Moens and Steedman (1988)
Semantics Seminar
November 17, 2008

0. Central claims

•The cognitive representation of events encodes inherent *contingent* relations

> ‣These include subparts of the event, associated events, associated states

•Temporal expressions make reference to relations between events

•The interaction of aspectual and temporal modifiers with event predicates is determined/ constrained by:

> ‣ the type of argument required by the modifier
> ‣ the *contingent dependencies* inherent in the predicate
> ‣ manipulation of the predicate structure by the modifier: **coercion**

1. Introduction

1. *When they built the 59th St. bridge,*

> a) *…..a local architect drew up the plans*
> b) *….they used the best materials*
> c) *….they solved most of their traffic problems*

•The *when* clause **appears** to be ambiguous, potentially referring to several different temporal intervals

• *When* is **not** ambiguous

> ‣ *When* does not identify a temporal interval, rather, a *temporal referent* in the form of an event

• The three events expressed in the matrix clauses are among the *contingent* events contained within the structure of the temporal referent

2. Events

• An *event,* in contrast to a *state*, has defined beginning and end points

• Event types can be categorized according to their values along two parameters

> ‣ An event is either punctual or extended in time: **+ *atomic*** or **+ *extended***
> ‣ An event either does or does not produce a salient consequent state: **+/- *conseq***
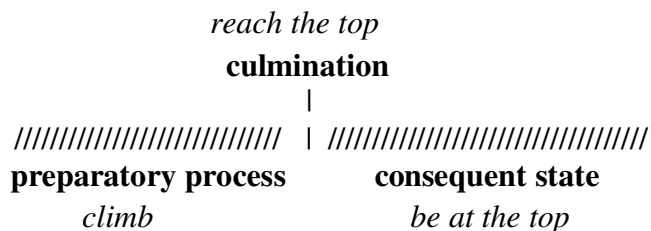
2.1 Four Event Types

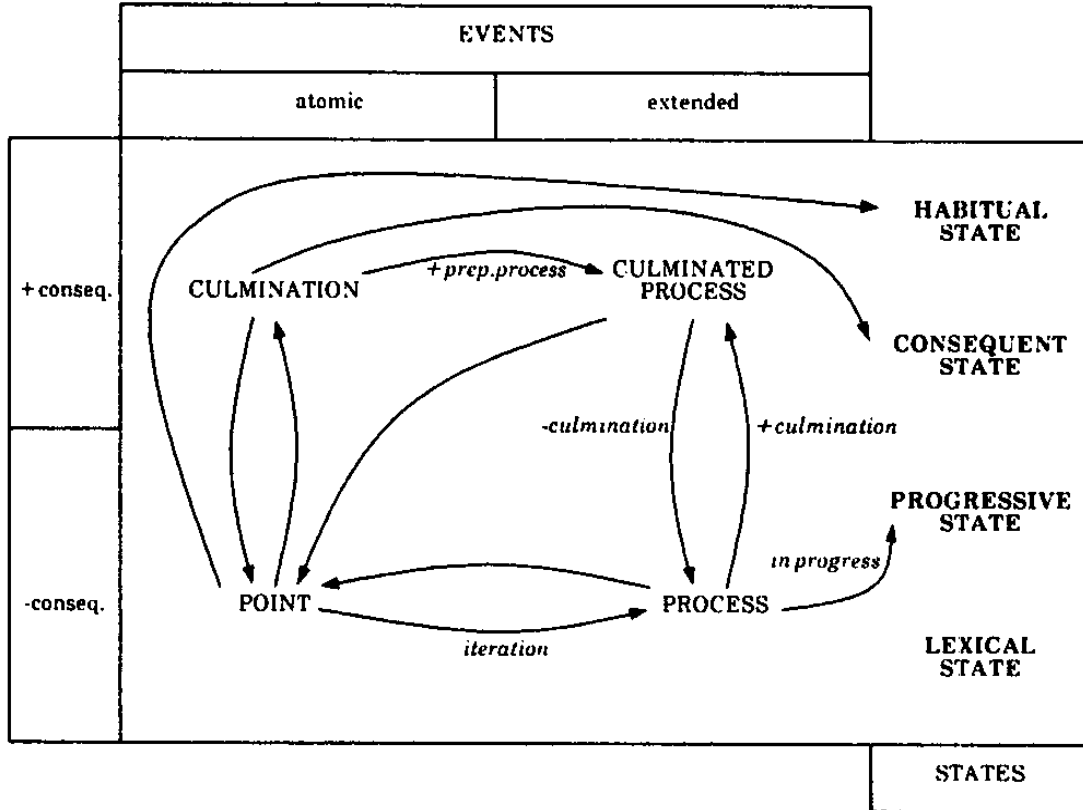> 1. Culmination: **+ *atomic/+conseq***
>
> 2. *Harry reached the top*

