

Events, Islands, and Cyclicity*

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1 Introduction

A typical (and very abstract) chomskyan view of locality:

- (1) a. Certain **syntactic** factors define *locality domains*. Movement (etc.) is only possible within these domains.
- b. Something about the shape of those domains generally forces apparently unbounded dependencies to be constructed from a series of relatively local dependencies.

The revision proposed here:

- (2) a. Certain **syntactic or semantic** factors define *locality domains*.
- b. Everything else is exactly as above. In particular, we find some new indirect evidence for cyclicity in the new data to be discussed below. But. . .
- c. Seeing as the locality domains are now defined in partially semantic terms, we gain another argument for a grammatical architecture with some nontrivial interaction between the overt syntax and the semantic component (broadly along the lines of phase theory), as opposed to the classical Y-model where the overt syntax fully precedes the semantic component.

The empirical areas to be discussed:

- (3) a. A critical look at CED effects, and particularly grammatical adjunct condition violations, in English (section 2). This is where I think the evidence for a partially semantic definition of locality domains (in terms of the internal structure, and individuation, of events) is clearest.
- b. A novel approach to factive islands (section 3), which have been covered from all sorts of (syntactic and semantic) perspectives before. I show that the same condition which describes the patterns of extraction from adjuncts in section 2 also gives us a new way of explaining factive islands, returning to something a little bit like Erteschik-Shir's (1973) original notion of *semantic dominance/subordination*.
- c. A demonstration that the event-based approach to factive islands from section 3 overgenerates massively if we adopt a global conception of the influence of event

*Thanks to Ad Neeleman for all the obvious reasons, and to Klaus Abels for making me think about cyclicity. Research funded by the AHRC (past) and the Wingate Foundation (present).

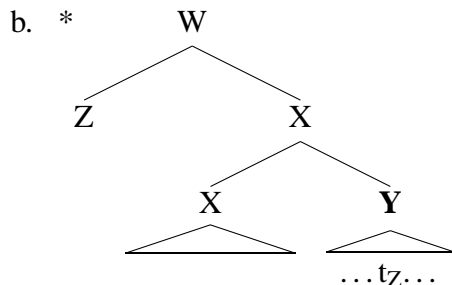
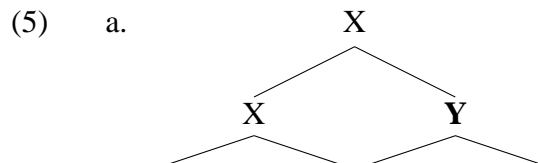
structure on locality domains. However, if we allow the event-structural locality condition to apply cyclically then this overgeneration disappears.

2 The Internal Structure of Events and Extraction from Adjuncts

2.1 What's wrong with the CED?

2.1.1 Background

- (4) a. **Condition on Extraction Domain** (Huang 1982:505)
A phrase A may be extracted out of a domain B only if B is properly governed.
b. **Adjunct Island Condition** (Johnson 2002:1 — see also Uriagereka 1999, Sabel 2002, Zwart 2007, Müller 2007)
If XP is in an adjunct position, nothing may move out of it [where ‘An adjunct is a phrase whose sister is also a phrase and whose mother is not its projection’].



- (6) a. Who did Mary [_{VP} [_{VP} kiss *t*] [_{PP} after John went home]]?
b. *Who did John [_{VP} [_{VP} go home] [_{PP} after Mary kissed *t*]]?
- (7) a. That's the symphony that Schubert [_{VP} [_{VP} died] [_{PP} without finishing *t*]].
b. Who did you [_{VP} [_{VP} go to Girona] [_{XP} in order to meet *t*]]?
c. How many of the book reports did the teacher [_{VP} [_{VP} smile] [_{PP} after reading *t*]]?
(Levine and Sag 2003:16–17, following Pollard and Sag 1994)
- (8) **Extraction is only ever possible from an adjunct if that adjunct is untensed** (see also Szabolcsi 2006).
- (9) a. *Who did John go home [after he kissed *t*]?
b. ?Who did John go home [after kissing *t*]?

But why would tense make a difference? In principle, we can try and explain this in terms of...

- (10) a. **A syntactic approach:** There is something special about T(P) that interacts with adjunction to create an island. (Syntacticians have a long history of saying there is something special about T(P): EPP, barriers, etc.).

- b. **A semantic approach:** There is something special about the semantic effect of tense that makes extraction across it impossible.

To choose between these, let's look beyond tensed adjuncts. Not all untensed adjuncts allow extraction, of course. General considerations of theoretical parsimony mean we should hope for whatever condition derives the ban on extraction from tensed adjuncts to do some other work in locality theory as well, and this is a natural place to look. The syntactic approach (10a) is certainly more orthodox, along the lines of typical chomskyan locality theory (1), but how would it deal with these?

