

Event Structure, Phrase Structure, and A'-Locality

Robert Truswell, Tufts University (*robert.truswell@tufts.edu*)

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1 Introduction

(1) The basic problem

- a. CED effects don't seem to behave like a unified class...
- b. ... And it seems like the factors determining their distribution are not fully syntactic...
- c. ... Specifically, it looks like there is a significant interaction between the possibility of extraction out of adjuncts and an irreducibly nonsyntactic model of event structure.

(2) The bigger picture

- a. Theories such as minimalism lead us increasingly to expect interface-based explanations for phenomena which are generally seen as purely syntactic.
- b. As Chomsky has always stressed (e.g. 1955, 1965), there is no *a priori* way of knowing what the source of a sentence's perceived unacceptability is — CED violations do not necessarily have to be treated in the syntax.
- c. A minimalist model of syntax relies on more or less blind application of very primitive operations (e.g. Merge, dependent on feature checking / visibility and not much else). This leads *me*, at least, to expect very discrete judgements based on narrow syntactic factors alone: ✓ or *, but no ? or ??. If we don't get judgements like those, non-syntactic factors are probably at work (a stronger possible statement: the sentence is probably grammatical from a narrowly syntactic point of view).
- d. I believe that, if we look closely at locality effects, we find more ?s and ??s than ✓s or *s, so we should investigate approaches outside narrow syntax.

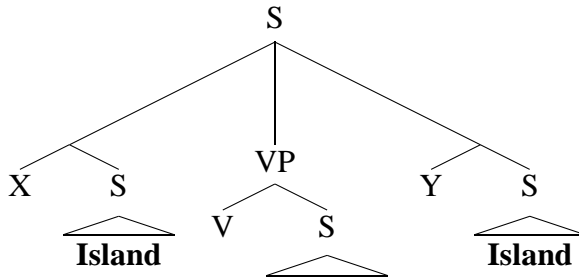
(3) The plan

- a. Define a model of the internal structure of events, with the aim of showing what we can (and can't) perceive as a single event;
- b. Show that there is no direct mapping between event structure and phrase structure;
- c. Show how this event structure may be put to work in accounting for certain locality effects, primarily adjunct islands.

2 Adjunct (and Subject) Islands: Some History

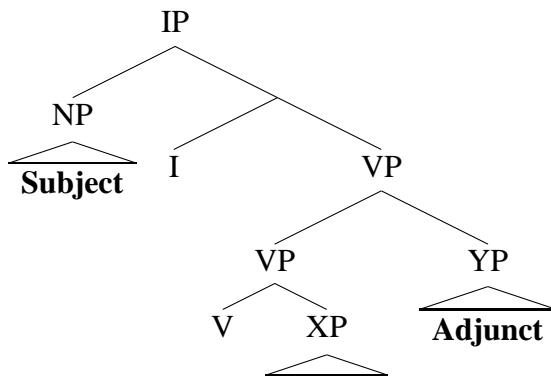
- (4) **Ross (1967):** an S node outside a chain of complementation relations defines an island.

“Chopping” transformations cannot cross island boundaries.



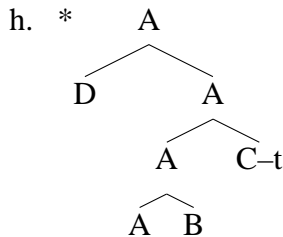
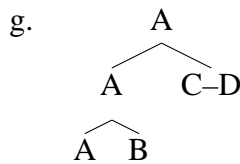
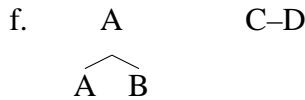
Net result: Many subjects and adjuncts (those including an S node) behave like islands, whereas this is debatable for others (e.g. untensed adjuncts, DP subjects).

- (5) **Huang (1982):** The Condition on Extraction Domain: A phrase A may be extracted out of a domain B only if B is properly governed (p.505). We can argue about proper government til the cows come home, but this much seems clear:



- a. VP-external **subjects** aren't properly governed (outside the m-command domain of a governing head);
 - b. **Adjuncts** aren't properly governed (not assigned a θ -role).
- (6) **Uriagereka (1999):** Multiple Spell-Out:
- a. Merge takes a lexical item and attaches it to a tree, making a larger tree;
 - b. This means that Merge has problems when it has to join together two syntactically complex objects (neither is present in the lexicon — rather, they exist in separate “derivational workspaces”);
 - c. So, in such a case, you need to spell out (or *renumerate* — Johnson 2002) the nonprojecting sister, essentially making it syntactically atomic;
 - d. And you can't move out of syntactically atomic things, so this creates an island.
 - e.

A	C
\wedge A B	\wedge C D



(7) **The problems**

- a. Subjects aren't always islands.
- b. Adjuncts aren't always islands.
- c. In languages where subjects don't always behave like islands, adjuncts might still do so, and *vice versa*.
- d. The distributional factors governing extraction from subjects, and from adjuncts, are distinct.
- e. But, as we follow the twin paths of (i) generalisation (some subjects/adjuncts are islands → all subjects/adjuncts are islands, and subjects and adjuncts form a natural class); and (ii) integration into the core of syntax (islandhood essentially stipulated → islandhood derived from a secondary syntactic relation → islandhood derived from properties of the fundamental syntactic structure-building operation), the existence of cases where subjects and adjuncts don't behave like (strong) islands, or don't behave alike, becomes more acutely problematic.