‣ The culmination is instantaneous

‣ The culmination introduces a transition from one state to another

2. Point expression: **+atomic/-conseq**

3. John hiccupped

‣ The event is an 'indivisible whole'

‣ There is (typically) no transition to a salient state

3. Process: **+ extended/-conseq**

4. Harry climbed

‣ The event includes no culmination

4. Culminated process: **+extended/+conseq**

5. Mouska climbed to the top

2.2 Event Structure and Coercion

• Progressive aspect requires a process as its argument
      6. Mouska was running

• Perfect aspect requires a consequent state as its argument
      7. Mouska has reached the top

• The predicate *hiccup* is a point expression

‣ *Hiccup* can be coerced into an argument for the progressive…
8. Mouska was hiccupping

‣ …but not into an argument for perfect
9. ??Mouska has hiccupped

• Coercion of a predicate into the required argument type is constrained by its contingent
 relations

• Coercion is the manipulation of a tripartite **contingency-based event structure** or **nucleus**

• A **nucleus** consists of a *preparatory process,* a *culmination,* and a *consequent state*

‣ Nucleus structure of *climb to the top*

<div align="center">

reach the top
culmination
|
/////////////////////////// | //////////////////////////////////
preparatory process   **consequent state**
climb   *be at the top*

</div>

EVENTS	
atomic	extended

(diagram labels:)

+conseq.

-conseq.

CULMINATION   +prep.process → CULMINATED PROCESS

HABITUAL STATE

CONSEQUENT STATE

-culmination   +culmination

PROGRESSIVE STATE

POINT   PROCESS

in progress

iteration

LEXICAL STATE

STATES

~~2000 Florida Ballot~~
Transition Network

3. Aspect

3.1 Progressive

•Progressive aspect
> ‣ takes a process as argument
> ‣ outputs a process ongoing at reference time

3.1.1 Coercion into a process event

• Point expressions are coerced into processes via iteration
> ‣ *hiccup...hiccup...hiccup*

• Culminated processes may be coerced in two ways

> **i.** The culmination and consequent state are lopped off and the remaining part of the nucleus, the *preparatory process,* is input to the progressive

>> 10. *Mouska was running a mile*

ii. The entire nucleus is treated as a point and iterated

        11. *Mouska was running a mile last week. Now he's up to three.*

• A culmination is coerced via addition of a preparatory process, and removal of the culmination

        12. *Harry was reaching the top*

• This proposal addresses the *imperfective paradox*

‣ Because the culmination is not included in the construction, the assertion concerns only the preparatory process

‣ There is no assertion that the culmination occurred

        13. *Harry was reaching the top when he slipped and fell to the bottom*

3.2 Perfective

•Perfective aspect

‣ takes a culmination as argument
‣ indicates that a relevant consequent state holds

        14. *John has broken the chair (so don't sit in it)*
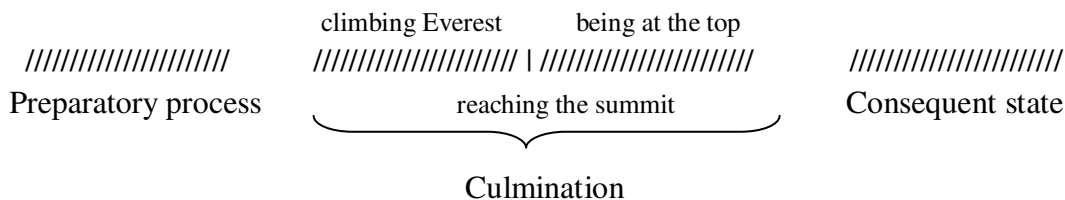
3.2.1 Coercion into a culmination event

• A culminated process is coerced by treating the entire nucleus as a culmination

‣ The culmination inherent in the event cannot serve as the relevant culmination

‣ The question *Have you climbed Mount Everest yet?* is not appropriate when addressed to one who is in the immediate consequent state of climbing Mount Everest, i.e.standing on the summit