2.1.2 The Interpretive Puzzle

- (11) a. What did John drive Mary crazy [whistling *t*]?
b. What did John die [whistling *t*]?

Although both (11a) and (11b) are grammatical, there is a clear interpretive difference between the two. (11a) is most naturally interpreted as in (12):

- (12) What is the *x* such that John whistling *x* directly caused Mary to go crazy?

However, (11b) *cannot* be interpreted as in (13a) — instead, the relation between matrix and adjunct events is purely temporal, something like (13b).

- (13) a. What is the *x* such that John whistling *x* directly caused him to die?
b. What is the *x* such that John was whistling *x* immediately before he died?
- (14) a. Example **(11a)** is typical of the interpretations we find when the matrix VP is an **accomplishment**.
b. Example **(11b)** is typical of the interpretations we find when the matrix VP is an **achievement**.
c. **Other aspectual classes** don't generally allow this sort of question.¹

These readings are also preferred in corresponding declaratives, as in (15):

- (15) a. John drove Mary crazy whistling hornpipes.
b. John died whistling the *Marseillaise*.

However, other declaratives constructed from VPs of the same aspectual classes do not have these interpretations, and do not allow extraction either.

- (16) a. John painted this picture eating apples \neq John eating apples caused him to paint this picture.
b. *What did John paint this picture eating?
c. John came home dripping mud all over the living room carpet \neq John was dripping mud all over the living room carpet immediately before he came home.
d. ??What did John come home dripping mud on? (* if the answer is *the living room carpet*).
e. John works building igloos.

¹I have to ignore the exceptions, such as *What did John walk around whistling all day?*, in this talk.

- f. *What does John work building?

What forces these interpretive asymmetries between declaratives and interrogatives, and accomplishments and achievements?

2.1.3 The Unlikely Antilocality Puzzle

Antilocality (Grohmann 2003, Abels 2003): certain syntactic operations are impossible when they relate elements which are structurally too close: within certain subdomains of the clause (Grohmann) or within a single projection (Abels).

Bare present participial adjuncts also sometimes appear to show antilocality effects:

- (17) a. ??What did John drive Mary crazy [fixing *t*]?
b. What did John drive Mary crazy [trying [to fix *t*]]?

But what about this:...

- (18) What did John drive Mary crazy [whistling *t*]?

... or *this*:...

- (19) *What did John drive Mary crazy [beginning [to fix *t*]]?

... or *this*:

- (20) a. What did John talk [about [fixing *t*]]?
b. What did John talk [about [trying [to fix *t*]]]?

An antilocality approach to (17) would need sensitivity not only to distances traversed by movement, but also to very local relations among nodes along the way (adjunction or not, the choice of embedding verb, the choice of participial verb, ...).

But how else could we account for (17) syntactically? Apart from antilocality, the general rule of syntactic locality is this:

- (21) Things might get in the way. More structure = more potential interveners.

Here, on the other hand, *less* syntactic structure leads to lower acceptability.

What else could be behind such a pattern?

2.1.4 Where We're Going

If we follow the syntactic approach, we will end up with a bunch of unexplained quirks in the extraction data. Even if we attain descriptive adequacy, explanatory adequacy seems a long way away.

Cue the alternative...

- (22) **The Event Locality Condition: Events form locality domains for *wh*-movement**
Wh-questions carry a presupposition that the minimal constituent containing the head and the foot of the chain describes a single event. An instance of *Wh*-movement is felicitous only if the denotation of that minimal constituent can be construed accordingly.
- (23) Clarifications of the Event Locality Condition:
- a. I assume, following Bach (1986), Parsons (1990), Moens and Steedman (1988), Zacks and Tversky (2001), Ramchand (2006), Steedman (2005), etc. that events can stand in part-whole relations with other events. To borrow Ramchand's terminology, a *macroevent* can be composed of multiple *subevents*. All that the Event Locality Condition claims is that the constituent containing the head and foot of the *wh*-chain must describe a macroevent. Whether or not that macroevent is composed of multiple subevents is immaterial. So (i) and (ii) both meet the Condition, but (iii) doesn't.
 - (i) $\exists E.(\dots E \dots)$
 - (ii) $\exists E.(\dots \exists e_1.(\dots e_1 \dots) \wedge \exists e_2.(\dots e_2 \dots) \wedge R(E, e_1, e_2) \dots)$
 - (iii) $\exists E_1.(\dots E_1 \dots) \wedge \exists E_2.(\dots E_2 \dots)$
 - b. The Event Locality Condition is not meant to apply just to extraction from adjuncts, but to be a general condition on *wh*-movement. This will become apparent when we discuss factive islands in section 3, for example. It is NOT meant to be the only locality condition on *wh*-movement, however. For one thing, it is very hard to see how this condition could derive subject–object asymmetries.
- (24) **Claim:** The Event Locality Condition can derive the islandhood of tensed adjuncts, and give us answers to the interpretive puzzle and the unlikely antilocality puzzle for free.
- (25) How this plays out for the cases at issue here: the events described by the matrix VP and by the adjunct must each form part of an internally complex event, if extraction is to be possible. Appropriate event structures must exist, and it should be pragmatically plausible that the events in question can be related in the necessary way.