(8) **Subjects aren't always islands**

- a. See Stepanov (2007) for a recent survey.
- b. But even without looking to other languages, the status of extraction from subjects in English has been debated in recent years (Starke 2001, Sauerland and Elbourne 2002, Levine and Sag 2003, Chomsky 2004) — it seems that at least some cases are at least marginally acceptable.

(9) **Adjuncts aren't always islands**

- a. We have known this since at least Chomsky (1982) (see also Cinque 1990, Levine and Sag 2003, Szabolcsi 2006), who lists some examples and claims that they 'range in acceptability from fairly high...to virtual gibberish' (p.72):
- b. (i) Here is the influential professor that John went to college in order to impress *e*.
- (ii) The article that I went to England without reading *e*.
- (iii) The book that I went to college because I liked *e*.

- (iv) The man that I went to England without speaking to *e*. (Chomsky 1982:72)
- (10) **A language can allow extraction from subjects, while blocking extraction from adjuncts.** E.g. Russian:¹
- a. S kem by ty xotel čtoby [govorit' __] bylo by odno udovol'stvie?
with whom SUBJ you wanted that-SUBJ to-speak were SUBJ one pleasure
“With whom would you want that [to speak __] were sheer pleasure?” (Stepanov 2007:91)
- b. ??Komu Ivan ušol [ne posvoniv __]?
Who.DAT John left not call.ADV
“Who did John leave [without calling __]?”
- (11) **A language can allow extraction from adjuncts, while blocking (most cases of) extraction from subjects.** E.g. English (abstracting away from the marginal cases of extraction from internal subjects discussed by Sauerland and Elbourne 2002 *et al.*)
- a. *What did [whistling __] drive Mary crazy?
b. What did John drive Mary crazy [whistling __]?
- (12) **The distribution of exceptions to the CED I: subjects in Russian.** I haven't investigated this very thoroughly, but at least the following *prima facie* candidates are out there:
- a. A clause intervening between *wh*-possessor and the rest of a DP:
- (i) Čja ty думаеш собака укусила Марию?
Whose.NOM you think dog.NOM bit Mary.ACC
“Whose dog do you think bit Mary?”
- These examples are probably intrusion of a parenthetical element rather than genuine extraction: (a) extraction from subordinate clauses is otherwise only possible with the subjunctive complementiser *čtoby*; (b) these intervening clauses degrade rapidly as a parenthetical interpretation becomes less plausible:
- (ii) *Čja ty xotela čtoby собака укусила Марию?
Whose.NOM you wanted comp.SUBJ dog.NOM bit Maria.ACC
“Whose dog did you want to bite Mary?”
- b. Extraction from a postverbal subject is pretty free, at least in monoclausal examples:
- (iii) Kakaja tebya укусила собака?
Which.NOM you.ACC bit dog.NOM
“Which dog bit you?”
- This genuinely looks like extraction, but its status as a counterexample to the CED is less clear: we could conceivably try to argue for a VP-internal position, governed by V in the canonical direction, etc. (though I haven't actually tried to do this).
- c. Stepanov's examples of extraction from a nonfinite preverbal clausal subject look pretty convincing to me.
- (iv) S kem by ty xotel čtoby [govorit' __] bylo by odno
with whom SUBJ you wanted that-SUBJ to-speak were SUBJ one

¹One native speaker accepts this adjunct example, which may cast doubt on this data point. Three others reject it outright, though. I'm in the process of gathering more judgements...

udovol'stvie?

pleasure

“With whom would you want that [to speak __] were sheer pleasure?” (Stepanov 2007:91)

- d. So it looks like the type of subject (nominal vs. clausal), and possibly linear order and the type of constituent being extracted, make a difference here. Some of which looks plausibly syntactic, some of which looks PF/processing-based (linear order).

(13) **The distribution of exceptions to the CED II: subjects in English**, at least according to Sauerland and Elbourne (2002):² extraction is possible from a subject if (a) that subject is derived, and (b) that subject interacts scopally with some other element, with respect to which (c) it takes narrow scope.

- a. (i) *That's the book Op_j that [a chapter of t_j]_i seems [t'_i to have been assigned to John t_i].
(ii) ?That's the book Op_j that [a chapter of t_j]_i seems [t'_i to have been assigned to every student t_i].
- b. (i) *?Which constraint are [good examples of __] always provided?
(ii) Which constraint are [good examples of __] always sought? (Sauerland and Elbourne 2002:304)
(iii) So here, we're looking at something canonically syntactic (base-generated vs. derived subjects) plus an LF component (scope).³

(14) **The distribution of exceptions to the CED III: adjuncts in English**. That's the job of the rest of the talk. But, looking ahead a little:

- a. There are some factors which might be narrowly syntactic (adjuncts are always weak islands, even when some extraction is possible. If Starke's 2001 attempt to reduce weak islands to feature visibility is successful, then this could be syntax, but there are alternatives, e.g. Szabolcsi and Zwarts 1993).
- b. But there is a significant influence of a separate cognitive structure, based on events, which cannot be fully reduced to syntax and doesn't seem to have any impact on extraction from subjects (though I won't show this second part here).

