

An Introduction to the Semantics of Aspect and Aktionsart ¹

1. Introducing Aspect

So far, we've explored some basic approaches to the semantics of tense...

But tense isn't the only morphological category that concerns 'predication time'...

There is also the cross-cutting morpho-syntactic category known as '**(grammatical) aspect**', illustrated below for English.

(1) Combinations of Tense and Aspect in English

Aspect	Tense		
	Past	Present	Future
Perfective	<i>danced</i>	<i>dances</i>	<i>will dance</i>
Imperfective	<i>was dancing</i>	<i>is dancing</i>	<i>will be dancing</i>
Perfect	<i>had danced</i>	<i>has danced</i>	<i>will have danced</i>

(2) Some Terminological Notes

- Some people prefer the term 'progressive' for English, rather than 'imperfective'
 - (e.g., 'past/present/future *progressive*')
- Some people prefer the term 'simple' for English, rather than 'perfective'
 - (e.g., 'simple past/present/future')

(3) Aspect Affects the Understood 'Predication Time'

- a. When Bill was in the kitchen, Dave **was eating** a sandwich.
- b. When Bill was in the kitchen, Dave **ate** a sandwich.
- c. When Bill was in the kitchen, Dave **had (just) eaten** a sandwich.

Observations:

- Sentences (3b)-(3c) entail that the sandwich-eating is not still going on
Sentence (3a) does not have this entailment.
- Sentence (3b) places the time of the sandwich-eating *inside* the time of Bill being in the kitchen.
Sentence (3a) seems to do the opposite; it puts the time of Bill being in the kitchen *inside* the time of the sandwich eating.
Sentence (3c) places the time of the sandwich-eating *before* Bill being in the kitchen

¹ The material in this handout is based upon the following course readings: Ogiwara 2011: Sections 1-2, 4-5; Kusumoto 2005: Sections 1-3; von Stechow 2009: Sections 1-11.2.

Since sentences (3a)-(3c) are all past tense, the contrasts in their meaning is not contributed by tense, but rather by the *aspect*...

2. Towards a Semantics for Aspect (and Tense): The Neo-Reichenbachian Perspective

Most of the literature we will read assumes a semantics for aspect (and tense) that is sometimes referred to as ‘Neo-Reichenbachian’ (or sometimes as ‘Kleinian’).

- While these approaches trace their roots back to Reichenbach (1947), the general approach was mostly developed in the 80s and 90s (Hornstein 1990, Kamp & Reyle 1993, Klein 1994)

I will first introduce the general ‘Neo-Reichenbachian’ perspective informally...

We will then see how we can incorporate these informal notions into a formal semantics...

(4) Introducing ‘Topic Times’

A Neo-Reichenbachian approach to aspect assumes (informally) that there are (at least) three times at play in the meaning of a (tensed) sentence.

- | | | |
|----|------------------------|---|
| a. | Utterance Time (UT) | The time a sentence is asserted.
The matrix evaluation time. |
| b. | Event Time (ET) | The time of the event/state described in the sentence
The ‘predication time’ of the VP |
| c. | Topic Time (TT) | The time ‘under discussion’ in the sentence
The time which the sentence is about |

Note: In our pronominal semantics for tense, the time denoted by the T-head plays the role of both the ET and the TT.

A Neo-Reichenbachian theory says this is wrong; we need to separate out those two time spans in the truth-conditions of the sentence...

(5) More on the (Informal) Notion of a ‘Topic Time’

Every sentence of natural language (in context) makes reference to – or ‘is about’ – a particular span of time.

