

Incomplete Events and the “Actionality-as-Polysemy” View

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...dealing with all of [the problems diagnostic for an adequate analysis of the progressive] is a bit like trying to perform a juggling act while sailing between Scylla and Charybdis.

Fred Landman (1992: 1)

1. Introduction

- The **lack of an entailment** relationship between sentences with “**accomplishment**” verbs in the English Progressive (1) and in the English Simple Past (2) has been dubbed “**the imperfective paradox**” in the literature (Dowty 1979).

(1) Mary was crossing the road.

(2) Mary crossed the road.

With “**activity**” verbs the entailment is present: (3) entails (4).

(3) Mary was playing the guitar.

(4) Mary played the guitar.

- Assuming a standard Event Semantics (*e. g.*, Lasnik 2006) we are committed to there necessarily being a crossing (event) in (1).

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- However, this seems to be a false prediction, *e. g.*, Mary could have been hit by a truck and, therefore, would have never completed her crossing.
- There are two families of approaches to this problem:
 - i. The “**modal**” approach involving quantification over possible worlds in Progressive’s semantics (Dowty 1979, Landman 1992, Portner 1998, among others).
 - ii. The “**incomplete events**” approach allowing “accomplishment” predicates to hold of incomplete / atelic events (Parsons 1990, Ramchand 2018).

Goal: Argue for (ii) based on Tatevosov-style typology of actional classes (Tatevosov 2002, 2016, *inter alia*).

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2. Sergej Tatevosov’s Actional Classification (TAC)

- There are much more actional interpretations (AIs) available to a single verb cross-linguistically than Vendler’s classification (1957) accounts for.
- (5) a. John loved Mary for many years. <STATE>

b. John **loves** Mary for many years. <STATE>

(6) Macbeth **loved** ghosts when he saw Banquo. * <ENTRY INTO A STATE>

(7) a. Macbeth **believed** in ghosts for years. <STATE>

b. Macbeth **believed** in ghosts when he saw Banquo. <ENTRY INTO A STATE>

c. Macbeth **believes** in ghosts. <STATE>

Tatevosov 2016

• *love* is a <STATE; STATE> verb² (== Vendler's state)

◦ or <S, S>

• *believe* is a <ENTRY INTO A STATE, STATE; STATE> (== Vendler's ???)

◦ or <ES S, S>

• *cross* is a <ENTRY INTO A STATE; PROCESS> verb (== Vendler's accomplishment)

◦ or <ES, P>

• *paint the wall* is a <ENTRY INTO A STATE, PROCESS; PROCESS> verb (== Vendler's ???)

◦ or <ES P, P>

(8) a. He **Painted** the wall in three hours. <ENTRY INTO A STATE>

b. He **Painted** the wall for three hours. <PROCESS>

c. He **is painting** the wall. <PROCESS>

Bertinetto, Squartini 1995: 12

Tatevosov's (2016) Actional Classification algorithm:

- i. Identify the **most general perfective** (PFV) and the **most general imperfective** (IPFV) forms (Dahl 1985) of the language of study.
 - a. AIs of all other forms in this language are derivable from the AIs in these two forms.
- ii. For each verb enumerate its actional interpretations in these forms
 - a. in an episodic interpretation
 - b. with singular arguments
 - c. *etc.*
- iii. A verb's actional class is a pair of sets <{x: x is the verb's AIs in the PFV form}, {y: y is the verb's AIs in the IPFV form}>.
- iv. AIs are defined as:
 - a. STATE — true at moments (Taylor 1977), cumulative and non-quantized (Krifka 1998) atelic
 - b. PROCESS — not true at moments, cumulative and non-quantized atelic
 - c. ENTRY INTO A STATE — non-cumulative and quantized, after culmination a state obtains telic

² Verb is used loosely here and below, sometimes meaning 'verb and a quantized direct object'. See Tatevosov 2002, 2016.

- d. ENTRY INTO A PROCESS — non-cumulative and quantized, after culmination a process obtains
- e. (multiplicative process omitted)

telic

- Development of TACs for three unrelated typologically diverse languages reveals the following cross-linguistically stable actional classes:

STRONG ACTIONAL CLASSES	corr. to Vendler's	WEAK ACTIONAL CLASSES	corr. to Vendler's
<ES, —>	achievement		
<ES, P>	accomplishment	<ES P, P>	???
		<P, P>	activity
<EP, P>	???	<EP P, P>	???
		<EP P, P ₁ P ₂ >	???
		<EP ES P, P>	???
		<S, S>	state
<ES, S>	???	<ES S, S>	???
<ES S, P>	???	<ES P S, P>	???
<ES S, P S>	???	<ES P S, P S>	???

Table 1. Cross-linguistically stable actional classes in TAC. Gold highlighting indicates classes relevant for the “Actionality-as-Polysemy” view. “—” indicates that no AI is available.

- ⇒ **GENERALIZATION 1.** Presence of a S or P AI in a verb’s IPFV form **does not entail** its presence in the verb’s PFV form.

