

Event Semantics and Adverbial Modification

Session 1: Event Semantics

ESLLI Language and Logic introductory course
July 27-31, 2009

Organisation of the course

- ▶ *Day 1*: Event semantics: Introduction
- ▶ *Day 2*: Event types and properties of events
- ▶ *Day 3*: Event structure
- ▶ *Day 4*: Event structure-related argument-adjunct asymmetries
- ▶ *Day 5*: Event delimitation in space and time

webpage: <http://mutis.upf.es/~bgehrke/esslli09/>

Boban Arsenijević: b.arsenijevic@uva.nl

Berit Gehrke: berit.gehrke@upf.edu

Day 1: Event semantics: Introduction

- ▶ Davidsonian event semantics (Davidson, 1967):
 - ▶ The argument structure of (action) verbs contains an additional argument, the **event argument**.
 - ▶ Adverbial modifiers [at the VP level, i.e. event modifiers] can be treated as predicates of events.
- ▶ Neo-Davidsonian event semantics (Parsons, 1990):
 - ▶ Event participants are added (via thematic roles).
 - ▶ State verbs are also associated with an event variable.
 - ▶ Events hold or culminate.
 - ▶ Events can be broken down into subevents.
 - ▶ Adverbial modifiers can predicate over subevents.

Day 2: Event types and properties of events

Vendler (1957): Four different 'terms' [in English], which are associated with 'verbs in their dominant use':

- ▶ **states** [STA]: *know the answer, stand in the corner*
 - ▶ **activities** [ACT]: *run, eat, eat apples, eat soup*
 - ▶ **accomplishments** [ACC]: *run a mile, eat an apple*
 - ▶ **achievements** [ACH]: *reach the summit*
-
- ▶ Bach (1981, 1986); Verkuyl (1993), among others: **states**, **processes** (ACT), **events** (ACC, ACH)
 - ▶ Discourse theories (e.g. Kamp and Reyle, 1993; Lascarides and Asher, 1993): **events** and **states**

Day 2: Event types and properties of events (II)

ACC, ACH:

- ▶ are incompatible with *for*-adverbials, but compatible with *in*-adverbials
 - ▶ run a mile #for/in an hour, reach the summit #for/in an hour
- are not homogeneous, have a 'set terminal point' (telic)

STA, ACT:

- ▶ are compatible with *for*-adverbials, but incompatible with *in*-adverbials
 - ▶ stand in the corner for/*in an hour, run for/*in an hour
- homogeneous, no 'set terminal point' (atelic)

Day 2: Event types and properties of events (III)

What does it mean for an event to be telic?

- ▶ Events can be associated with incremental change along a path or a scale, can be ‘measured out’.
 - ▶ A complement of the verb, e.g. the internal argument, provides a scale, that is responsible for an event being telic (with a closed scale or a scale with an upper bound) or atelic (an open scale, a scale with no upper bound or no scale):
- (1)
- a. She ate (for/*in an hour).
 - b. She ate the apple (*for/in an hour).
 - c. She ate apples (for/*in an hour).

Day 3: Event structure

- ▶ Events can be decomposed into subevents: processes, states and combinations of these.
 - ▶ ACT: process part
 - ▶ ACC: process leading up to a (result) state
- ▶ e.g. Moens and Steedman's (1988) event nucleus:
 - ▶ preparatory process
 - ▶ culmination
 - ▶ consequent state

Day 3: Event structure (II)

Event structure approaches handle ambiguities of adverbial modifiers in terms of structural (scope) instead of lexical ambiguity.

- ▶ Adverbs like *quickly*, *rudely*, *clumsily*, *again*, *almost* or temporal *for*-adverbials can have more than one reading, depending on the verbal predicate they combine with.

(2) Clyde cleans his boots again.