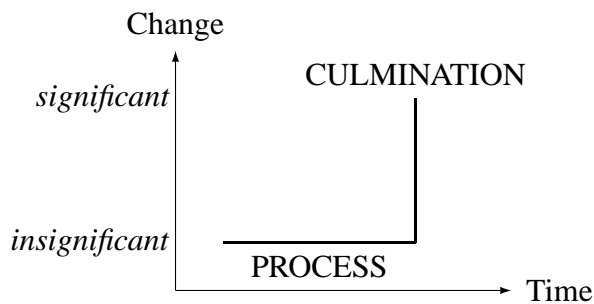
So first, we need an independently motivated theory of the event structures of aspectual classes and beyond. Then we can see how this squares with the locality data.

2.2 The Basics

2.2.1 Aspectual Classes

- (26) **The progressive test:**
- a. I am running a mile (drawing a circle, building a house, ...).
 - b. I am running (writing, working, ...).
 - c. *I am spotting the plane (appearing, blinking, ...).
 - d. *I am knowing the answer (loving you, understanding antisymmetry, ...).
- (27) **The *wh* test:**
- a. #For how long did he run a mile (draw a circle, build a house, ...)?
 - b. For how long did he run (write, work, ...)?

- c. #For how long did you spot the plane (appear, blink,...)?
 d. For how long did you know the answer (love me, understand antisymmetry,...)?
- (28) Vendler's (1957) four aspectual 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.



- (29) a. **State**= \emptyset
 b. **Activity**=PROCESS
 c. **Accomplishment**=PROCESS + CULMINATION
 d. **Achievement**=...

All achievements involve a culmination, but some (*true achievements*) arguably involve a preparatory process too (*cf.* Pustejovsky 1991), while others (*points*) don't.

- (30) 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.²
- (31) 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.

2.2.2 Extraction from Bare Present Participial Adjuncts

- (32) a. What did John come back [thinking about *t*]?
 b. *What did John notice the carnage [thinking about *t*]?
- (33) **All matrix VPs allowing extraction from bare present participial adjuncts adjoined to them denote PROCESS + CULMINATION.**
- (34) This makes sense because the matrix VP describes an event, and the adjunct describes an event, so we need a macroevent consisting of two subevents. So only accomplishments and true achievements have the correct internal event structure.
- (35) Extraction of the complement of a bare present participial adjunct is permitted only if the property of events denoted by the adjunct VP is predicated of a subevent variable in the denotation of the matrix VP.

²These 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.

- (36) a. **Shape of the denotation of the matrix VP:**³ $E = R(e_1, e_2) \wedge P(e_2)$ (for the purposes of this talk, $R \in \{\text{CAUSE}, \text{THEN}\}$, plus modal relations involving referential opacity to be discussed in section 3).
 b. **Shape of the denotation of the adjunct VP:** $Q(e)$
 c. **Shape of the denotation of matrix and adjunct VP together when extraction is possible** (=a), with the property in (b) predicated of the initial subevent):
 $E = R(e_1, e_2) \wedge Q(e_1) \wedge P(e_2)$
- (37) A prediction of this approach: extraction should be impossible from a bare present participial adjunct modifying a telic VP if that VP's preparatory process is already fully specified.
- (38) a. Drive Mary crazy: $E = \text{CAUSE}(e_1, e_2) \wedge e_2 = \text{crazy}(m)$
 b. Write the cheque: $E = \text{CAUSE}(e_1, e_2) \wedge e_1 = \text{write} \wedge e_2 = \text{filled_in}(\text{cheque})$
- (39) a. What did John drive Mary crazy [complaining about t]?
 b. *What did John write the cheque [complaining about t]?
 c. John wrote the cheque [complaining about what a waste of money it was].