(15) **Interim conclusions**

- a. CED effects do not form a unified class.
- b. I don't have a story for extraction from subjects, but this makes it legitimate to develop a theory of extraction from adjuncts while ignoring this other class of CED effects.
- c. None of the patterns of exceptions to the CED (except possibly the Russian subjects) can be explained in solely syntactic terms. . .
- d. So here's an interface-based account of adjunct islands and their exceptions.

²This admits a proper subset of the cases that Chomsky (2004) admits. My judgements are, if anything, more restrictive still, but this is the closest published approximation I've seen.

³If Sauerland and Elbourne's theory is correct, the scope distinctions result from a distinction between movement in narrow syntax and movement at PF, giving rise to an even more interface-heavy theory, but I abstract away from that here.

- (16) **Two types of extraction from adjunct to be discussed here:**
- a. **Extraction from Bare Present Participial Adjuncts (BPPAs):**
 - (i) What did John drive Mary crazy [whistling __]?
 - (ii) What did John arrive [whistling __]?
 - b. **Extraction from *In Order* Clauses:**
 - (i) What did you come here [to talk about __]?
 - (ii) Whose attention are you waving your arms around [in order to attract __]?

3 Reasons to Think it's Not All Syntax

- (17) **Extraction from adjuncts displays pretty well-behaved characteristics that *might* be syntactic:**
- a. Only referential noun phrases can extract;
 - b. Extraction from adjuncts embedded within adjuncts is *horrible*:
 - (i) *What did John come back [in order to drive Mary crazy [whistling __]?
 - c. In other words, they have all the syntactic hallmarks of *weak*, rather than *strong*, islands;
 - d. That's interesting in its own right but it's not the main point today.
- (18) **Extraction from adjuncts has other characteristics that really don't look syntactic I:**
- a. The distribution of extractions is pretty arbitrary, from a syntactic perspective. . .
 - b. Extraction from *in order* clauses is pretty much free (*modulo* the constraints in (17))⁴:
 - (i) What are you working so hard [in order to achieve __]?
 - (ii) Who did you travel to England [to look at a picture of __]?
 - (iii) Etc.
 - c. Extraction from some classes of adjunct (e.g. *despite* clauses) is never possible:
 - (i) *Which problems did you get here [despite __]?
 - (ii) *Which directions did you find the restaurant [despite misunderstanding __]?
 - (iii) Etc.
 - d. Extraction from some classes of adjunct (e.g. BPPAs) is sometimes possible and sometimes not:
 - (i) What did John turn the house upside down [looking for __]?
 - (ii) *What did John write the cheque [complaining about __]?
 - (iii) Etc.
 - e. Some of this stuff could be syntactic, but (i) What makes *in order* clauses so special?
 - (ii) What's behind the distribution of good and bad cases of extraction from BPPAs

⁴There's actually an interesting exception to this, which fascinates and infuriates me on alternate days. Some uses of *in order* don't describe the subject's plans like the ones below, but rather describe the intentions of some agent not present in the linguistic description. This gives examples like (i), as discussed in Culicover and Jackendoff (2001). In this case, extraction is impossible (ii).

- (i) The ship sinks [in order to further the plot].
- (ii) *What does the ship sink [in order to achieve __]?

(when e.g. constituency tests suggest that they all attach at roughly the same height, etc.)?

(19) **Extraction from adjuncts has other characteristics that really don't look syntactic II:**

- a. The basic rule of syntactic locality theory: things might get in the way. More structure = more potential problems for movement.
- b. Not so with extraction from BPPAs:
 - (i) ??What did John drive Mary crazy [fixing __]?
 - (ii) What did John drive Mary crazy [trying [to fix __]]?

(20) **Extraction from adjuncts has other characteristics that really don't look syntactic III:**

- a. There's a correlation between (i) aspectual class of the matrix VP; (ii) the perceived semantic relation between matrix VP and BPPA; (iii) extractability of constituents of the BPPA:
- b. First pass: extraction is only possible when the matrix VP is telic:
 - (i) What did John drive Mary crazy [whistling __]?
 - (ii) What did John arrive [whistling __]?
 - (iii) *What does John work [whistling __]?
 - (iv) *Which magic hat do you know Georgian [wearing __]?⁵
- c. First refinement: extraction from BPPAs modifying accomplishment VPs (20bi) is only possible when the nature of the activity that the subject performs is not specified by the matrix verb phrase:
 - (i) What did John drive Mary crazy [whistling __]?
 - (ii) *What did John write the cheque [complaining about __]?
- d. Second refinement: extraction from BPPAs modifying activity VPs (20biii) is sometimes possible, but only if one or other of the event descriptions (in the matrix or adjunct VP) is nonagentive (though we won't get to an explanation for this today):
 - (i) *What does John work [whistling __]?
 - (ii) What did John lie in bed [reading __] all day?
 - (iii) Which chair did John eat soup [sitting on __]?
- e. Third (and last) refinement: Extraction from a BPPA modifying an accomplishment VP (20bi) is preferentially interpreted such that the adjunct event is the direct cause of the matrix VP event — when this interpretation is impossible (20cii), extraction is degraded. Extraction from a BPPA modifying an achievement VP (20bii) is preferentially interpreted such that the adjunct event immediately precedes, but does not cause, the matrix VP event.
- f. I've tried getting a purely syntactic theory to handle all that. I've really tried. . .