- a. ... and Clyde has cleaned his boots before. *repetitive*
- b. ... and his boots were clean before. *restitutive*

(See also Dowty, 1979; Pustejovsky, 1991; von Stechow, 1996; Eckardt, 1998; Ernst, 1998; Rapp and von Stechow, 1999; Kratzer, 2004; Beck, 2005, among others)

Day 3: Event structure (III)

e.g. Pustejovsky (1991):

- ▶ The restitutive reading is only possible with complex events: *again* modifies the transition from a process to a state (the result state of an ACC/ACH).
→ *again* scopes over the result state
- ▶ The repetitive reading: *again* modifies simple states or processes or the process part of a complex event (an ACC).
→ *again* scopes over the process and the result state together

Scales vs. event structure

Criticism of event structure approaches (Jäger and Blutner, 2000; Zwarts, 2006, among others)

e.g. Zwarts (2006):

- ▶ To capture particular properties of events, like telicity, it is not sufficient to simply state that events can be simple or complex, but the nature of the scale associated with the event (an incremental path) is relevant.
- ▶ Looking at scalar structures dispenses with decomposing events into subevents.

Combining event structure and scales

- ▶ *Scalar approaches:*

Some linearly ordered structure provided by (part of) some complement of the verb is responsible for measuring out the event in an incremental way and thus for determining whether the event is telic or atelic.

- ▶ This idea is generally compatible with the idea of decomposing events into subevents.

→ e.g. Rothstein (2004): The formation of incremental chains is a crucial ingredient of event types involving a culmination.

Day 4: Argument-adjunct asymmetries

Different kinds of event participants:

(3) *(Joanna) sliced *(the bread) (with the knife) (in the dining room).

- ▶ Arguments vs. adjuncts
- ▶ Adjuncts that are event participants and adjuncts that are not

Day 5: Event delimitation in space and time

Temporal *in-* and *for-*adverbials

- ▶ are used to test for telicity - How does this work?

Spatial expressions like adpositional phrases (PPs)

- (4)
- a. He pushed the cart (*in/for) two hours.
 - b. He pushed the cart **to the store** (in/*for) two hours.

- ▶ Are spatial PPs arguments or adjuncts?
- ▶ Do they apply to the VP level or lower?

Davidson (1967): An ontological problem

- (5) Jones did **it** slowly, deliberately, in the bathroom, with a knife, at midnight.

What does *it* in (5) refer to?

- ▶ *Intuitively*: some entity, an action, e.g. (6)

- (6) Jones buttered the toast in the bathroom with a knife at midnight.

But:

- ▶ There is nothing that we would ordinarily recognise as a singular item.

The problem of variable polyadicity

- (7) Jones buttered the toast in the bathroom with a knife at midnight.

Solution #1: (7) is a 5-place predicate.

Problem:

- ▶ This approach obliterates the logical relations between the fact that (7) entails (8-a) and (8-b).
- (8) a. Jones buttered the toast.
 b. Jones buttered the toast in the bathroom.
- ▶ The original sentence in (7) contains a common syntactic element (*buttered*) that is relevant to the meaning relations of the sentences under discussion.

The problem of variable polyadicity (II)

Solution #2: Modifierless sentences are elliptical

- (9) Jones buttered the toast somewhere with something at some time.

Problem: (also noted in Kenny, 1963)

- ▶ Which and how many standby positions should there be?
 - ▶ In principle we can add an infinite number of additional modifiers.
- (10) Jones buttered the toast in the bathroom with a knife at midnight by holding it between the toes of his left foot.

The parallel with NPs

(11) I bought a house downtown that has four bedrooms, two fireplaces and a glass chandelier in the kitchen.

- ▶ You can refer back to the same entity as often as desired.
- ▶ There are such things as actions.

Conclusion:

- ▶ Our common talk and reasoning about actions is most naturally analysed by supposing there are such entities.

Reichenbach (1947)

- (12) a. Amundsen flew to the North Pole.
b. $(\exists x)(x \text{ consists in the fact that Amundsen flew to the North Pole})$

- ▶ $(\exists x)$: 'is an event that consists in the fact that'
- ▶ Davidson: This is an operator which, when prefixed to a sentence, forms a predicate of events.