2.3 How to Deal with the Puzzles

2.3.1 The Interpretive Puzzle

- (40) a. John drove Mary crazy \approx Whatever John was doing caused Mary to become crazy.
 b. John arrived at X $\not\approx$ Whatever John was doing caused him to become "at X".
- (41) a. **The accomplishment case:** the subject's actions bring about the result state.
 b. **The achievement case:** the subject's actions do not necessarily bring about the result state.
- (42) a. John deliberately drove Mary crazy.
 b. #John deliberately arrived.
- (43) The bare present participial adjunct describes a subject's actions. So the causal relation to the result state is natural (almost automatic) in the accomplishment case, accidental at best in the achievement case.
- (44) a. **What did John drive Mary crazy whistling?**
 $\lambda x \exists e_1, e_2, E. \text{whistle}(j, x, e_1) \wedge \text{crazy}(m, e_2) \wedge E = \text{CAUSE}(e_1, e_2)$
 b. **What did John arrive whistling?**
 $\lambda x \exists e_1, e_2, E, y. \text{whistle}(j, x, e_1) \wedge \text{AT}(j, y, e_2) \wedge E = \text{THEN}(e_1, e_2)$

2.3.2 The Unlikely Antilocality Puzzle

- (45) Although (17a) is syntactically simpler than (17b), in that it contains one fewer clause, and so may be expected to allow extraction more readily on syntactocentric accounts, (17b) is *aspectually* simpler, as *trying* derives an activity from an accomplishment (*fix*). As such, only (17b) denotes a property of events of the correct aspectual form to identify with the preparatory process matrix event variable.

³I ignore the question of which event variables are bound where. The usual options for combination and existential quantification are all available, but choosing between them is not necessary right now.

2.3.3 ... And Back to Tense

- (46) Following Higginbotham (1985), tense binds the event variable, so it is unavailable for identification with any other event position. Without such identification, the matrix VP and adjunct together will always denote something of the form (23a)iii, an event structure which does not conform to the conditions imposed by the Event Locality Condition and so is incompatible with *wh*-movement. This automatically derives the absolute ungrammaticality of extraction from any tensed adjunct noted in the introduction.

2.4 Interim Conclusion

A purely syntactic treatment of the ban on extraction from tensed adjuncts seemed unnecessarily stipulative and unlikely to generalise to other patterns of extraction from adjuncts. The proposed alternative based on event structures seems much more promising. Now, let's see what else this approach can do for us...

3 Event Structure and Factive Islands

So far, we seem to have done a good job of ruling out extraction from any tensed constituent. This is a bad thing. Extraction out of tensed complements is a classic way of forming an unbounded dependency.

- (47) Who did John say [that Mary kissed *t*]?

But it isn't always possible.

- (48) *Who did John regret [that Mary kissed *t*]?

So now we have two new questions:

- (49) a. How can the Event Locality Condition account for the distinction between grammatical extraction from a tensed complement clause and ungrammatical extraction from a tensed adjunct?
b. How can the Event Locality Condition account for the distinction between grammatical extraction from a tensed complement clause (47) and ungrammatical extraction from a tensed complement clause (48)? i.e. what accounts for the ungrammaticality of extraction from a factive complement clause, as in (48)?

3.1 The Difference between Tensed Complements and Tensed Adjuncts

- (50) a. John cried after Mary kissed Bill → Mary kissed Bill.
b. John didn't cry after Mary kissed Bill → Mary kissed Bill.
- (51) a. John said that Mary kissed Bill ↯ Mary kissed Bill.
b. John didn't say that Mary kissed Bill ↯ Mary kissed Bill.

The events described by tensed adjuncts are independent from the main clause, in the sense that we can infer that the adjunct event takes place, regardless of the nature of the matrix VP. In contrast, we cannot infer that the event described by the complement clause takes place in the bridge verb case (51), similarly to the classic case of referential opacity in (52).

- (52) a. Elton John wears a wig \rightarrow Reg Dwight wears a wig.
 b. John said that Elton John wears a wig \nrightarrow John said that Reg Dwight wears a wig.

Very roughly, then (ignoring the distinction between presupposition and assertion, for example), we might represent the difference as follows:

- (53) a. **Tensed adjunct clause:** $\exists e_1.(\dots e_1 \dots) \wedge \exists e_2.(\dots e_2 \dots)$
 b. **Tensed complement clause:** $\exists e_1.(e_1 = P(\dots, \exists e_2.(\dots e_2 \dots)))$

This is exactly parallel to the distinction between legitimate and illegitimate event structures drawn in (23a). We therefore expect extraction to be possible from tensed complements, but not from tensed adjuncts, as the latter assert the existence of multiple independent events, in violation of (22), while the former do not.

3.2 The Difference between Bridge Verbs and Factive Verbs

- (54) a. Who did John say that Mary kissed?
 b. *Who did John regret that Mary kissed?