- This ‘Topic Time’ is often implicit in the sentence, and understood via context.
- It can, however, also be directly signaled via temporal adverbs

(6) **Illustration of Topic Times**

- a. At 3PM, I was washing my car.
(TT = 3PM)
- b. When Bill was in the kitchen, Dave ate a sandwich.
(TT = the time Bill was in kitchen)
- c. I didn't turn off the stove!
(TT = the time between removal of cookies and when I left the house)

(7) **First Key Component of Neo-Reichenbachian Perspective**

- Contrary to our semantics in the last handout, tense does not provide any direct information about the location of the ET.
 - **Rather, tense provides information about the location of the TT (and its relation to the UT)**
- a. 'Past' → TT precedes the UT (TT < UT)
 - b. 'Present' → TT surrounds the UT (TT ⊆ UT)
 - c. 'Future' → TT follows the UT (UT < TT)

(8) **Illustration:**

- a. At the time of our wedding, Dave **was in New York**.
 - Past tense indicates that the TT (time of wedding) precedes the UT
- b. At the time of our wedding, Dave **is in New York**.
 - Present tense indicates that the TT (time of wedding) surrounds the UT
- c. At the time of our wedding, Dave **will be in New York**.
 - Future tense indicates that the TT (time of wedding) follows the UT

(9) **Second Key Component of Neo-Reichenbachian Perspective**

Aspect provides the (crucial) information about the ET, by relating it to the TT

- a. 'Imperfective' → ET surrounds the TT (TT ⊆ ET)
- b. 'Perfective' → TT surrounds the ET (ET ⊆ TT)
- c. 'Perfect' → ET precedes the TT (ET < TT)

(10) **Illustration of the Key (Informal) Ideas**

a. When Bill was in the kitchen, Dave **was eating** a sandwich.

- (i) Past Tense: $TT < UT$
- (ii) Imperfective Aspect: $TT \subseteq ET$

Thus, we capture the observations that:

- (3a) places Bill's being in the kitchen *inside* the sandwich-eating
- (3a) is consistent with the sandwich-eating still continuing at present

b. When Bill was in the kitchen, Dave **ate** a sandwich.

- (i) Past Tense: $TT < UT$
- (ii) Perfective Aspect: $ET \subseteq TT$

Thus, we capture the observations that:

- (3b) places the sandwich-eating *inside* Bill's being in the kitchen
- (3b) entails that the sandwich eating does not continue into the present

c. When Bill was in the kitchen, Dave **had (just) eaten** a sandwich.

- (i) Past Tense: $TT < UT$
- (ii) Perfect Aspect: $ET < TT$

Thus, we capture the observations that:

- (3c) places the sandwich-eating *before* Bill's being in the kitchen
- (3c) entails that the sandwich eating does not continue into the present

3. Formalizing The Neo-Reichenbachian Perspective

Happily the tense semantics developed in the previous handout provides a solid foundation on which to build a formalization of this 'Neo-Reichenbachian' perspective...

The following ingredients can be grafted onto either the 'pronominal' or the 'indefinite' semantics for tense...

(11) **The Functional Structure of the Clause**

The TP of the clause takes an Asp(ect) Phrase as complement, which in turn takes the VP as complement.

[_{TP} Tense {Past, Pres, Fut} [_{AspP} Aspect {PRV, IMPRV, PERF} VP]]

(12) **Event Semantics for Verbs**

Instead of projecting a temporal argument, verbs project an event argument.

$$[[\text{dance}]]^{w,t,g} = [\lambda x_e : [\lambda e_g : \text{dance}(e,w) \ \& \ \text{Ag}(e,w) = x]]$$

‘in world w, e is an event of dancing whose agent is x’

(13) **Formal Neo-Reichenbachian Semantics for Aspect**

- Aspect heads are of type $\langle\langle \epsilon, t \rangle, \langle i, t \rangle\rangle$
- They take as argument a predicate of events (denotation of the VP), and return a predicate of times (that goes on to combine with the Tense head)

a. $[[\text{IMPRV}]]^{w,t,g} = [\lambda P_{\langle \epsilon, t \rangle} : [\lambda t'_i : \exists e . t' \subseteq T(e) \ \& \ P(e) = T]]$

‘the time t’ is contained within the ‘temporal trace’ of an event of P’

b. $[[\text{PRV}]]^{w,t,g} = [\lambda P_{\langle \epsilon, t \rangle} : [\lambda t'_i : \exists e . T(e) \subseteq t' \ \& \ P(e) = T]]$

