

Factive-implicatives and modalized complements

Aaron Steven White

University of Maryland

aswhite@umd.edu

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Introduction

The Puzzle

- Some attitude predicates take both finite clauses and nonfinite (control) complements
- A subset of these predicates are...

- *factive* when they take a finite complement (1) and
- *implicative* when they take a nonfinite (control) complement (2)

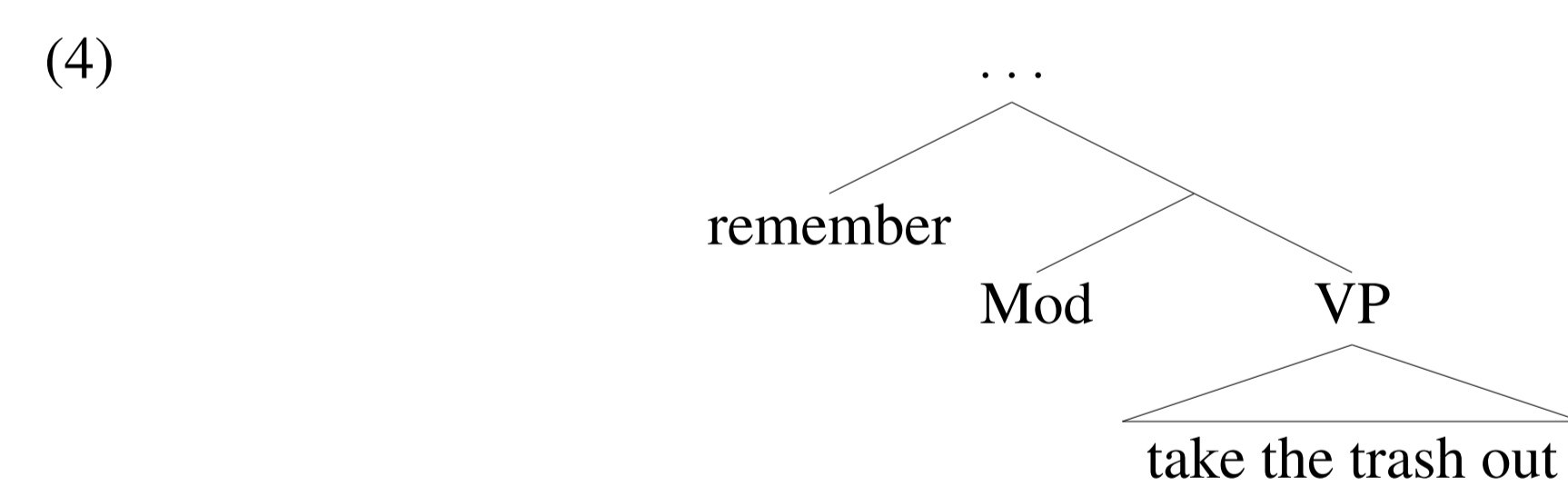
- (1) John_i {remembered/didn't forget} that he_i took the trash out.
presupposes: John took the trash out.
- (2) a. John {remembered/didn't forget} to take the trash out.
entails: John took the trash out.
b. John {forgot/didn't remember} to take the trash out.
entails: John didn't take the trash out.

Proposal

- Observation**: the sentences in (2) have modalized presuppositions that coincide with those found in (3a)—(1) with an overt modal in the complement (Karttunen, 1971)

- (3) a. John_i {remembered/forgot} that he_i **was supposed to** take the trash out.
presupposes: John was supposed to take the trash out.
b. John {remembered/forgot} to take the trash out.
presupposes: John was supposed to take the trash out.

- Claim**: These verbs are always factive—i.e. *always* presuppose their complement
- The nonfinite clause in (2) contains a covert root modal (Bhatt, 1999; Wurmbrand, to appear)



- Claim**: These verbs are implicative because they have actuality entailments (Bhatt, 1999; Hacquard, 2006)

- (5) John had to stay home from work during the government shut down.
strongly implicates: John stayed home from work.

- Observation**: (3a) does not have the same (actuality) entailments as does (2)

- (6) John_i {remembered/didn't forget} that he_i was supposed to take the trash out.
does not entail: John took the trash out.

- Claim**: Actuality entailments arise due to restructuring, which results in a single clause and thus matrix quantification of VP event (Hacquard, 2008; Grano, 2012)
- When no higher modals occur in matrix, that event happens in the evaluation world ($w_{@}$)—i.e. **the event is actual**

- (7) $\exists e \in w_{@} : \dots \forall w \in \text{MEMORY} \dots \text{take-the-trash-out}(e, w)$

- Restructuring is not possible with a clausal complement, as in (3a), since there is an event binder in the embedded clause

- (8) $\exists e \in w_{@} : \dots \forall w \in \text{MEMORY} \dots \exists e' \dots \text{take-the-trash-out}(e', w)$

- This yields the correct result that (3a) is agnostic about the actuality of a VP-event

Account

- Hintikkan semantics for attitude verb (with an event argument; Kratzer, 2006)

$$(9) \quad \llbracket \text{remember} \rrbracket = \lambda p. \lambda x. \lambda e. \lambda w. \forall w' \in \text{MEMORY}(x, e, w) : p(w')$$