Davidson's refinement on Reichenbach

- (13) Amundsen flew to the North Pole in May 1926.
- a. $(\exists x)(x \text{ consists in the fact that Amundsen flew to the North Pole in May 1926})$ [Reichenbach]
 - b. $(\exists x)(x \text{ consists in the fact that Amundsen flew to the North Pole and } x \text{ took place in May 1926})$ [Davidson]

- ▶ The analysis in (13-b) would solve the problem of variable polyadicity.
- ▶ *But:* We do not know of any logical operation on (13) as it would usually be formalised (with a three-place predicate) that would make it logically equivalent to (13-b).
- ▶ Davidson's solution: to introduce events as entities about which an indefinite number of things can be said.

Another benefit of Reichenbach's idea

- ▶ *Before:*
Does (13) describe that one flight Amundsen made in May 1926, or a kind of event, or perhaps (potentially) several?
- ▶ *Now:*
Ordinary action sentences have an existential quantifier binding the action-variable.
If (12) is true, there is an event that makes it true.

Objections to Reichenbach

- ▶ The analysis may be applied to any sentence, whether it deals with actions, events, or anything else (even '2 + 3 = 5').
⇒ It is not clear on what principle the decision to apply the analysis is based.

- ▶ (14-a) should allow the inference in (14-b), but under Reichenbach's analysis it is not clear how.

- (14)
- a. $(\exists x)(x \text{ consists in the fact that I flew my spaceship to the Morning Star})$
 - b. $(\exists x)(x \text{ consists in the fact that I flew my spaceship to the Evening Star})$

The gist of Davidson's proposal

- ▶ Verbs of actions (that say 'what someone did') contain a place, for singular terms or variables, that they do not appear to contain (under previous approaches).

- (15) a. Shem kicked Shaun.
 b. $(\exists x)(\text{kicked}(\text{Shem}, \text{Shaun}, x))$

- ▶ The sentence in (15-a) nowhere appears inside the analytic sentence in (15-b).

The Morning-Star/Evening-Star inference

This inference is licensed by the usual principles of extensionality.

- ▶ (16) entails (16-a) (solution to the problem with Reichenbach) as well as (16-b) (solution to the previous problem).

- (16) $(\exists x)(\text{flew}(I, \text{my spaceship}, x) \ \& \ \text{TO}(\text{the Morning Star}, x))$
- a. $(\exists x)(\text{flew}(I, \text{my spaceship}, x) \ \& \ \text{TO}(\text{the Evening Star}, x))$
- b. $(\exists x)(\text{flew}(I, \text{my spaceship}, x))$

A further merit of the proposal:

- ▶ By treating prepositions as contributing structure it is possible to keep track of the common element in, e.g., *fly to* and *fly away from*.

Neo-Davidsonian event semantics

(17) Brutus stabbed Caesar with a knife.

Davidson:

- ▶ $(\exists e)[\text{Stabbing}(e, \text{Brutus}, \text{Caesar}) \ \& \ \text{With}(e, \text{knife})]$.

Parsons (1990):

- ▶ $(\exists e)[\text{Stabbing}(e) \ \& \ \text{Agent}(e, \text{Brutus}) \ \& \ \text{Theme}(e, \text{Caesar}) \ \& \ \text{With}(e, \text{knife}) \ \& \ \text{Culm}(e, \text{before now})]$.

- (18) a. Caesar died.
b. $(\exists e)[\text{Dying}(e) \ \& \ \text{Obj}(e, \text{Caesar}) \ \& \ \text{Culm}(e, \text{before now})]$.

The gist of Parsons' refinements

- ▶ Subject, verb and tense become separate conjuncts.
 - ▶ The verb indicates an event of dying.
 - ▶ The subject indicates that Caesar is the object of that event.
- ▶ The tense indicates that the event in question culminated before the time of utterance.
- ▶ In the absence of other sources of event quantification, the event variable in question is existentially bound, with scope as narrow as possible:
- ▶ $(\exists e)[\text{Dying}(e) \ \& \ \text{Object}(e,x)]$

Evidence for the analysis

Evidence #1: **The Logic of Modifiers**

- (19)
- Brutus stabbed Caesar in the back with a knife.
 - Brutus stabbed Caesar in the back.
 - Brutus stabbed Caesar with a knife.
 - Brutus stabbed Caesar.