A factive verb (*regret, resent,...*) presupposes the truth of its complement, whereas a bridge verb (*say, think,...*) does not.

- (55) a. John regrets that Mary kissed Bill \rightarrow Mary kissed Bill.
 b. John said that Mary kissed Bill \nrightarrow Mary kissed Bill.

This is related to Erteschik-Shir's (1973) original discussion of factive islands, which stated that they (along with some other classes of verb, e.g. *manner-of-speaking* verbs) were *semantically subordinate*, and that:

- (56) Extraction can only occur out of clauses or phrases which can be considered dominant in some context. (Erteschik-Shir 1973:27)

But exactly why the presuppositional status of the complement should matter in this way is less clear.

Van der Sandt on Presupposition The event-structural condition (22) can offer something in the way of an explanation here if we can claim that presupposed material is independent of other material. If that is the case, then the factive case (54b) (where the occurrence of the event described in the complement clause is presupposed) will come to have an (illegitimate) event-structural representation much like the tensed adjunct case (53a), while a regular bridge verb will continue to have a representation like (53b).

The theory of presupposition in van der Sandt (1992) (among others) gives us exactly this result. Van der Sandt claims that presupposed material and anaphors are essentially the same

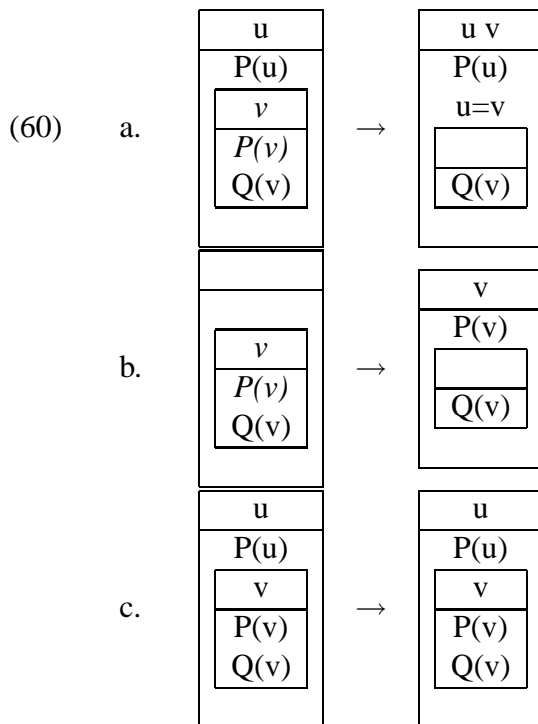
creature, based on the similarity between exceptional patterns of anaphor binding (57) and patterns where presuppositions fail to project (58).

- (57) a. John owns a donkey. He beats it.
 b. If John owns a donkey, he beats it.
 c. Either John does not own a donkey or he beats it.
- (58) a. Jack has children and *all of Jack's children* are bald.
 b. If Jack has children, then *all of Jack's children* are bald.
 c. Either Jack has no children or *all of Jack's children* are bald. (van der Sandt 1992:343)

Without going into the formal details (but dipping into DRT for a minute), van der Sandt proposes a mechanism for resolving presuppositions (and anaphors) as follows:

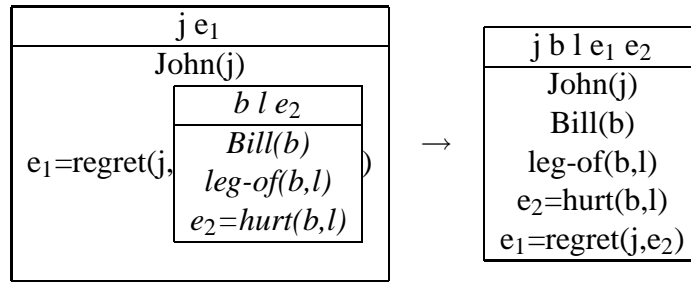
- (59) a. Search through accessible DRSs of increasingly wide scope looking for an antecedent, and resolve the presupposed material with the closest antecedent if one exists.
 b. If no antecedent exists, accommodate the presupposition with the widest scope which doesn't create inconsistency.

Either way, the result is usually that presupposed material comes to take wider scope than it would do if it were asserted.

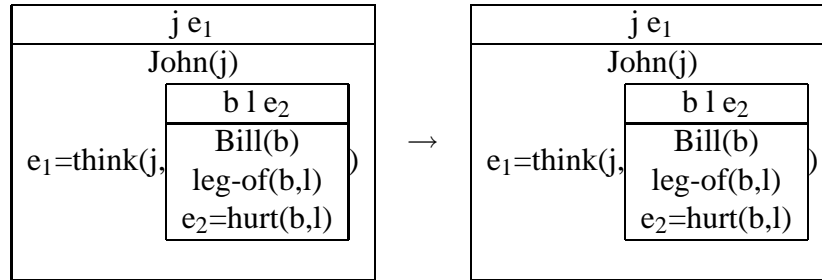


So, in the case of the presupposed complement of a factive verb (cheating a little — see Geurts 1998 for the way to get this result without cheating):

(61) John regrets that Bill hurt his leg.