‘the time t’ is contains the ‘temporal trace’ of an event of P’

c. $[[\text{PERF}]]^{w,t,g} = [\lambda P_{\langle \epsilon, t \rangle} : [\lambda t'_i : \exists e . T(e) < t' \ \& \ P(e) = T]]$

‘the time t’ is after the ‘temporal trace’ of an event of P’

Note:

In this system, the Asp heads serve to existentially quantify over the event argument of the VP

(14) **Putting the Ingredients Together**

a. Sentence: “Dave was dancing”

b. LF: $[_{TP} \text{Dave} [_{TP} 1 [\text{Past}_2 [\text{IMPRV} [t_1 \text{dance}] \dots]]]$

c. Predicted Truth-Conditions: (Calculations Left as an Exercise)

(i) *Indefinite Semantics for Tense*

$$\exists t' . t' < t \ \& \ t' \in g(2) \ \& \ \exists e . t' \subseteq T(e) \ \& \ \text{dance}(e,w) \ \& \ \text{Ag}(e,w) = \text{Dave}$$

(ii) *Pronominal Semantics for Tense*

$$[[(14b)]]^{w,t,g} \text{ is defined only if } g(2) < t. \text{ If defined, } [[(14b)]]^{w,t,g} = T \text{ iff}$$

$$\exists e . g(2) \subseteq T(e) \ \& \ \text{dance}(e,w) \ \& \ \text{Ag}(e,w) = \text{Dave}$$

(15) **Relating the Formal Truth-Conditions to the Informal Neo-Reichenbachian Theory**

a. In (14ci) [the ‘indefinite tense’ semantics]:

- The ‘UT’ is time t , the matrix evaluation time
- The ‘TT’ is time t' , which is contextually restricted to the interval $g(2)$.
- The ‘ET’ is $T(e)$, the temporal trace of the event

Thus, our truth-conditions in (14ci) do indeed place:

- The TT before the UT $(t' < t)$
- The TT within the ET $(t' \subseteq T(e))$

b. In (14cii) [the ‘pronominal tense’ semantics]

- The ‘UT’ is time t , the matrix evaluation time
- The ‘TT’ is time $g(2)$, the denotation of the Tense head
- The ‘ET’ is $T(e)$, the temporal trace of the event

Thus, our truth-conditions in (14cii) do indeed place:

- The TT before the UT $(g(2) < t; \textit{presupposition})$
- The TT within the ET $(g(2) \subseteq T(e))$

The reader is encouraged to similarly explore other possible combinations of tense and aspect in our formalized system...

(16) **An Important Note**

- When we combine the ingredients in (11)-(13) with our pronominal semantics for tense, we get a system where **the Tense head serves to denote/introduce the ‘topic time’**
- This notion that ‘tense denotes Topic Time’ was (to my knowledge) first explicitly proposed by Kratzer (1998); it has since become a rather popular (though controversial) notion...

4. **Fitting in the Future (and Fixing Up the Perfect)**

In the last handout, we put off to the future a serious discussion of the ‘future’...

- At this point, nothing’s really stopping us from treating ‘future’ in our formal tense semantics...

(17) **Formal Semantics for Future**

REDACTED FOR HOMEWORK ASSIGNMENT!!

While the semantics in (17) would in principle work, there are empirical problems with applying it to English...²

(18) **'Future' (in English) is not a Tense**

- There is not in English a verbal morpheme that expresses 'future tense'.
 - Rather, 'futurity' is expressed through auxiliary constructions (*will, be going to*)
 - **Crucially, these auxiliary constructions can bear *past tense*, creating a 'future in the past' meaning...**
- a. (i) Present Tense: Hillary **will** marry a man from Arkansas.
(ii) Past Tense: Hillary **would** (later) marry a man from Arkansas.³
- b. (i) Present Tense: Dave **is** going to sing.
(ii) Past Tense: Dave **was** going to sing.
- If we assume that 'tenses' are in complementary distribution (i.e., just one T-head per clause), it follows that these auxiliary constructions are not 'tenses' *per se*
 - Instead, the structure of (18a) appears to more like:
- c. [TP Hillary [TP I [TP Past/Pres [??P WOLL [VP t₁ marry a man from Arkansas] ...]]⁴