- ▶ (19-a) entails conjunction of (19-b) & (19-c), but not vice versa
- ▶ Either of (19-b) or (19-c) alone entails [d]

- (20)
- $(\exists e)[\text{Stabbing}(e) \ \&\text{Subj}(e,B) \ \&\text{Obj}(e,C) \ \&\text{In}(e,b) \ \&\text{With}(e,k)]$
 - $(\exists e)[\text{Stabbing}(e) \ \&\text{Subj}(e,B) \ \&\text{Obj}(e,C) \ \&\text{In}(e,b)]$
 - $(\exists e)[\text{Stabbing}(e) \ \&\text{Subj}(e,B) \ \&\text{Obj}(e,C) \ \&\text{With}(e,k)]$
 - $(\exists e)[\text{Stabbing}(e) \ \&\text{Subj}(e,B) \ \&\text{Obj}(e,C)]$

Not all modifiers are event modifiers

Not all verb modifiers follow this inference pattern:

- ▶ Sentence modifiers, e.g. *nearly*
- ▶ Modifiers of other modifiers, e.g. *partway* as a modifier of adjectives (21)

- (21)
- Mary pushed the door partway closed.
 - Mary did something that caused the door to become partway closed.

Evidence #2

The Logic of Perceptual Idioms

- (22) a. Mary saw *Brutus stab Caesar*.
b. Sam heard *Mary shoot Bill*.
c. Agatha felt *the boat rock*.

- ▶ These are not opaque contexts, in contrast to *that*-clauses (23)

- (23) Mary saw *that Brutus stabbed Caesar*.

- ▶ Such sentences tell us that the subject perceives a certain event:

- (24) $(\exists e)[\text{Seeing}(e) \ \& \ \text{Subj}(e, \text{Mary}) \ \& \ (\exists e')[\text{Stabbing}(e') \ \& \ \text{Subj}(e', \text{Brutus}) \ \& \ \text{Obj}(e', \text{Caesar}) \ \& \ \text{Obj}(e, e')]]$.

Implicit and explicit talk about events

(25) After **the singing of the Marseillaise** they saluted the flag. EXPL

(26) After **the Marseillaise** they saluted the flag. IMPL

- ▶ Nominal gerunds contribute the same predicates to logical form as the verbs on which they are based.

(27) $(\exists e)[\text{Saluting}(e) \ \&\text{Subj}(e, \text{them}) \ \&\text{Obj}(e, \text{the flag})$
 $\ \&(\exists e')(\text{Singing}(e') \ \&\text{Obj}(e', \text{the } M) \ \&\text{After}(e, e'))]$

Explicit quantification over events

- ▶ Test for implicit quantification over events: looking for inferences linking it with explicit quantification over events at the surface.

- (28)
- In every burning, oxygen is consumed.
 - Agatha burned the wood.
 - Oxygen was consumed.

- ▶ Intuitively, (28-c) follows from (28-a) and (28-b), but this would not follow from ordinary text book accounts.

- (29)
- $(\forall e)[\text{Burning}(e) \rightarrow (\exists e')[\text{Consuming}(e') \ \& \ \text{Obj}(e', O_2) \ \& \ \text{In}(e, e')]]$
 - $(\exists e)[\text{Burning}(e) \ \& \ \text{Subj}(e, \text{Agatha}) \ \& \ \text{Obj}(e, \text{wood})]$
 - $(\exists e')[\text{Consuming}(e') \ \& \ \text{Obj}(e', O_2)]$

Culminations and Holding

Events have a development portion and a culmination.

- ▶ $\text{Cul}(e,t)$: e is an event that culminates at time t .

A state simply holds or it does not (at a given time).

- ▶ $\text{Hold}(e,t)$: An eventuality e holds at time t .
 - ▶ either e is an event which is in progress (in its development portion, e.g. in the Progressive in English) at t ,
 - ▶ or e is a state and e 's subject is in state e at t (30).