- Kratzerian necessity (root) modal (with an event argument; Hacquard, 2009)

$$(10) \quad \llbracket \text{Mod} \rrbracket^{B,O} = \lambda f_{e(st)}. \lambda e. \lambda w. \forall w' \in \text{Best}_O(B, w) : f_{e(st)}(e)(w')$$

- VP is a property of events; it has no thematic position (Kratzer, 1996)

Lexical items

Derivation

Actuality entailment

- Attitude verb combines with propositions, but $\llbracket \text{ModP} \rrbracket$ is a predicate of events
- Semantic restructuring rule triggered when attitude—e.g. $\llbracket \text{remember} \rrbracket$ —combines with property of events (PoE)—e.g. $\llbracket \text{ModP} \rrbracket$
- Restructuring rule λ -binds the event argument of the PoE, which is later bound by...
 - a higher little v that introduces the VP external argument and then...
 - matrix aspect

Restructuring Rule If X is the parent of only nodes Y and Z, $\llbracket Y \rrbracket$ is of type $((st)e(e(st)))$, an attitude verb, and $\llbracket Z \rrbracket$ is of type $(e(st))$, a property of events, then $\llbracket X \rrbracket = \lambda x. \lambda e. \lambda w. \exists e' : \llbracket Y \rrbracket(\llbracket Z \rrbracket(e))(x)(e')(w)$

- Note**: a similar rule can be written if we sever the attitude external argument; that rule will just need to introduce the attitude experiencer itself

(11)

$$\lambda x. \lambda e. \lambda w. \exists e' : \forall w' \in \text{MEM}(x, e', w) : \forall w'' \in \text{Best}_O(B, w') : \llbracket \text{VP} \rrbracket(e)(w'')$$

- If VP-event e bound by (unmodalized) matrix quantifier, e in evaluation world ($w_{@}$)
- This gives us the result that **the event is actual**

$$(12) \quad \llbracket \text{John remembered to VP} \rrbracket = \lambda w. [\dots \exists e \in w \dots \forall w'' \dots \llbracket \text{VP} \rrbracket(e, w'')] (w_{@})$$

Negated actuality entailment

- The negated entailment is derived by the negation above the (aspect) event binder
- (13) says that there is no actual event satisfying John's remembered obligations

$$(13) \quad \llbracket \text{John didn't remember to VP} \rrbracket = [\dots \neg \exists e \in w_{@} \dots \forall w'' \dots \llbracket \text{VP} \rrbracket(e, w'')]$$

- We need to make sure that (i) the event in $w_{@}$ must be a VP-event in (12); and (ii) the event in $w_{@}$ can *not* be a VP-event in (13)

- Auxiliary assumption**: events are describable by the same predicates across worlds (Hacquard, 2009)

Preservation of Event Description for all e, w, w' s.t. $w \neq w'$, if e occurs in w and $w' \& \llbracket \text{VP} \rrbracket(e, w)$, then *ceteris paribus* $\llbracket \text{VP} \rrbracket(e, w')$

- The positive AE is deducible straightforwardly by *modus ponens*
- The negative AE is deducible by *modus tollens*

Lack of actuality entailment

- The lack of actuality entailment in (3a) can be derived if we assume an embedded event binder—e.g. Asp
- This binder “shields” the embedded event from the matrix binder

(14)

$$\lambda x. \lambda e. \lambda w. \forall w' \in \text{MEMORY}(x, e, w) : \dots \exists e' \dots \forall w'' \in \text{Best}(B, O, w') : \llbracket \text{VP} \rrbracket(e')(w'')$$

- (14) is agnostic about whether the embedded VP-event is actual or not, which is what we want

Discussion

Evidence for restructuring

- This account relies heavily on the ability for *remember* and *forget* to restructure; do they actually?
- Again* does not presuppose the existence of only the attitude state/event with the nonfinite complement (von Stechow, 1996; Beck and Johnson, 2002)

- (15) *Mary asked John to fill the bird feeder.*
- a. *He did so, and the next week, she asked again.*
John remembered to fill the feeder again.
- b. *He remembered that he was supposed to, but didn't. The next week, she asked again and...*
John again remembered to fill the feeder.

- Inverse scope with *every* is available (Farkas & Giannakidou, 1996; Grano, 2012)

- (16) a. A (different) student {remembered/forgot} to read every paper. $\forall > \exists$
b. A (#different) person {remembered/forgot} that he read every paper. $*\forall > \exists$

- Antecedent contained deletion can target the matrix (Hornstein, 1994; Grano, 2012)

- (17) a. John {remembered/forgot} to read every paper Bill did $\Delta_{\text{matrix/embedded}}$.
b. John {remembered/forgot} that he read every paper Bill did $\Delta_{*\text{matrix/embedded}}$.

Summary

- Factives like *remember* and *forget* select a root modal
- Their complement—finite or not—is always presupposed
- These predicates restructure, which passes the matrix event to $\llbracket \text{ModP} \rrbracket$ then $\llbracket \text{VP} \rrbracket$
- The embedded VP is predicated of the matrix event, thus the VP-event is actual
- When these predicates do not restructure a low event binder (embedded aspect) binds the VP event
- The event that the embedded VP is predicated of only exists in remembered obligator worlds

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