(19) **More Evidence that English 'Future' is not a Tense**

- Recall that 'past-under-past' sentences like (19a) allow for 'simultaneous readings'
Recall too that such readings are (currently) generated by a rule of 'tense deletion'
- a. Dave **said** he **was** sick (Dave said "I am sick")
- If *will* in English were a future tense, we might expect then that 'future-under-future' sentences would also allow for simultaneous readings; *but they don't*.
- b. Dave **will** say that he **will** be sick. (NOT: Dave will say "I am sick")

² In addition to the problems in (18)-(19), the first homework assignment points to a third key empirical problem.

³ To clarify the 'future in the past' reading of (18a_{ii}), imagine that it being uttered in the context of a biography, with the preceding context being something like 'Although as a teenager she detested Southern men...'

⁴ 'WOLL' is the hypothetical un-tensed root underlying *will* and *would* (Abusch 1997).

(20) **Fun Fact: English is Not Alone**

- As we'll see, it turns out that in *many* languages (not just IE languages), 'futurity' is not expressed with the same morpho-syntactic category as 'pastness'
 - Again, as in English, this shows up clearest in the ability for 'future-marked' verbs to also be 'past-marked', resulting in 'future in the past' readings...
 - Again, as in English, 'futurity' is in many languages expressed either via 'modal' or 'aspectual' morphology.
- In some more complex theories of tense semantics, there are theory-internal reasons for ruling out the possibility of 'future tenses'
 - Famously, Abusch (1997) introduces 'the Upper Limit Constraint' (ULC), which states that a T-head cannot denote a time later than the eval time.
 - Clearly, a lexical entry like (17b) would be in conflict with the ULC...

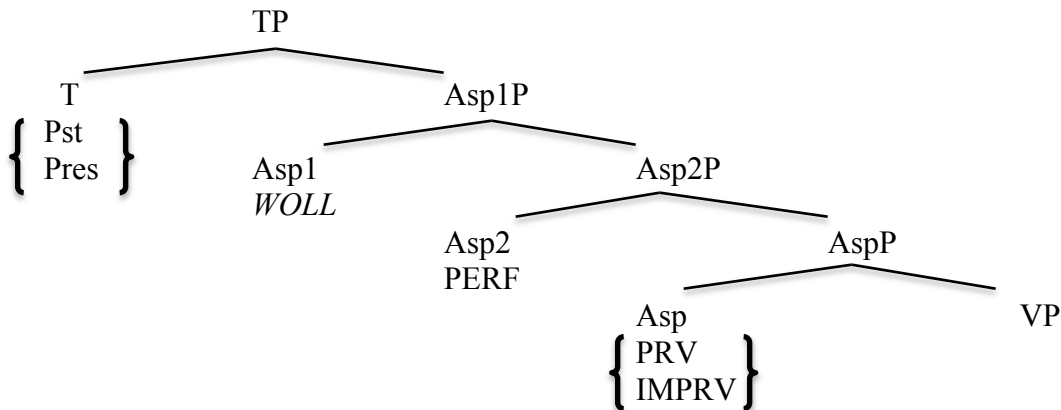
- (21) a. Obvious Question: So if 'future' in English is not a tense, *what is it?*
- b. One Possibility: Maybe it's an Aspect head?
- c. Immediate Problem:
But the chart in (1) shows that 'Future' in English can also freely combine with the aspects PRV, IMPRV, and PERF!

(22) **More General Problem: PRV and IMPRV with FUT and PERF**

As shown below – and contrary to our syntax in (11) – both 'future' and 'perfect' can combine freely with 'perfective' and 'imperfective' (in English).