(62) John thinks that Bill hurt his leg.



Note that in (61), e_1 and e_2 are introduced within the same DRS box, whereas e_2 is introduced within a subordinate DRS box in (62). This is how the independence of e_1 and e_2 is represented in (61).

- (63) a. $\exists j, b, l, e_1, e_2. \text{john}(j) \wedge e_1 = \text{regret}(j, e_2) \wedge e_2 = (\text{bill}(b) \wedge \text{leg_of}(b, l) \wedge \text{hurt}(b, l))$
 b. $\exists j, e_1. \text{john}(j) \wedge e_1 = \text{think}(j, \exists b, l, e_2. (\text{bill}(b) \wedge \text{leg_of}(b, l) \wedge e_2 = \text{hurt}(b, l)))$

So, once again, we have a contrast analogous to that between (53a) and (53b), and so we expect extraction to be possible from a complement clause only if the embedding verb is nonfactive (does not presuppose its complement).

4 Events and Cyclicity

4.1 The Story So Far...

(64) The Event Locality Condition (22) says that a *wh*-dependency is only legitimate if the constituent delimited by the head and the foot of the chain describes a single event.

(65) This gives us a way of explaining the prohibition on extraction from tensed adjuncts in semantic terms, and simultaneously offers an explanation of many patterns in the distribution of extraction from untensed adjuncts in English in a way which seems unlikely to be matched by any purely syntactic locality theory.

(66) It also gives us a new way of approaching the islandhood of the complements of factive verbs. Presupposed complements are expected to behave more like tensed adjuncts than like complements in referentially opaque contexts.

(67) **BUT** there is a problem...

4.2 The Problem

We have a good story for the distribution of extraction from adjuncts, and a promising extension to factive island phenomena, but things go wrong when we combine the two.

(68) The shape of the factive island account

- a. Factive verbs presuppose their complements. This means that *whatever* is described by the complement of a factive verb will be represented as having an existence independent of the eventuality described by the upstairs clause.
- b. Bridge verbs are referentially opaque: they neither presuppose nor assert their complements. This means that *whatever* is described by the complement of a bridge verb will be represented as *not* having an existence independent of the eventuality described by the upstairs clause.
- c. The Event Locality Condition therefore predicts that extraction will be possible from *any subconstituent* of the complement of a bridge verb, and extraction will be impossible from *any subconstituent* of the complement of a factive verb.
- d. Oh dear.

(69) That *any subconstituent* should be taken seriously. At the moment, we predict, for example, that extraction should be possible from a tensed adjunct embedded under a bridge verb, or from a complement of a factive verb embedded under a bridge verb.

(70) a. *Who did Sue think [that John went home [after Mary kissed *t*]]?

- b. Sue thinks that John went home after Mary kissed Bill $\not\rightarrow$ John went home after Mary kissed Bill.
- c. Sue thinks that John went home after Mary kissed Bill $\not\rightarrow$ Mary kissed Bill.
- d. Sue doesn't think that John went home after Mary kissed Bill $\not\rightarrow$ John went home after Mary kissed Bill.
- e. Sue doesn't think that John went home after Mary kissed Bill $\not\rightarrow$ Mary kissed Bill.
- f. $\exists e_1. (\text{think}(s, \exists e_2, e_3. (\text{kiss}(m, b, e_2) \wedge \text{go_home}(j, e_3) \wedge \text{after}(e_2, e_3)), e_1))$

(71) a. *Who does Sue think [that John regrets [that Mary kissed *t*]]?

- b. Sue thinks that John regrets that Mary kissed Bill $\not\rightarrow$ John regrets that Mary kissed Bill.
- c. Sue thinks that John regrets that Mary kissed Bill $\not\rightarrow$ Mary kissed Bill.
- d. Sue doesn't think that John regrets that Mary kissed Bill $\not\rightarrow$ John regrets that Mary kissed Bill.
- e. Sue doesn't think that John regrets that Mary kissed Bill $\not\rightarrow$ Mary kissed Bill.
- f. $\exists e_1. (\text{think}(s, \exists e_2, e_3. (\text{kiss}(m, b, e_2) \wedge \text{regret}(j, \text{occur}(e_2), e_3)), e_1))$

So the Event Locality Condition, as applied to tensed adjunct islands and factive islands, combined with the fact that bridge verbs like *say* and *think* generally act as plugs for presupposition projection, leads to massive overgeneration of the current theory.