(21) **The alternative:**

- a. I think that I can get all these data to fall out of one condition (we can talk about why

⁵OK, so ??*I only know Georgian [wearing THIS magic hat]* is pretty bad in the first place, but it's better than any other case of stative VP + BPPA that I'm aware of.

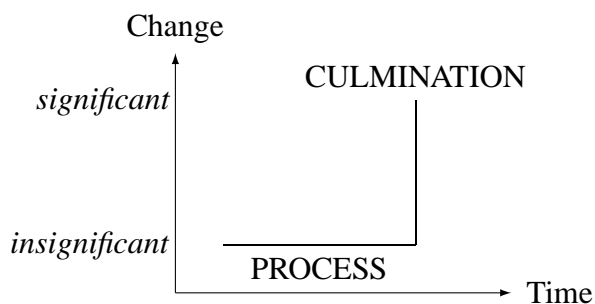
this condition might hold, or how weird it is/isn't — just ask).

The Single Event Condition: A *wh*-dependency is only legitimate if the minimal constituent containing the head and foot of the chain describes a single event.

- b. So now, we need an independently motivated model of event structure to see what this actually predicts...

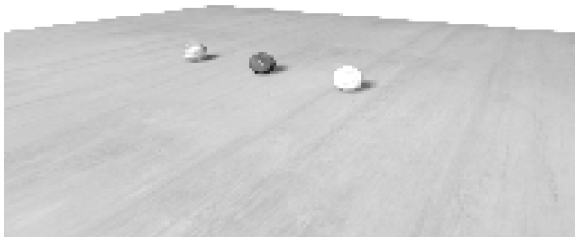
4 Events

- (22) **In the beginning: the aspectual classes (Vendler 1957):** divide the class of verb phrases into four, based on two independent binary distinctions.
- (23) **The progressive test:** *Accomplishments* and *activities* are acceptable in the progressive. *Achievements* and *states* aren't.
- I am running a mile (drawing a circle, building a house,...).
 - I am running (writing, working,...).
 - *I am spotting the plane (appearing, blinking,...).
 - *I am knowing the answer (loving you, understanding antisymmetry,...).
- (24) **The *wh* test:** *Activities* and *states* can form *for how long* questions. *Accomplishments* and *achievements* can't.
- #For how long did he run a mile (draw a circle, build a house,...)?
 - For how long did he run (write, work,...)?
 - #For how long did you spot the plane (appear, blink,...)?
 - For how long did you know the answer (love me, understand antisymmetry,...)?
- (25) The four classes can be seen in terms of the presence or absence of two components, or subevents: a *preparatory process* and a *culmination*, where the process directly causes the culmination.



- (26)
- State**=0
 - Activity**=PROCESS
 - Accomplishment**=PROCESS + CULMINATION
 - Achievement**=...

- (27) All achievements involve a culmination, but some (*true achievements*) arguably involve a preparatory process too (*cf.* Pustejovsky 1991), while others (*points*) don't.
- (28) a. To form a progressive, you need to have a preparatory process.
b. To form a *for how long* question, you need to *not* have a culmination.
- (29) a. John is arriving any minute now.
b. I'm coming back tomorrow.
c. *I'm noticing the carnage at the moment.
d. *John is hiccupping.⁶
- (30) We can talk about why true achievements aren't accomplishments (and *vice versa*) but it gets complicated...
- (31) One important consequence of this: two *subevents* can jointly form a single *macroevent*, on the assumption that VPs also describe events. This opens the question of which groups of events we are, and aren't, willing to consider as a single, bigger event.
- (32) Most linguistic theories of event structure stop somewhere around the structures in (26), with a maximum of two (sometimes three) subevents, related by *direct causation*, but I follow Zacks and Tversky (2001), Wolff (2003) and posit a more expansive set of structures. Specifically, I claim that multiple subevents can also correspond to a single macroevent if those subevents correspond to an agentive subject's plan. Here's a set of experiments from Wolff (2003).
- (33) **Two tasks:**
a. Report how many events you see in a given animation;
b. Choose between single verb (lexical causative) and multiverb (periphrastic causative) descriptions of the event.
- (34) **Fodor's (1970) generalisation:** A single verb phrase describes a single event. If a subject perceives multiple events, (s)he shouldn't be able to describe them with a single VP.
- (35)



- (36) a. The movement of adjacent marbles is related by direct causation (the first rolls into the second and directly causes it to move), and so their interaction should be describ-

⁶These examples can be rescued by iterating the event in question, or by considering it in excruciatingly slow motion, but they are anomalous on regular interpretations.

able by lexical or periphrastic causatives.