• Creation of a new nucleus

                             climbing Everest   being at the top

//////////////////////   //////////////////////// \ ////////////////////////   ///////////////////////

Preparatory process   reaching the summit   Consequent state

                        Culmination

• A process is likewise treated as the culmination of a new nucleus

‣ a process can only be coerced if a relevant consequent state results

        15. ?*John has worked in the garden*

‣ This is acceptable only if an event is contingent on John's having worked in the garden

‣ Some process predicates cannot be associated with a consequent state; these cannot be coerced into arguments for perfective aspect

> 16. *A star has twinkled*

• Constraints on consequent states

‣ Moens and Steedman argue that the ban on temporal adverbials with the perfect is due to the inconsequentiality of time of culmination: i.e. only the fact of the consequent state matters:

> 17. #*They have married yesterday*

‣ M&S claim that the use of a temporal adverbial is acceptable when the time specification is relevant

> 18. *They have married on Friday the 13th (???)*

‣ The relevant consequent state must hold at reference time

> 19. *I have spilled my coffee*
> > ‣ use of the perfect is not felicitous once the resultant mess has been cleaned up

‣ This accounts for the distinction in acceptability between (20) and (21)

> 20. #*Einstein has visited Princeton*
> 21. *Princeton has been visited by Einstein*

> > ‣ there can be no consequent state for (20) as Einstein is no more, however:
> > ‣ the 'corporate consciousness' of Princeton lives on; the consequent state holds in (21)

4. Adverbials

4.1 *For*-adverbials
• *For* –adverbials
> ‣ take a process argument and
> ‣ produce a culminated process

> 22. #*John has worked in the gardens*
> 23. *John has worked in the garden for 5 hours*

> ‣ The process *work in the garden* is degraded as input to the perfect in (22)
> ‣ The *for*-adverbial outputs a culminated process, creating an appropriate argument for the perfect in (23)

4.1.1 Coercion into a process event

• There are two ways to coerce an event into a process:

  ‣ The event is treated as a point and iterated:

> 24. *John played the sonata for 5 hours*
> process → point → iteration

> 25. *John arrived late at work for several days*
> culmination → point → iteration

  ‣ The event is transformed into an ongoing process

  ‣ Unlike coercion into an iterated point event, which requires no special morphology, creation of an ongoing process can only be accomplished by use of progressive morphology

> 26. *Red Rum won the race for five years in a row*
> 27. **Red Rum won the race for the first five minutes*
> 28. *Red Rum was winning the race for the first five minutes*

4.2 *In*-Adverbials

• *In* –adverbials

  ‣ require a culminated process as input
  ‣ indicate the duration of the preparatory process

4.2.1 Coercion into a culminated process

• Application of an *in*-adverbial to a culmination event adds a preparatory process

> 29. *Laura reached the top in 2 hours*

  ‣ for those culminations which cannot incorporate a preparatory process , use of an *in* –adverbial is ill-formed (i.e. without additional context)

> 30. *#John spilled his coffee in 15 minutes*

• A process can be coerced only if a culmination is available

> 31. *#John ran in a few minutes*

‣ Alternatively, the event as a whole is treated as a culmination; and the adverbial adds a preparatory stage

  ‣ *John ran in a few minutes* is interpretable as John having run after a few minutes had elapsed

5. Multiple Transitions

• The structure of the transition network permits an event to be coerced through more than one transition by the application of additional modifiers

> *32. It took me two days to learn the play the Minute Waltz in 60 seconds for more than an hour*

> i. A culminated process is input to an *in*-adverbial specifying process duration
> > ‣ *play the Minute Waltz in 60 seconds*

> ii. The output of (i) is treated as an atomic event and iterated to create input to *for*-adverbial, creating a culminated process
> > ‣ *play the Minute Waltz in 60 seconds for over an hour*

> iii. *Learn to play the Minute Waltz in 60 seconds for over an hour* is a culminated process.