- a. The Various 'Perfects' of English
- | | | |
|------|--|--------------------------------|
| (i) | Perfect Perfective ('Simple Perfect') | Dave has danced . |
| (ii) | Perfect Imperfective ('Perfect Progressive') | Dave has been dancing . |
- b. The Various 'Futures' of English
- | | | |
|-------|--|--------------------------------------|
| (i) | Future Perfective ('Simple Future') | Dave will dance . |
| (ii) | Future Imperfective ('Future Progressive') | Dave will be dancing . |
| (iii) | Future Perfect | |
| 1. | Future Perfect Perfective | Dave will have danced . |
| 2. | Future Perfect Imperfective | Dave will have been dancing . |

(23) **The Syntax that This Suggests**



- Under this kind of syntax, WOLL and PERF could be referred to as ‘high aspects’

How can we devise a semantics for WOLL and PERF that is consistent with this syntax?

(24) **Revised Semantics for WOLL and PERF**

- Let us suppose that both WOLL and PERF are of type $\langle\langle i,t \rangle, \langle i,t \rangle\rangle$
 - Given that AspP is of type $\langle i,t \rangle$, and Tense is of type i (or $\langle\langle i,t \rangle, t \rangle$), there’s nothing type-theoretically to stop us from freely adding WOLL or PERF, or both!
- a. $[[\text{PERF}]]^{w,t,g} = [\lambda P_{\langle i,t \rangle} : [\lambda t' : \exists t'' . t' < t'' \ \& \ P(t'') = T]]$
- b. $[[\text{WOLL}]]^{w,t,g} = [\lambda P_{\langle i,t \rangle} : [\lambda t' : \exists t'' . t' < t'' \ \& \ P(t'') = T]]$
- Note, under this semantics, PERF and WOLL are ‘inverses’ of one another...

(25) **Illustrating the Semantics: (Present) Future Perfective**

- a. Sentence: Dave will dance.
- b. LF: $[_{\text{TP}} \text{Dave} [_{\text{TP}} 1 [_{\text{TP}} \text{Pres}_2 [_{\text{Asp1P}} \text{WOLL} [_{\text{AspP}} \text{PRV} [_{\text{VP}} t_1 \text{dance}] \dots]]]]]]$
- c. Predicted Truth-Conditions: $[[(25b)]]^{w,t,g}$ is defined only if $g(2) = t$;
If defined, $[[(25b)]]^{w,t,g} = T$ iff

$\exists t' . g(2) < t' \ \& \ \exists e . T(e) \subseteq t' \ \& \ \text{dance}(e,w) \ \& \ \text{Ag}(e,w) = \text{Dave}$
There is a time t' following ‘now’ that contains an event of Dave dancing.

(26) **Illustrating the Semantics: Past Future Perfective**

- a. Sentence: Dave would dance.
- b. LF: [TP Dave [TP 1 [TP Pst₂ [A_{sp1P} WOLL [A_{spP} PRV [VP t₁ dance] ...]
- c. Predicted Truth-Conditions: [[(26b)]]^{w,t,g} is defined only if g(2) < t;
If defined, [[(26b)]]^{w,t,g} = T iff

$\exists t' . g(2) < t' \ \& \ \exists e . T(e) \subseteq t' \ \& \ \text{dance}(e,w) \ \& \ \text{Ag}(e,w) = \text{Dave}$

There is a time t' following past time g(2) that contains an event of Dave dancing.

(27) **Illustrating the Semantics: (Present) Perfect Imperfective**

- a. Sentence: Dave has been dancing.
- b. LF: [TP Dave [TP 1 [TP PreS₂ [A_{sp2P} PERF [A_{spP} IMPRV [VP t₁ dance] ...]
- c. Predicted Truth-Conditions: [[(27b)]]^{w,t,g} is defined only if g(2) = t;
If defined, [[(27b)]]^{w,t,g} = T iff

$\exists t' . t' < g(2) \ \& \ \exists e . t' \subseteq T(e) \ \& \ \text{dance}(e,w) \ \& \ \text{Ag}(e,w) = \text{Dave}$

There is a time t' preceding 'now' that is contained in an event of Dave dancing

(28) **Illustrating the Semantics: (Present) Future Perfect Imperfective**

- a. Sentence: Dave will have been dancing.
- b. LF:
[TP Dave [TP 1 [TP PreS₂ [A_{sp1P} WOLL [A_{sp2P} PERF [A_{spP} IMPRV [VP t₁ dance] ...]
- c. Predicted Truth-Conditions: [[(28b)]]^{w,t,g} is defined only if g(2) = t;
If defined, [[(28b)]]^{w,t,g} = T iff