- (30) a. Mary knows Fred.
b. $(\exists e)[\text{Knowing}(e) \ \&\text{Subj}(e,\text{Mary}) \ \&\text{Obj}(e,\text{Fred}) \ \&\text{Hold}(e,\text{now})]$

Events/states vs. propositions

Propositions: e.g. *that*-clausal complements of verbs like *believe*, *whether*-clausal complements of verbs like *wonder*

- ▶ It is possible to quantify into propositional *that*-clauses: ambiguity between a *de dicto* and a *de re* reading (31)

- (31) Agatha believes that Mary knows the king.
- Agatha believes the proposition: Mary knows the king. *de dicto*
 - The king is such that: Agatha believes the proposition that Mary knows him. *de re*

- ▶ Such clauses create opaque contexts: Singular terms in *that*-clauses may not generally be replaced by co-referential singular terms that preserve reference of the *that*-clause.

States vs. propositions

have different identity conditions:

- ▶ States have unique “participants”
- ▶ States only correspond to simple (state) sentences (32), whereas proposition and facts can correspond to complex ones (33):

(32) the state of either Sam’s knowing Henry or Mary’s knowing Bill

(33) Mary believes that either Sam knows Henry or Mary knows Bill.

Classes of modifiers

- ▶ Speech-act modifiers: *fortunately, happily, perhaps, frankly*
produce a sentence that makes two assertions
- ▶ Sentence modifiers: *according to Agatha, in the story*
properties of propositions
- ▶ Subject-oriented modifiers: *willingly, deliberately*
factive, create opacity, can take scope over quantificational NPs
- ▶ VP modifiers: *gently, with a knife, quietly*
factive, no opacity, properties of underlying events
- ▶ Other modifiers: *just, only*

Temporal modifiers: cut across the categories

Rules of thumb to distinguish between modifiers

Sentence position:

- ▶ Speech-act, sentence and subject-oriented modifiers: Initial or Aux position
- ▶ VP-modifiers: Aux or VP-internal position
- ▶ Modifiers in all positions: homonymous

Speech-act, sentence and subject-oriented modifiers produce **opacity**, VP modifiers do not.

(Different presuppositions under **negation**)

Thematic roles

6 thematic roles unmarked by Ps:

- ▶ Agent, Theme, Goal, Benefactive, Instrument, Experiencer
- ▶ No event stands in one of these relations to more than one thing.

Enhancements:

- ▶ Extending and relabeling the Instrumental role (poor name)
- ▶ Allowing NPs to have multiple roles in the same occurrences

Multiple roles for NPs

e.g. events of motion, location

- ▶ Any event that is onto something results in a state of being on that thing
 $\text{Onto}(e,y) \ \& \ \text{Theme}(e,x) \ \& \ \text{Cul}(e,t) \ \rightarrow \ (\exists s)[\text{on}(s,y) \ \& \ \text{Theme}(s,x) \ \& \ \text{Hold}(s,t)].$
- ▶ The subject of every intransitive verb becomes a Theme, in addition to whatever role it already has.

Causatives

- (34) a. Mary flew the kite.
b. $(\exists e)[\text{Agent}(e, \text{Mary}) \ \& \ \text{Cul}(e) \ \& \ (\exists e')[\text{Flying}(e') \ \& \ \text{Cul}(e') \ \& \ \text{Theme}(e', \text{Kite}) \ \& \ \text{CAUSE}(e, e')]]$.

(34) entails (35)

- (35) a. The kite flies.
b. $(\exists e')[\text{Flying}(e') \ \& \ \text{Cul}(e') \ \& \ \text{Theme}(e', \text{Kite})]$.

Dowty's (1979) DO, CAUSE, BECOME: sentence operators

- ▶ This is problematic because there is no evidence that the cases under discussion are bisentential (e.g. no scope ambiguities, always direct causation).
- ▶ Instead: bieventive

Modifiers with bieventives

can go with either of the underlying events

- (36) a. Mary flew her kite behind the museum.
 b. $(\exists e)[\text{Agent}(e, \text{Mary}) \ \& \ (\exists e')[\text{Flying}(e') \ \& \ \text{Cul}(e') \ \& \ \text{Theme}(e', \text{Kite}) \ \& \ \text{Behind}(\text{---}, \text{museum}) \ \& \ \text{CAUSE}(e, e')]]$.

Different status of modifiers: (37) entails (37-a) but not (37-b)

- (37) Mary fell the tree into the pond with the chainsaw.
 a. The tree fell into the pond.
 b. The tree fell with a chainsaw.