> iv. This is input to *it took me two days,* functioning as an *in*-adverbial

6. Tense

• Tense is not an anaphor dependent on a previously introduced temporal referent

• Tense has the properties of a definite DP, rather than an anaphor

> ‣ The referent of a pronoun is fixed

> > 33. *Harry came in. He sat down and took off his boots, then he stood up again…*

> ‣ The referent of tense may change

> > *34. Harry came in, sat down, and took off his boots*
> > ‣ Each instantiation of past tense refers to a different temporal referent

> ‣ The forward-shift of the temporal referent is determined by the nucleus of each event

> > ‣The culmination of *came in* must be reached before *sat down* can occur (and so on)

> ‣ Tense therefore makes reference to times which have not been explicitly introduced, but which are implied by the structure of the events

> > ‣ In this behavior, tense is similar to a definite NP:
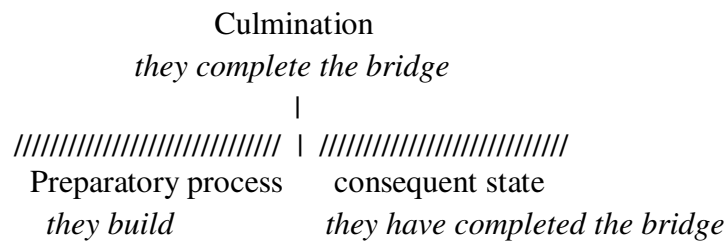> > 35. *I went to a party last night.The music was wonderful*

6.1 *When* Clauses

• *When* clauses do not require/do not make reference to an established temporal interval
• *When* clauses establish a 'temporal referent': an event
• This event forms the basis for a nucleus
  ‣ The event in the matrix clause must be interpretable as a contingent relation located in this nucleus
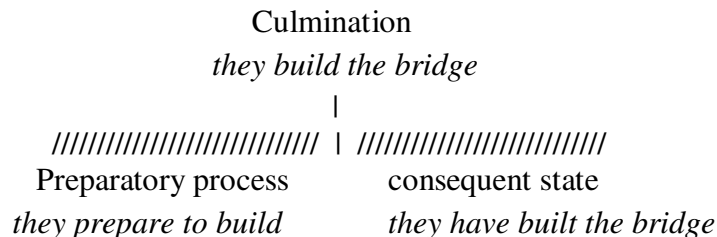
6.1.1 Establishing a contingency relationship

• When confronted by a *when*-clause, the hearer must construct a nucleus in one of two ways:
  i. Decompose the event indicated in the *when* clause into a nucleus
  ii. Treat the entire event as a culmination and embed it in a full nucleus

• The decomposition option is used in parsing example (1b)

  1b) *When they built the 59th St. bridge, they used the best materials*
  ‣ The matrix clause event refers to the preparatory process of the nucleus

<div align="center">

Culmination
they complete the bridge
|
//////////////////////////// | ////////////////////////////
Preparatory process consequent state
they build *they have completed the bridge*

</div>

• The event-as-culmination option is used in parsing (1a) and (1c)

  1a. *When they built the 59th Street bridge, a local architect drew up the plans*
  ‣ The matrix clause of (1a) is located within the preparatory process of the new nucleus

  1b. *When they built the 59th Street bridge, they solved most of their traffic problems*
  ‣ The matrix clause of (1c) is located within the consequent state of the new nucleus

<div align="center">

Culmination
they build the bridge
|
//////////////////////////// | ////////////////////////////
Preparatory process consequent state
they prepare to build *they have built the bridge*

</div>

- Requirements on event dependencies

    ‣ The hearer must be able to construct a nucleus for the introduced event

    ‣ The hearer must be able to identify the contingent relation between the event in the main clause and the event in the *when* clause

        ‣ The matrix event must be locatable at a relevant point within the nucleus

        ‣ Inability to place the matrix event within the nucleus leads to ill-formedness
            36. *#When my car broke down, the sun set*
            ‣ There is no section of the nucleus ('*my car broke down'*) within which *sun setting* can be located as contingently related

- *When*-clauses with stative consequents

    ‣ The state specified in the main clause held when culmination of when-clause event occurred:
        37. *When they built that bridge, I was still a young lad*

6.2 Futurates

•There are two futurate forms: simple (non-modal) and progressive

•Simple futurates parallel the simple past

    ‣ The event time (E) and the reference time (R) coincide

    38. *John leaves tomorrow*   - R and E in the future
    39. *John left*   - R and E in the past

- Progressive futurates parallel the perfect:

    ‣ R and E do not coincide

    40. *John is leaving (tomorrow)*   - R is the present; E is in the future
    41. *John has left*   - R is the present; E is in the past

- Simple futurates can be used with perfect aspect (kinda), in keeping with their simple-past- like properties

    42. *Once the Mets play the Fish on Sunday, they have finished for the season*