$\exists t' . g(2) < t' \ \& \ \exists t'' . t'' < t' \ \& \ \exists e . t'' \subseteq T(e) \ \& \ \text{dance}(e,w) \ \& \ \text{Ag}(e,w) = \text{Dave}$

*There is a time t' following 'now'
that is preceded by a time t'' that is contained in an event of Dave dancing*

Note: There is a *very* salient reading of the perfect imperfectives in (27) and (28) that our semantics is not capturing (i.e., the 'universal reading')

We'll return to this issue when we treat the semantics of PERF in more depth...

5. The Problem of the ‘Imperfective Paradox’

There’s a significant problem with our semantics in (13a) for ‘imperfective’. Consider, for example, the truth-conditions predicted for (29a)...

(29) Major Problem with Our Semantics for IMPRV

a. Sentence: Dave was eating the cookie.

b. LF: $[_{TP} \text{ Dave } [_{TP} 1 [_{TP} \text{ Pst}_2 [_{AspP} \text{ IMPRV } [_{VP} t_1 \text{ eat the cookie }] \dots]]]]]]$

c. Predicted Truth-Conditions: $[[(29b)]]^{w,t,g}$ is defined only if $g(2) < t$
If defined, $[[(29b)]]^{w,t,g} = T$ iff

$\exists e . g(2) \subseteq T(e) \ \& \ \text{eat}(e,w) \ \& \ \text{Ag}(e,w) = \text{Dave} \ \& \ \text{Thm}(e,w) = \text{the cookie}$
The past time $g(2)$ is surrounded by an event of Dave eating the cookie

d. Observation:

- The truth-conditions in (29c) clearly entail the following:

$\exists e . \text{eat}(e,w) \ \& \ \text{Ag}(e,w) = \text{Dave} \ \& \ \text{Thm}(e,w) = \text{the cookie}$
‘There is in the actual world a (completed) event of Dave eating the cookie’

- Therefore, our semantics predicts that (29a) should entail that Dave eventually does eat the entire cookie...
- **However, it clearly doesn’t!**
 - (29a) is consistent with Dave stopping his cookie-eating at a later time, and never actually finishing the cookie!

(30) The Imperfective Paradox (Bennett & Partee 1972, Dowty 1979)

A sentence of the form ‘[T [IMPFV VP]]’ does not entail that there is event e in the actual world such that $[[VP]]^{w,t,g}(e) = T$

- Note: Despite the popular name, this isn’t actually a ‘paradox’, just a fact...

So, how do we revise our semantics for IMPFV so that it avoids this prediction and is harmonious with the ‘paradox’?

(31) **The Prevailing View (Dowty 1979, Landman 1992)**

There is a ‘modal’ aspect to the meaning of IMPFV; it introduces quantification over (other) possible worlds.

- a. Key Ingredient: ‘Inertia Worlds’: w' is an **inertia world** for w at t iff
- (i) w and w' are exactly the same up to time t
 - (ii) After time t , everything that is ‘going on’ in w (and w') at t continues in w' until it is ‘normal’ for it to stop on the basis of its ‘internal properties’
- b. Illustration of Inertia World:
- Suppose that in w at t , Dave is in the process of eating the cookie.
 - Suppose that at a later time t' in w , Dave accidentally drops the cookie down a storm drain.
 - Now, consider a world w' such that it’s just like w up to time t , but at time t' in w' , Dave doesn’t actually drop the cookie.
 - Instead, he eventually finishes the cookie in w'
 - We would say that w' is an **inertia world** for w at t
- c. Notation: $\text{Inert}(w,t)$ = ‘the set of inertia worlds for w at t ’
- d. Key Fact: w need **not** be a member of $\text{Inert}(w,t)$
- e. Modal Semantics for Imperfective $[[\text{IMPFV VP}]]^{w,t,g} =$
- $[\lambda t' : \forall w' \in \text{Inert}(w,t') . \exists e . t' \subseteq T(e) \ \& \ [[\text{VP}]]^{w',t,g}(e) = T]$
 ‘In all the inertia worlds stemming from w at t' , t' is surrounded by a VP-event’
- f. Predicted Truth-Conditions for LF (29b): $[[(29b)]]^{w,t,g}$ is defined only if $g(2) < t$
 If defined, $[[(29b)]]^{w,t,g} = T$ iff
- $\forall w' \in \text{Inert}(w,g(2)). \exists e . g(2) \subseteq T(e) \ \& \ \text{eat}(e,w') \ \& \ \text{Ag}(e,w') = \text{Dave} \ \& \ \text{Thm}(e,w') = \text{the cookie.}$
- In all the inertia worlds stemming out from w at past time $g(2)$,
 There is an event e of Dave eating the cookie whose time surrounds $g(2)$*
- g. PROBLEM SOLVED:
 Given (31d), the truth-conditions in (31f) do not entail that Dave actually goes on to eat the (entire) cookie in the actual world...