→ Instrumentals only go with the caused event.

Inchoatives

BECOME relates an event and its target state - two postulates:

- ▶ $\text{BECOME}(e,s) \rightarrow [\text{Theme}(e,x) = \text{Theme}(s,x)]$
- ▶ $\text{BECOME}(e,s) \ \& \ \text{Cul}(e,t) \rightarrow \text{Hold}(s,t) \ \& \ \neg(\exists t')[t' < t \ \& \ \text{Hold}(s,t')]$.

- (38) a. x closes the door tight.
b. $(\exists e)[\text{Cul}(e) \ \& \ \text{Agent}(e,x) \ \& \ (\exists e')[\text{Cul}(e') \ \& \ \text{Theme}(e',\text{door}) \ \& \ \text{CAUSE}(e,e') \ \& \ (\exists s)[\text{Being-closed}(s) \ \& \ \text{Theme}(s,\text{door}) \ \& \ \text{Hold}(s) \ \& \ \text{BECOME}(e',s) \ \& \ \text{Being-Tight}(s)]]]$.

Some more examples with modifiers

- (39) a. x closes the door partway.
b. $(\exists e)[\text{Cul}(e) \ \& \ \text{Agent}(e,x) \ \& \ (\exists e')[\text{Cul}(e') \ \& \ \text{Theme}(e',\text{door}) \ \& \ \text{CAUSE}(e,e') \ \& \ (\exists s)[\text{Being-Partway}(\text{closed})(s) \ \& \ \text{Theme}(s,\text{door}) \ \& \ \text{Hold}(s) \ \& \ \text{BECOME}(e',s)]]]]$.
- (40) a. x hammered the metal flat.
b. $(\exists e)[\text{Cul}(e) \ \& \ \text{Agent}(e,x) \ \& \ \text{Hammering}(e) \ \& \ \text{Theme}(e,\text{metal}) \ \& \ (\exists e')[\text{Cul}(e') \ \& \ \text{Theme}(e',\text{metal}) \ \& \ \text{CAUSE}(e,e') \ \& \ (\exists s)[\text{Being-flat}(s) \ \& \ \text{Theme}(s,\text{metal}) \ \& \ \text{Hold}(s) \ \& \ \text{BECOME}(e',s)]]]]$.

Events and (outer) aspect

Parsons (1990): English Progressive operator changes Cul to Hold

de Swart (1998):

- ▶ PROG maps events onto states of the event being in progress.
- ▶ Aspectually sensitive tenses like French *Imparfait*, *Passé simple*: in a given context rely on a contextual coercion of underlying events into event descriptions that fit their input requirements.
- ▶ e.g. *Passé simple*: is looking for an event

- (41) a. (Soudain,) Jeanne sut la réponse.
(Suddenly,) Jeanne know.PS the answer.
'Suddenly, Jeanne knew the answer.'
- b. [PAST[C_{he} [Jeanne know the answer]]]

Events and states in time

Tenses: relate events and states to times (before, after, within)

e.g. operator notation from standard tense logic (Parsons, 1990)

- ▶ Brutus stabbed Caesar.

PAST($\exists e$)[Stabbing(e) & Subject(e ,B) & Object(e ,C) & Cul(e)]

- ▶ Brutus stabs Caesar.

PRES($\exists e$)[Stabbing(e) & Subject(e ,B) & Object(e ,C) & Cul(e)]

- ▶ Brutus will stab Caesar.

FUT($\exists e$)[Stabbing(e) & Subject(e ,B) & Object(e ,C) & Cul(e)]

(see also Reichenbach, 1947; Klein, 1994; Giorgi and Pianesi, 1997)

Events and states in discourse

Discourse theories (e.g. Kamp and Reyle, 1993; Lascarides and Asher, 1993) make reference to events and states to define discourse relations that hold between such descriptions.

Events move the story line forward, states do not but (often) provide background information.

- (42)
- a. Louise sat in a chair and read a book.
 - b. Louise sat down in a chair and read a book.