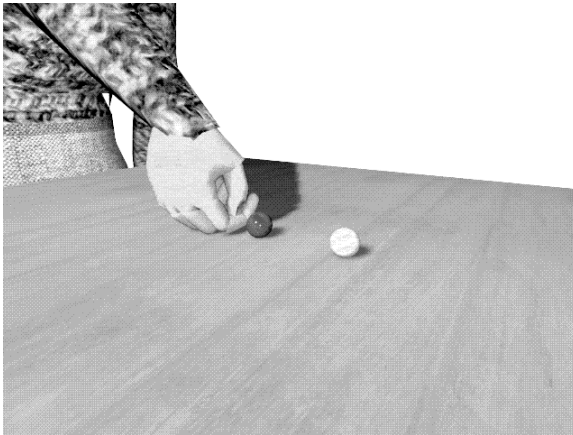
- b. The movement of nonadjacent marbles is related only by indirect causation (the first rolls into the second and directly causes it to roll into the third and cause it to move), and so their interaction should be describable only by periphrastic causatives.

(37) a. **Lexical causative:** Marble A moved marble B.

- b. **Periphrastic causative:** Marble A made marble B move.

(38) This prediction is supported to a statistically significant extent, but replacing the first marble in the chain with a hand (implying a human) gives a surprising result.

(39)



(40) a. The man moved the marble.

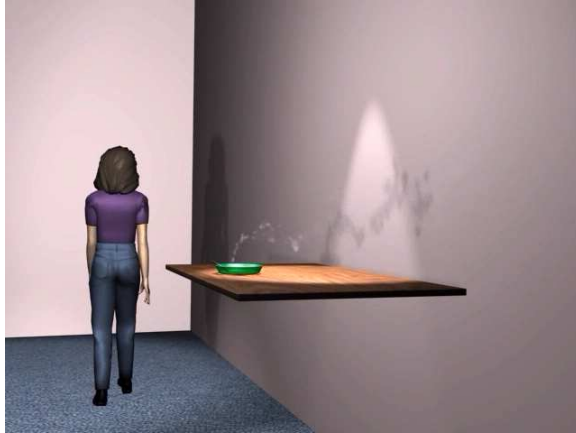
- b. The man made the marble move.

(41) Both these descriptions were available, regardless of whether we are talking about the adjacent marble or the nonadjacent marble. Also, a single event was perceived in both cases. This suggests that something like humanness or animacy of an event's initiator has an influence on the maximum perceived size of that event.

(42) a.



b.



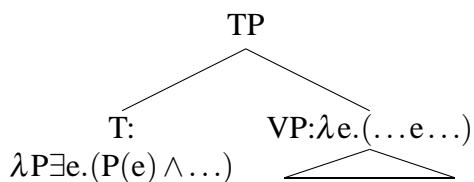
- (43) a. In (42a), a woman *intentionally* disperses smoke rising out of an ashtray by wafting it away with her hands.
b. In (42b), a woman *unintentionally* disperses smoke rising out of an ashtray by walking past it and creating a draught.
- (44) Subjects perceived (42a), but not (42b), as a single event, and described the events accordingly.
a. The woman dispersed the smoke.
b. The woman made the smoke disperse.
- (45) This suggests that the effects that an agent intends to bring about by performing an initial action can form a macroevent with that initial action [NB: This is not Wolff's conclusion. Wolff argues for a force dynamics-based model following Talmy (1988). As far as I can see, both accounts describe the data at hand, though].
- (46) a. A *core event* consists of any of the structures described around (26): a process, a culmination, or both, related by direct causation.
b. An *extended event* consists of a sequence e_1, \dots, e_n of core events, such that:
(i) e_1 occurred and is agentive;
(ii) The agent of e_1 intends e_n to occur;
(iii) For every e_k , $1 \leq k < n$, either e_k causes e_{k+1} or the agent of e_1 believes that the occurrence e_k will enable him to bring e_{k+1} .
- (47) This is the full extent of the event structure I'll be dealing with for today (though this leads to a few rough edges that you'll probably spot...). Now back to syntax...

5 Event Structure and Phrase Structure

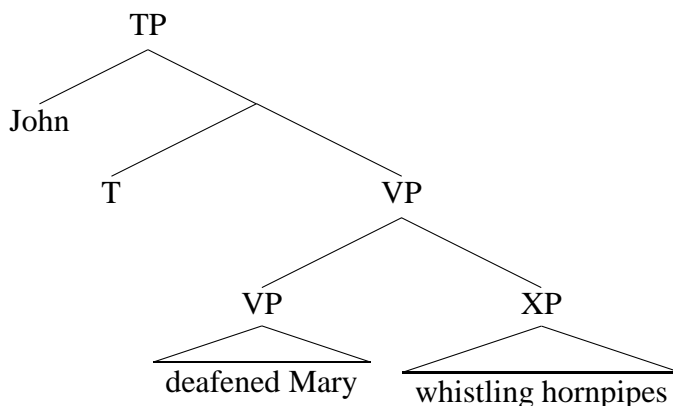
- (48) The definition of *extended event* introduces a recursive element into event structure, so we should consider the relationship between this structure and phrase structure.
- (49) There are plenty of proposals (Lakoff 1970, Hale and Keyser 1993, Travis 2000, Ramchand 2006) to encode a direct (homomorphic) mapping between the two (typically, event variables are introduced by heads, and direct causation corresponds to complementation),

but these proposals all assumed a nonrecursive event structure, defining roughly my core events but not my extended events.