4.3 Cyclicity to the Rescue

Looking at the event structures in (70f) and (71f), it is clear that they consist of a proper subpart which is illegitimate with respect to the Event Locality Condition ($\exists e_2, e_3 \dots$), but which is rescued by being embedded within a single overarching event description ($\exists e_1 \dots \exists e_2, e_3 \dots$).

If we could check the legitimacy of that proper subpart with respect to the Event Locality Condition, then we would correctly predict (70a) and (71a) to be ungrammatical.

- (72) a. * $[\text{CP Who did Sue } [\text{VP think } [\text{CP } t_{\text{who}} \text{ that John } [\text{VP } [\text{VP went home}] \text{ [after Mary kissed } t_{\text{who}}]]]]]]]?^4$
 b. * $[\text{CP Who does Sue } [\text{CP think } [\text{CP } t_{\text{who}} \text{ that John } [\text{VP regrets } [\text{CP } t_{\text{who}} \text{ that Mary } [\text{VP kissed } t_{\text{who}}]]]]]]]?$
- (73) a. $[\text{CP Who that John } [\text{VP } [\text{VP went home}] \text{ [after Mary kissed } t_{\text{who}}]]]?$
 b. $[\text{CP Who that John } [\text{VP regrets } [\text{CP } t_{\text{who}} \text{ that Mary } [\text{VP kissed } t_{\text{who}}]]]]]?$
- (74) a. $\lambda x \exists e_1, e_2. \text{go_home}(j, e_1) \wedge \text{kiss}(m, x, e_2) \wedge \text{after}(e_1, e_2)^5$
 b. $\lambda x \exists e_1, e_2. \text{kiss}(m, x, e_1) \wedge \text{regret}(j, \text{occur}(e_1), e_2)$

In other words, if we allow the Event Locality Condition to apply cyclically, then we gain access to the illegitimate proper subparts of the overall event structure. We can then rule these out in a natural way, and so no longer overgenerate with respect to examples such as (72).

5 Conclusions

This talk has made a good many claims. Here are a few of them.

- (75) a. The CED undergenerates. Extraction from adjuncts isn't always as bad as it should be.⁶
 b. Although extraction from untensed adjuncts is variable in acceptability, extraction from tensed adjuncts is universally ungrammatical.
 c. The counterexamples to the CED from adjunct subextraction in English form natural semantic classes, which suggests that we need a semantic component to locality theory.
 d. More specifically, the Event Locality Condition holds:
Events form locality domains for *wh*-movement
Wh-questions carry a presupposition that the minimal constituent containing the head and the foot of the chain describes a single event. An instance of *Wh*-movement is felicitous only if the denotation of that minimal constituent can be construed accordingly.
 e. Beyond the adjunct subextraction data, this condition also gives us a new way of looking at factive island phenomena, on the assumption (van der Sandt 1992) that presupposed material is independent of syntactically superordinate material in a way that material in referentially opaque contexts is not.

⁴Whether there is an additional trace in [Spec,*after*] (e.g. van Riemsdijk 1978 on A' P-stranding in English) is immaterial for our purposes.

⁵OK, this does admittedly look suspiciously like (44b), which I earlier claimed to be a legitimate representation (as *What did John arrive whistling?* is grammatical). Either trust me that there's a difference, or push me during the question period on my assumptions about the effect of tense and what's really going on in the case of (44b), and watch me squirm ;-)

⁶It undergenerates in quite distinct ways with respect to subject subextraction in Russian, for example (Stepanov 2007), which suggests that we should not attempt to find a unified story for CED-type effects.

- f. A naïve global application of the Event Locality Condition overgenerates, in that it expects patterns of occurrence of event-based island phenomena to be neutralised in material embedded under a bridge verb.
- g. The Event Locality Condition must therefore be allowed to operate on the subordinate material without reference to the fact that this material is embedded under a bridge verb. In other words, the Event Locality Condition applies cyclically.
- h. Given that the Event Locality Condition is semantic, we therefore need an architecture in which, at the least, syntactic material is made visible to the semantics little by little (e.g. phase theory, Jackendoff's parallel architecture), rather than semantic factors logically following the entire syntactic derivation (e.g. the classical Y-model, early minimalism).