References I

- Bach, Emmon. 1981. On time, tense and aspect: An essay in English metaphysics. In *Radical Pragmatics*, ed. Peter Cole, 63–81. New York: Academic Press.
- Bach, Emmon. 1986. The algebra of events. *Linguistics and Philosophy* 9:5–16.
- Beck, Sigrid. 2005. There and back again: A semantic analysis. *Journal of Semantics* 22:3–51.
- Davidson, Donald. 1967. The logical form of action sentences. In *The Logic of Decision and Action*, ed. Nicholas Rescher, 81–95. Pittsburgh: University of Pittsburgh Press.
- Dowty, David. 1979. *Word Meaning and Montague Grammar: The Semantics of Verbs and Times in Generative Semantics and in Montague's PTQ*. Dordrecht: Reidel.

References II

- Eckardt, Regine. 1998. *Adverbs, Events, and Other Things: Issues in the Semantics of Manner Adverbs*. Tübingen: Max Niemeyer Verlag.
- Ernst, Thomas. 1998. Scope based adjunct licensing. In *Proceedings of the North East Linguistics Society (NELS 28)*, ed. Pius N. Tamanji and Kiyomi Kusumoto, 127–142. Amherst: GLSA.
- Giorgi, Alessandra, and Fabio Pianesi. 1997. *Tense and Aspect: From Semantics to Morphosyntax*. Oxford: Oxford University Press.
- Higginbotham, James. 1983. The logic of perceptual reports: An extensional alternative to situation semantics. *Journal of Philosophy* 80:100–127.

References III

- Jäger, Gerhard, and Reinhard Blutner. 2000. Against lexical decomposition in syntax. In *Proceedings of IATL 15*, ed. Adam Zachary Wyner, 113–137. University of Haifa.
- Kamp, Hans, and Uwe Reyle. 1993. *From Discourse to Logic: Introduction to Modeltheoretic Semantics of Natural Language, Formal Logic and Discourse Representation Theory*. Dordrecht: Kluwer.
- Kenny, Anthony. 1963. *Action, Emotion and Will*. London: Routledge.
- Klein, Wolfgang. 1994. *Time in Language*. Germanic Linguistics **check volume**. New York: Routledge.

References IV

- Kratzer, Angelika. 2004. Building resultatives. Ms. University of Massachusetts at Amherst, published 2005 in *Event Arguments: Foundations and Applications*, ed. Claudia Maienborn and Angelika Wöllstein, 177-212. Tübingen: Niemeyer.
- Lascarides, Alex, and Nicholas Asher. 1993. Temporal interpretation, discourse relations and commonsense entailment. *Linguistics and Philosophy* 16:437–493.
- Moens, Marc, and Mark Steedman. 1988. Temporal ontology and temporal reference. *Computational Linguistics* 14.2:15–28.
- Parsons, Terence. 1990. *Events in the Semantics of English: A Study in Subatomic Semantics*. Current Studies in Linguistics Series 19. Cambridge, MA: MIT Press.

References V

- Pustejovsky, James. 1991. The syntax of event structure. *Cognition* 41:47–81.
- Rapp, Irene, and Arnim von Stechow. 1999. *Fast* ‘almost’ and the visibility parameter for functional adverbs. *Journal of Semantics* 16.2:149–204.
- Reichenbach, Hans. 1947. *Elements of Symbolic Logic*. London: MacMillan.
- Rothstein, Susan. 2004. *Structuring Events: A Study in the Semantics of Lexical Aspect*. Oxford: Blackwell.
- von Stechow, Arnim. 1996. The different readings of *wieder* ‘again’: A structural account. *Journal of Semantics* 13:87–138.
- de Swart, Henriëtte. 1998. Aspect shift and coercion. *Natural Language and Linguistic Theory* 16.2:347–85.

References VI

- Vendler, Zeno. 1957. Verbs and times. *Philosophical Review* 56:143–160.
- Verkuyl, Henk. 1993. *A Theory of Aspectuality: The Interaction between Temporal and Atemporal Structure*. Cambridge: Cambridge University Press.
- Vlach, Frank. 1983. On situation semantics for perception. *Synthese* 54:129–152.
- Zwarts, Joost. 2006. Event shape: Paths in the semantics of verbs. Ms. Radboud University Nijmegen.