Important Note:

Since the inertia worlds for w at t must be the same as w up to time t ...

The truth-conditions in (31f) *do* entail that 'cookie-eating' is going on in the actual world at time $g(2)$...

(32) **An Obvious Shortcoming: The Definition of 'Inertia Worlds'**

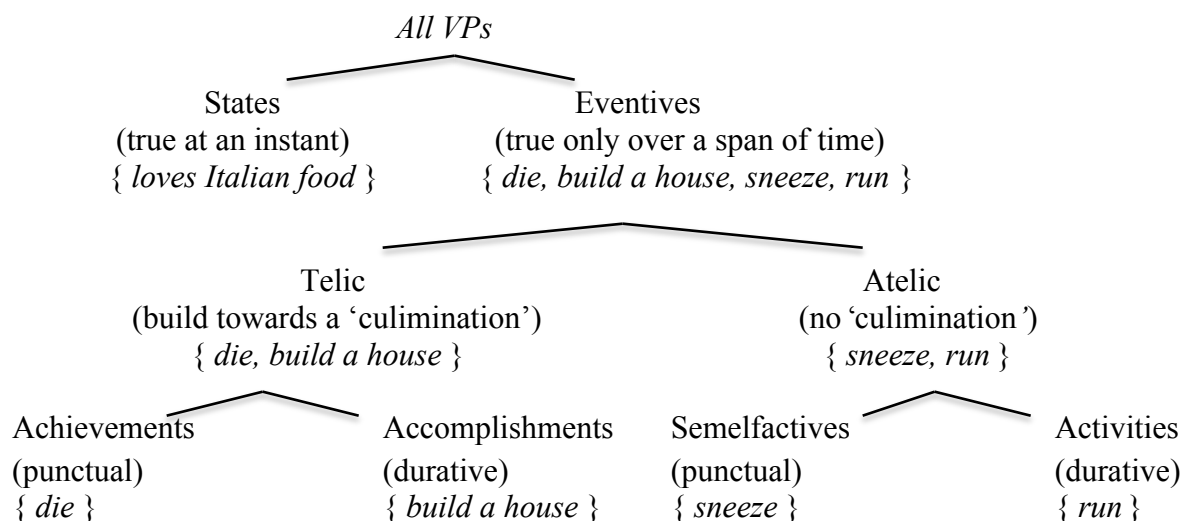
- The definition in (31a) is presently just 'programmatic'...
- We'd like to spell out some objective criteria for saying when it's 'normal' for something to stop on the basis of its 'internal properties'...
- There *is* a significant amount of literature that wrestles with this problem... (Dowty 1979, Landman 1992, Kagan 2011, *inter multa alia*...)

6. **Introducing Aktionsart**

It has long been noted that English VPs can be categorized according to certain correlated semantic and grammatical properties. That is:

- There are certain semantic properties that VPs (in English) can be observed to have, relating to the 'internal structure' of the 'circumstances' they describe.
- These semantic properties appear to be 'grammatically relevant'; they appear to coincide with other (combinatorial) properties that the VPs have.