- (50) a. **Event structure** deals with particular entities (events) and privileged relations among them (direct causation, planning).
 b. **Phrase structure** deals with particular entities (constituents) and privileged relations among them (take your pick: complementation, dominance, coindexation, . . . I'll just talk about complementation here, as this is the primary recursive structure-building device in phrase structure, and so a natural choice for a counterpart for the recursive relations among events).
 c. I claim that events *do not* directly map onto constituents, and direct causation / planning *do not* directly map onto complementation.
 d. Which means the two must be treated as distinct structures.
- (51) **Events are not constituents.** What would it mean for an event to be a constituent? On most theories (generally stemming from Higginbotham 1985), an event variable is introduced by one head (V) and bound (existentially quantified) by another (T). The syntactic locus of the event variable is inevitably not a constituent, then.
- (52) **A more interesting attempt:** what if the predicate introducing the event variable, plus all the other arguments of that predicate (call this a *predicate-argument group*), had to form a constituent? This would mean that event *descriptions* corresponded to constituents, even if there was no constituent that denoted an event directly:



- (53) **A challenge from BPPAs:**



- (54) **What deafened Mary?**
- a. It can't have been just John, as an individual (an object, a lump of stuff): lumps of stuff can't deafen anyone, except by doing something (acting upon them).
 b. But it must have involved John. On the most salient reading, it was John whistling

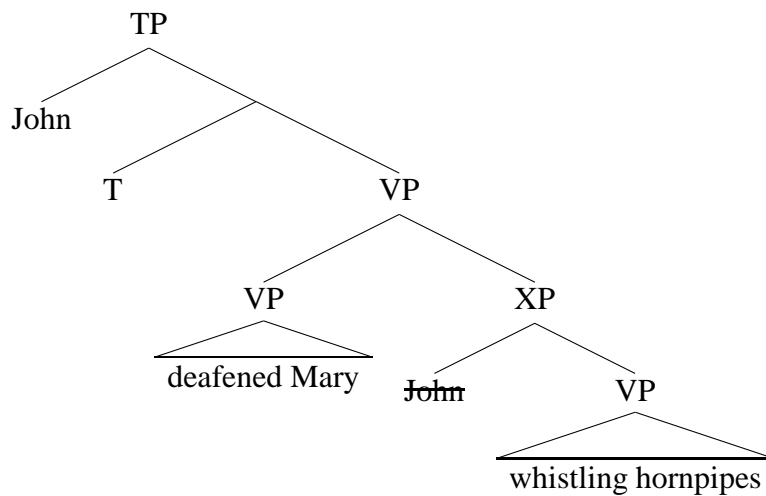
hornpipes that deafened Mary: (53) is more or less synonymous with *John whistling hornpipes deafened Mary*.

(55) **In other words:**

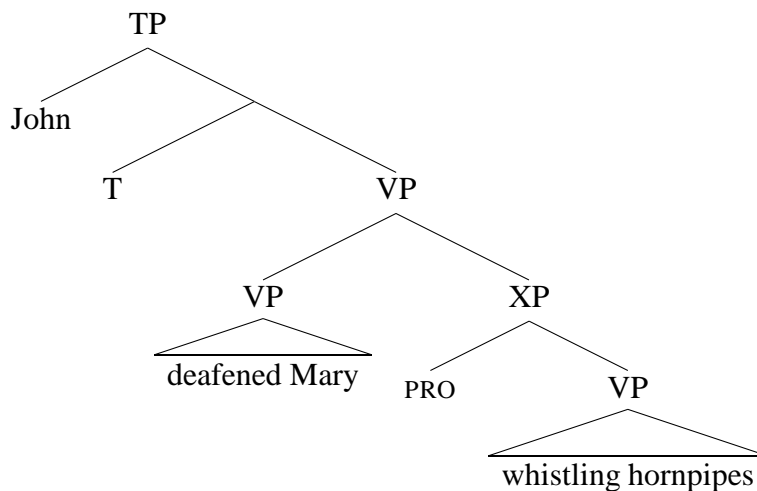
- a. *John* is an argument of *whistle*;
- b. *John whistling hornpipes* is an argument of *deafen*;
- c. *John* is *not* directly an argument of *deafen*.⁷

(56) Now, consider the event description *John whistle hornpipes*. Certainly, on the surface, *John* and *whistle hornpipes* don't form a constituent. But there are two possibilities in GB/post-GB transformational syntax for maintaining the hypothesis that predicate-argument groups form constituents:

a. **The raising hypothesis:**



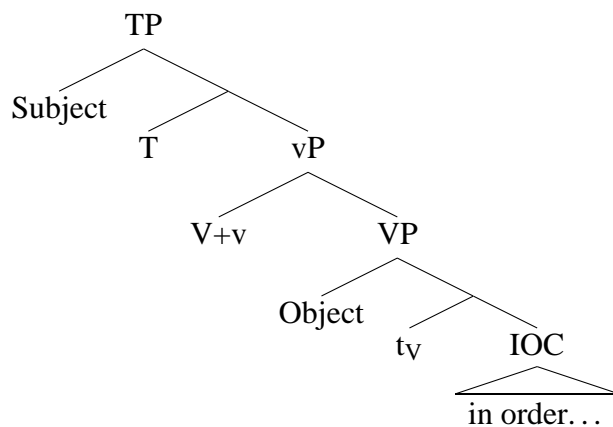
(i) **The control hypothesis:**



(57) Every test for raising vs. control says that this construction is control. For example:

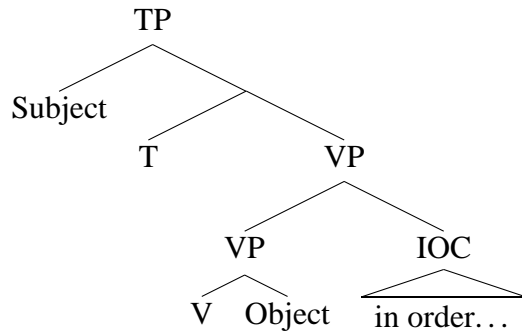
⁷At least, not in terms of the relations among events. There's a lot of thorny problems in here concerning how relations among events and relations among ordinary individuals interact. I'm glossing over them all, mainly because I don't understand them or have anything to say that actually works, but feel free to pick me up on this.

- a. Control constructions, but generally not raising constructions (we can talk about the exceptions — they don't affect the point here), are acceptable as the complement of object control verbs such as *persuade*.
 - (i) Bill persuaded John [to try [to swim the Channel]].
 - (ii) *Bill persuaded John [to seem [to like swimming]].
 - (iii) Bill persuaded John [to deafen Mary [whistling hornpipes]].
 - b. Raising constructions, but not control constructions, can take expletive subjects.
 - (i) It seemed [to annoy John that Bill swam so well].
 - (ii) *It tried [to annoy John that Bill swam so well].
 - (iii) *It upset Mary [annoying John that Bill swam so well].
- (58) So (53) is not raising, and may be control (at least, the subject behaves like an external argument, unlike a raising subject — not the same thing). But is there really a PRO within the adjunct?
- a. If there is, then *John* doesn't receive a θ -role from *whistling*.
 - b. It also doesn't receive a θ -role from *deafen*, on the assumption that events, rather than objects, deafen people, and (on this occasion) *John* denotes an object rather than an event.
 - c. So it doesn't receive a θ -role, in violation of the θ -criterion.⁸
- (59) a. Given that NPs need a θ -role, I conclude that there is no PRO within the adjunct. . .
 b. . . and that *John* is the syntactic subject of *whistling*. . .
 c. . . and so predicate-argument groups don't form constituents.
- (60) **Direct causation and planning do not always map onto complementation:**
- a. Anticipating the discussion in the next section, note that an *in order* clause functions to specify the goal that an agent has in mind in performing an action.
 - b. If direct causation and planning mapped onto complementation, this would mean that an *in order* clause was at the bottom of a chain of complementation, c-commanded by all constituents relating to other events:



- c. Compare the standardly assumed structure:

⁸To be fair, there are other options: we could start decomposing traditional θ -roles, and assuming, as in Jacqueline Guéron's work, that T assigns a θ -role to *John*, for example. But, at least within standard assumptions, we have to either conclude that *John* doesn't receive a θ -role or give up on the idea that the adjunct contains a PRO subject.



- d. But the object does not c-command the *in order* clause, as shown by binding tests, etc.
- (i) John hugged Mary [in order to make himself feel better].
- (ii) *John hugged Mary [in order to make herself feel better].
- e. So the traditional structure must be right.
- f. In which case direct causation and planning do not always map onto complementation.
- (61) So now we know that phrase structure and event structure are independent of each other, we can be fairly sure that an elegant (unified, exceptionless, explanatory) generalisation expressed in terms of one structure will lead to an ugly (disjunctive, arbitrary, stipulative) generalisation expressed in terms of the other. Cue the adjunct extraction data. . .

6 Back to Locality

- (62) **The Single Event Condition:** A *wh*-dependency is only legitimate if the minimal constituent containing the head and foot of the chain describes a single event.
- (63) **This time, we know what a single event is. . .** Three questions from before:
- a. Why are *in order* clauses so happy to allow subextraction?
- b. Why do *despite* clauses never allow subextraction?
- c. What is going on with BPPAs?
- (64) **Why are *in order* clauses so happy to allow subextraction?** Easy. . .
- a. An *in order* clause specifies the goal with which an agent performs the matrix event.
- b. So the matrix and adjunct events are in a planning relation.
- c. So they can always form a single macroevent.
- d. So the Single Event Condition is always satisfied.
- (65) **Why do *despite* clauses never allow subextraction?** Easy. . .
- a. A *despite* clause specifies some hindrance to the matrix VPs occurrence which, nonetheless, fails to prevent its occurrence.
- b. This is not a causation or planning relation.
- c. So the two events never form a single macroevent.
- d. So the Single Event Condition is never satisfied.
- (66) **What is going on with BPPAs?** Not so easy. . .