There are other areas where I haven't said anything. Most saliently:

- (76)
- a. How big are these cycles? For my purposes, it doesn't matter. The Event Locality Condition could be checked after every application of Merge, or after every movement step, or phase by phase, or clause by clause, and the effect would be the same for me.
 - b. I haven't made any specific claims about the modular architecture of the grammar. As far as I can see, the Event Locality Condition, formulated as a presupposition, is quite compatible with a phase-based post-Y-model architecture, as well as more radical (e.g. Jackendovian) alternatives.
 - c. The vexed questions of wild variation among adjunct types and among languages and idiolects remain. I'm working on it, but I'm not there yet.
 - d. I haven't explicitly showed that the semantic structures I rely on here couldn't be represented in the syntax *à la* Lakoff (1970), Hale and Keyser (1993), Ramchand (2006), etc. Hopefully, it's intuitively clear that even if you do adopt a syntactic decompositional theory of event structure, you're not any closer to accommodating the adjunct subextraction facts within a regular syntactic locality theory, but if not, see Truswell (2007) for some arguments in that direction.

References

- Abels, K. (2003). *Successive Cyclicity, Anti-locality and Adposition Stranding*. Ph. D. thesis, University of Connecticut, Storrs, CT.
- Bach, E. (1986). The algebra of events. *Linguistics and Philosophy* 9, 5–16.
- Erteschik-Shir, N. (1973). *On the Nature of Island Constraints*. Ph. D. thesis, Massachusetts Institute of Technology, Cambridge, MA.
- Geurts, B. (1998). Presuppositions and anaphors in attitude contexts. *Linguistics and Philosophy* 21, 545–601.
- Grohmann, K. (2003). *Prolific Domains: On the anti-locality of movement dependencies*. Amsterdam: John Benjamins.

- Hale, K. and S. J. Keyser (1993). On argument structure and the lexical expression of syntactic relations. In K. Hale and S. J. Keyser (Eds.), *The View from Building 20: Essays in honor of Sylvain Bromberger*, pp. 53–109. Cambridge, MA: MIT Press.
- Higginbotham, J. (1985). On semantics. *Linguistic Inquiry* 16, 547–593.
- Huang, C.-T. J. (1982). *Logical Relations in Chinese and the Theory of Grammar*. Ph. D. thesis, Massachusetts Institute of Technology, Cambridge, MA.
- Johnson, K. (2002). Towards an etiology of adjunct islands. ms., University of Massachusetts, Amherst, MA.
- Lakoff, G. (1970). *Irregularity in Syntax*. New York: Holt, Rinehart and Winston.
- Levine, R. and I. Sag (2003). Some empirical issues in the grammar of extraction. In S. Müller (Ed.), *Proceedings of the 10th International Conference on Head-Driven Phrase Structure Grammar*, pp. 236–256. Stanford, CA: CSLI.
- Moens, M. and M. Steedman (1988). Temporal ontology and temporal reference. *Computational Linguistics* 14, 15–28.
- Müller, G. (2007). On deriving ced effects from the pic. Paper presented at GLOW XXX, Universitetet i Tromsø.
- Parsons, T. (1990). *Events in the Semantics of English: A study in subatomic semantics*. Cambridge, MA: MIT Press.
- Pollard, C. and I. Sag (1994). *Head-Driven Phrase Structure Grammar*. Stanford, CA: CSLI.
- Pustejovsky, J. (1991). The syntax of event structure. *Cognition* 41, 47–81.
- Ramchand, G. (2006). Verb meaning and the lexicon: A first phase syntax. ms., Universitetet i Tromsø.
- Sabel, J. (2002). A minimalist analysis of syntactic islands. *The Linguistic Review* 19, 271–315.
- Steedman, M. (2005). The productions of time. ms., University of Edinburgh.
- Stepanov, A. (2007). The end of ced? minimalism and extraction domains. *Syntax* 10, 80–126.
- Szabolcsi, A. (2006). Strong vs. weak islands. In M. Everaert and H. van Riemsdijk (Eds.), *The Blackwell Companion to Syntax, Volume IV*, pp. 479–531. Oxford: Blackwell.
- Truswell, R. (2007). *Locality of Wh-movement and the Individuation of Events*. Ph. D. thesis, University College London.
- Uriagereka, J. (1999). Multiple spell-out. In S. Epstein and N. Hornstein (Eds.), *Working Minimalism*, pp. 251–282. Cambridge, MA: MIT Press.
- van der Sandt, R. (1992). Presupposition projection as anaphora resolution. *Journal of Semantics* 9, 333–377.

van Riemsdijk, H. (1978). *A Case Study in Syntactic Markedness: The binding nature of prepositional phrases*. Dordrecht: Foris.

Vendler, Z. (1957). Verbs and times. *Philosophical Review* 66, 143–160.

Zacks, J. and B. Tversky (2001). Event structure in perception and conception. *Psychological Bulletin* 127, 3–21.

Zwart, J.-W. (2007). Layered derivations. Paper presented at University College London.