(33) **The Hierarchy of 'Aktionsart' Categories**



(34) **The Category of ‘States’**

- a. Examples: ‘loves Italian Food’, ‘is tall’, ‘fears death’
- b. Key Semantic Property:
The VP can hold true at a single (infinitesimally small) moment/instant⁵
- If we were to freeze time, there would still be entities that (*e.g.*) ‘love Italian food’ (‘are tall’, ‘fear death’, *etc.*), though things would no longer be (*e.g.*) ‘dancing’ (‘eating a sandwich’, ‘jumping’, *etc.*)
- c. Key Grammatical Property:
The VP ‘sounds funny’ or ‘gets a special interpretation’ when put into the English imperfective (progressive)
- (i) Dave is dancing / eating a sandwich / jumping /
?? loving Italian food / ?? being tall / ?? fearing death

Important Note: In English, the ‘semantic property’ in (34b) appears to correlate with the ‘grammatical property’ in (34c).

Therefore, these properties together appear to distinguish an important class of VPs in English

(35) **The Category of ‘Eventives’** VP is ‘eventive’ *iff* it is not a state

- The class of ‘eventive’ VP appears to be divided further into ‘atelic’ and ‘telic’ VPs

(36) **The Category of ‘Telics’**

- a. Example: ‘build a house’, ‘cross the street’, ‘eat the cookie’
- b. Key Semantic Property:
- The ‘imperfective paradox’ (30) holds for the VP.
 - That is a sentence of the form ‘[T [IMPFV VP]]’ does not entail that there is event *e* in the actual world such that $[[VP]]^{w,t,g}(e) = T$
- c. Key Grammatical Property:
When in the simple past, easily combines with the adverbial ‘in an hour’
- (i) Dave built a house / crossed the street / ate the cookie **in an hour**
- (ii) ?? Dave built houses / danced / sneezed **in an hour**

⁵ It should be noted that this is by no means a universally agreed-upon semantic criterion for ‘statehood’.

(37) **The Category of ‘Atelics’** VP is ‘atelic’ iff it is not telic

a. Additional Grammatical Property of Atelics

When in the simple past, easily combine with the adverbial ‘for an hour’

(i) Dave ate cookies / danced / sneezed **for an hour**

(ii) ?? Dave built a house / crossed the street / ate the cookie **for an hour**

Both telic and atelic VPs can be divided up into further subclasses based upon whether the events in question are ‘punctual’ or ‘durative’...

(38) **The Category of ‘Semelfactives’**

a. Example: ‘sneeze’, ‘jump’, ‘kick’

b. Key Semantic Property:

VP is atelic and the events in question take place in a very short span of time; they are ‘virtually’ (though not entirely) instantaneous.

c. Key Grammatical Property:

A sentence of the form ‘[T [IMPFV VP]]’ entail that there are *multiple* events *e* in the actual world such that $[[VP]]^{w,t,g}(e) = T$

(i) Dave was sneezing / jumping / kicking
(entails multiple sneezes, jumps, kicks)

(ii) Dave was dancing / eating cookies
(does not entail multiple dancings or eatings)

(39) **The Category of ‘Activities’**

VP is an ‘activity’ iff it is atelic and it is not semelfactive

(40) **The Category of ‘Achievements’**

a. Example: ‘die’, ‘win’, ‘arrive’

b. Key Semantic Property:

VP is telic and the events in question take place in a very short span of time; that is, they are basically a quick transition from one state into another

c. Key Grammatical Property:

In a sentence of the form ‘[DP VP in an hour]’, the entire event of VP-ing takes place one hour later than some salient time; the event itself doesn’t take an hour...

(41) **The Category of ‘Accomplishments’**

VP is an ‘accomplishment’ *iff* it is telic and it is not an achievement

(42) **Important Fact**

These same categories (33) are identifiable in many other languages of the world

- That is, while the ‘grammatical properties’ can vary from language to language, it is common for the ‘semantic properties’ noted above to be ‘grammatically relevant’ (i.e., to correlate to with particular grammatical properties)
- For example, we will see that in certain ‘tenseless’ languages, the Aktionsart category of the VP affects the temporal interpretation of the sentence...