- a. First, we need to assume that, with BPPAs, the class of available event structures is restricted to core events, and that the choice of core event structure is dictated exclusively by the matrix verb (phrase). We can talk about why — I understand half of it (related to the morphosyntactic smallness of BPPAs) but I don't understand half of it.
- b. Then the availability of extraction from BPPAs reduces to the possibility of identifying the BPPA as a subevent within the matrix VP's event structure:⁹
 - (i) $[[\text{Drive Mary crazy}]]: \lambda x \exists P. (P(x, e_1) \wedge \text{crazy}(m, e_2) \wedge E = \langle e_1, e_2 \rangle)$
 - (ii) $[[\text{Whistling hornpipes}]]: \lambda x. \text{whistle}(x, h, e)$
 - (iii) $[[\text{Drive Mary crazy whistling hornpipes}]]: \lambda x. \text{whistle}(x, h, e_1) \wedge \text{crazy}(m, e_2) \wedge E = \langle e_1, e_2 \rangle$
- c. This is possible when:
 - (i) There is an event variable with no descriptive content attached;
 - (ii) It is of the right aspectual class (i.e. a process) for the BPPA.

(67) **The puzzles revisited I: Why does extraction from a BPPA require a telic matrix VP?**

- a.
 - (i) What did John drive Mary crazy [whistling __]?
 - (ii) What did John arrive [whistling __]?
 - (iii) *What does John work [whistling __]?
 - (iv) *Which magic hat do you know Georgian [wearing __]?
- b. Assume every verb (except *do*, maybe other light verbs) includes some descriptive content somewhere.
- c. Extraction from a BPPA requires an event variable with no descriptive content attached.
- d. So we need two event variables.
- e. But we're restricted to core events.
- f. So the only option is a process and a culmination.
- g. Which entails a telic matrix VP.¹⁰

(68) **The puzzles revisited II: What goes wrong when the nature of the activity performed by the subject is specified?**

- a.
 - (i) What did John drive Mary crazy [whistling __]?
 - (ii) *What did John write the cheque [complaining about __]?
- b. We need an event variable with no descriptive content attached for extraction from the BPPA to be possible.
- c. But in cases like this, both event variables have descriptive content attached:
 - (i) $[[\text{Write the cheque}]]: \lambda x. \text{write}(x, e_1) \wedge \text{filled_in}(\text{cheque}, e_2) \wedge E = \langle e_1, e_2 \rangle$
 - (ii) $[[\text{Complaining about stuff}]]: \lambda x. \text{complain_about}(x, \text{stuff}, e_1)$
 - (iii) $[[\text{Write the cheque complaining about stuff}]]: ???$
- d. So the necessary identification can't be performed, and we never arrive at a single

⁹I abstract away from the issue of λ -abstraction vs. existential quantification of event variables in this part, because things, once again, get complicated if we want everything to work out compositionally here. You can ask, but I might start foaming at the mouth.

¹⁰We're going to have to leave the cases of extraction from BPPAs modifying activity VPs (20d) aside here.

- event description.
- e. So the Single Event Condition is not met.
- (69) **The puzzles revisited III: Why does the interpretation change depending on the aspectual class of the matrix VP?** Once again, get this to come out compositionally is tough, but here's a step in the right direction:
- a. (i) What did John drive Mary crazy [whistling __]? — Whistling causes craziness.
 - (ii) What did John arrive [whistling __]? — Whistling does not cause arrival.
 - b. *Drive Mary crazy* is an accomplishment. *Arrive* is an achievement.
 - c. There's a distinction in the relation between the culmination expressed by these VPs and the actions being performed by the subject:
 - (i) *Drive Mary crazy*: whatever John did is responsible for Mary's craziness.
 - (ii) *Arrive*: whatever John did is not necessarily responsible for his arrival: he could have been kidnapped, or FedExed against his will, or ...
 - d. Let's not worry about how this is represented. But the distinction clearly carries across to the BPPA cases:
 - (i) John did something that caused Mary to go crazy, and he was whistling at that time. It's natural (but not obligatory) to assume that his whistling drove Mary crazy.
 - (ii) John didn't necessarily do anything to cause himself to arrive, but he was whistling. Whistling is pretty unlikely to cause anyone to arrive, so it probably isn't the cause.
 - e. This comes apart in the fine details, but it's in the right direction.
- (70) **The puzzles revisited IV: The antilocality effects.**
- a. (i) ??What did John drive Mary crazy [fixing __]?
 - (ii) What did John drive Mary crazy [trying [to fix __]]?
 - b. *Try* forms an activity from its complement, regardless of the aspectual class of that complement.
 - c. *Fix* is most naturally an accomplishment, but needs to be an activity for the identification to take place.
 - d. So there's a coercion effect in (70ai) that is absent in (70aii), and (70ai) feels accordingly degraded.
 - e. But note the significance of this: when a syntactically more complex structure corresponds to an aspectually simpler structure, it's the aspectual considerations that win out.

7 Conclusion

Not much of a conclusion, but (as Chomsky has always stressed) it's hard to know *a priori* what the source of any ill-formedness is. In this case, the proper analysis of something that is taken to look narrowly syntactic involves the interaction of two independent structures, one syntactic, one semantic. If this is all on the right lines, syntax gets a little bit more minimal.

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