P\), the most conservative representation for what we find in the

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\(^4\)This makes the difference between the British English dialects and the more restrictive ones, such as the American, quite simple to state: standard dummy *do* support in the more restrictive dialects has only finite instantiations, British English possesses a non-finite version of this pro-form as well.
data can be illustrated by the tree in (12). Note that the generalization requires reference to the constituents headed by -\textit{ing} and -\textit{en}, and not those headed by the auxiliaries themselves, and I will pursue a view whereby these endings carry their own specific semantics and head the phrases in question.

(12)

There are further suggestive facts that point to the progressive being inside the VP zone of the clause.

**Interaction with Aktionsart**

Under the assumption that selectional restrictions are strictly local (Baltin 1989), the fact that the progressive places selectional restrictions on the Aktionsart of the verb phrase it combines with is further evidence that Prog is low enough in the extended projection to select for the nature of the event structure described by the verb. As is well known (see e.g. Dowty 1979), the progressive in English combines with dynamic verbal projections and not stative ones (13).

(13)  

a. John is dancing the tango.  
b. *John is knowing the answer.

In contrast, the Perfect does not constrain the Aktionsart of its complement. In (14), we see that the perfect has no restrictions at all: it can combine with \textit{any} main verb in the English language. It is true
that the meaning of the perfect changes subtly depending on the type of main verb, but the perfect itself does not choose what it can combine with. For example, the universal reading of the perfect as in (c) below is facilitated by a time-frame adverbial which then forces an imperfective interpretation, and the result reading in (a) can only arise with telics.

(14) a. John has destroyed the castle. (result)
    b. John has eaten sushi. (existential)
    c. John has known Sue for three years. (universal, stative)

**Interaction with Temporal Anchoring**

Assume that T is the locus for anchoring a temporal interval associated with the event to the utterance time by establishing a precedence or overlap relationship to it. Most modern implementations require the mediation of a ‘reference interval’ or ‘topic interval’ that is related in some way to the event (Klein 1994, Reichenbach 1947, Giorgio and Pianesi 1997, Demirdache and Uribe-Etxebarria 2000).

In the perfect tense, the relationship established to the utterance time is not necessarily congruent with the event’s notional run time.

(15) a. John has written the letter.
    b. When I saw him, John had already washed the car (the day before).

In the progressive, on the other hand, the event run time and the tense specification of the progressive auxiliary cannot be so distinguished. The progressive picks out a mereological subpart of the event as described by the VP, a relation that is possible without the presence of explicit temporal information. The different mereological subparts are not separably temporally modifiable.

(16) a. *John is building a house tomorrow now.
    b. *John was building the house today yesterday.

The proposal is that the more indirect relationships between the topic situation and the event that are possible in the case of perfect and modals, are possible because they inhabit a zone where situations can be explicitly related to each other via temporal information, and not just via
mereology. Thus, while semantic analyses of both the progressive and the perfect can be found in terms of the building of ‘derived eventu-
alities’ (cf. Parsons 1990), only the perfect derived eventuality can be temporally disjoint from the VP event, and is truly distinguishable from it. This is further suggestive evidence that the perfect actually occupies a higher domain, one where temporal information is relevant, but which bears a more indirect relationship with the event.

\[(17)\]
\[
\begin{array}{c}
T \\
\text{situational domain} \\
\text{Asp} \\
\text{transition: } \lambda P \lambda s \exists e. [R(s,e) \& P(e)] \\
V \\
\text{event domain}
\end{array}
\]

Under this view, the V heads in the lowest domain are all event descriptors. They order themselves in a particular way because of local selectional requirements, and they each have a single abstract predica-
tional position, based on the abstract notion \textsc{Hold}.

\[(18)\] \[V_{proc}: \lambda x \lambda e [\text{Process}(e) \& \text{Undergoer}(e,x)]\]
\[(19)\] \[V_{init}: \lambda P \lambda x \lambda e' [\text{CausedProcess}(e',e) \& P(e) \& \text{Holds}(e',x)]\]
\[(20)\] \[V_{enpass}: \lambda P \lambda y \lambda e' \exists e [P(e) \& \text{Transition}(e',e) \& \text{Holds}(e',y)]\]
\[(21)\] \[V_{ing}: \lambda Q \lambda z \lambda e' \exists e [Q(e) \& \text{InProgressState}(e',e) \& \text{Holds}(e',z)]\]

(The auxiliary verb \textit{be} is inserted at the phase boundary if there is no available main verb to fill \textsc{Asp*}.)

**Phases for Movement:**
It has been argued by Legate (2003), and more recently by Richards and van Urk (2013) that there is a phase edge in the general vP/VP area that is a required escape hatch for movement. (When it comes to movement, there are technical implementation issues and terminological involved with regard to the timing of spell out and the size of the edge domain, so I refrain here from a decision about whether the highest head in the VP domain in this zonal view corresponds to the phase head, or whether the whole VP is the complement of an \textsc{Asp*} phase head.)
5 Consequences

If universal aspects of the phrase structure of natural language are sparse and abstract and follow from the nature of ontological domains, then it somewhat changes the way we ask the little v question.

A. Is there a hierarchically highest, head, or ‘phase head’ if you will, in the event domain?

B. Is that head defined in ‘absolute’ or ‘relative’ terms?

C. Is it equivalent to the head that introduces the INITIATOR, or causally most privileged argument in the event building part of the phrase structure?

I think that the answer to A, must be yes, given the evidence for domains above.

I don’t know the answer to B, but the evidence from the progressive -ing is the novel contribution to the debate here:

One view would be that the ‘phase head’ is defined purely relatively, and it is simply the last head in the construction at hand that denotes an event description. It is then the transitional head, Asp*, which then is defined in absolute terms, namely as the privileged head which effects the sortal shift from event descriptions to temporally enriched situational descriptions.

But a distinct possibility is that there is something important and absolute about the highest head in the event domain in that it determines a choice of subject of predication for the whole complex event. This need not be the INITIATOR, as we know from passive, middle and other argument structure manipulations. Following tradition, we might want to label this Voice, bearing in mind that it must also include the derived predication introduced by the -ing form, and as such cannot be restricted to the things that traditional grammars call Voice. Perhaps it would be better to call this EventP.

The answer to C, must be No.

Crucially, this does not necessarily mean that \( V_{init} \) does not introduce a specifier, (as in Pyllkaenen-esque implementations that separate Cause and Voice). We need it to do so, at least implicitly, to model the generalizations about event type and role type more generally. It means only that this structure must feed further articulations that contain a
EvtP and choice of event-topic. Harley To appear concludes much the same thing concerning the separation of causation and ‘highest subject’, but she rejects an account in terms of explicit movement from a causer position to the specifier of Voice, based on relativized minimality in the presence of an applicative argument. (I think there are other ways around impediments to the movement story, although the possibility remains that spelling out the details might make the two versions of the separation more similar to each other.)

\[(22)\]

\[
\begin{array}{c}
\text{Asp*} \\
\text{‘Evt’P} \\
\text{EVENT-TOPIC} \\
\text{‘Evt’} \\
(\text{V_{other}}) \\
(\text{V_{init}}) \\
V_{proc} \\
(\text{V_{res}})
\end{array}
\]

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