⇒ **The PFV and IPFV sets of a verb's AIs are relatively independent³.**

- Note, also, the existence in some languages of actional classes such as:
 - <ES S, —>: Meadow Mari *ejertaš* 'lean on'
 - <S, —>: Bagwalal *b=uk'a* 'to be (at a location)'

⇒ **GENERALIZATION 2.** Similar verbal meanings are often assigned to different ACs in different languages:

- 'burn': Karachay *zan* <EP ES P, P> vs. Hill Mari *jâlaš* <P, P>

3. The “Actionality-as-Polysemy” View

What must the general (universally applicable) theory of actionality look like then?

- I propose a brute-force polysemy view of actionality:
 - (9) **ACTIONALITY-AS-POLYSEMY.** Every verb of an actional class <AI₁ ... AI_n, AI_{n+1} ... AI_{n+m}> is polysemous between the meanings: VERB'_{AI1} ... VERB'_{AI_n} ... VERB'_{AI_{n+m}}.
- *E. g.:*
 - (10) *cross* <ES, P> — 1) *cross*_P, 2) *cross*_{ES}.
 - (11) *paint* <ES P, P> — 1) *paint*_{P1}, 2) *paint*_{P2}, 3) *paint*_{ES},

where P₁ and P₂ are the P interpretations in the IPFV form and the PFV form respectively, as Generalization 1 suggests that they are distinct.
- We can assume that the subscripts indicate:

³ Tatevosov (2016: §4.9) observes that actional class diversity is not unconstrained. If a language has verbs in the <ES, —> class and in the <ES P, P> class, it must have verbs in the <ES, P> class also. Classes such as <P, P S> or <P S, P> are impossible: if there's a P and a S, there must be an ES that relates them. *Etc.*

- (12) $\|verb_P\| = \lambda e_v. \neg QUA(VERB') \& CUM(VERB') \& \neg MT(e) \& VERB'(e)^4$ (PROCESS)
- (13) $\|verb_{ES}\| = \lambda e_v. QUA(VERB') \& \neg CUM(VERB') \& VERB'(e)^5$ (ENTRY INTO A STATE)
- (14) $\|verb_S\| = \lambda e_v. \neg QUA(VERB') \& CUM(VERB') \& MT(e) \& VERB'(e)$ (STATE)

3.1. *Stone Lions* and *Atelic Crossings*

- Constitutive material modifiers (much like other privative non-subjective non-intersective modifiers) suggest that some Mod N combinations can expand the extension of a given noun to include certain non-noun entities.

(15) A stone lion is not a lion. Oliver 2014: 56

- Hans Kamp and Barbara Partee have proposed the Non-Vacuity Principle to deal with such cases (Kamp, Partee 1995; Partee 2010):

(16) **NON-VACUITY PRINCIPLE (NVP):** In any given context, try to interpret any predicate so that both its positive and negative extension are non-empty.

- Since the literal combination of *stone* and *lion* has an empty positive extension ($\{x: stone'(x) \& lion'(x)\} = \emptyset$), NVP applies and recalibrates the semantics of the noun, so that lion representations count as lions.

⁴ Where:

- (i) QUA(P) holds iff for all x and y, if P(x) & P(y), then x is not a proper part of y.
- (ii) CUM(P) holds iff for all x and y, if P(x) & P(y), then P holds of the mereological sum of x and y. Lasersohn 2006
- (iii) MT(P) holds iff there exists a momentary interval at which P holds.

⁵ There must also be conjuncts indicating that the event *e* causes a state *s*, omitted here for clarity. Entry into a process is equivalent to entry into a state with the event *e* causing another process event *e'*.

- We can conceive of the actionally disambiguated verbs above as being composed of the verb proper and an actional operator (thus, also, achieving a certain level of generality), *e. g.*:

- (17)
- i. $\|verb\| = \lambda e_v. VERB'(e)$
 - ii. $\|Pr\| = \lambda P_{v \rightarrow t} \lambda e_v. \neg QUA(VERB') \& CUM(VERB') \& \neg MT(e) \& P(e) = \lambda P_{v \rightarrow t} \lambda e_v. Pr(P) \& P(e)$
 - iii. $\|Pr verb\| = \lambda e_v. \neg QUA(VERB') \& CUM(VERB') \& \neg MT(e) \& VERB'(e)$

- If there is a conflict between the **rich lexical semantics** of the verb and the actional constraints provided by an actional operator, the verb's semantics is coerced via NVP, *e. g.*, **very roughly**:

- (18)
- i. $\|cross\| = \lambda e_v \exists s_v. go_across'(e) \& cause(e, s) \& be_across'(s)$
 - ii. $\|Pr\| = \lambda P \lambda e_v. \neg QUA(VERB') \& CUM(VERB') \& \neg MT(e) \& P(e)$
 - iii. $\|Pr cross\| = \lambda e_v. \neg QUA(go_across') \& CUM(go_across') \& \neg MT(e) \& go_across'(e)$

- (18) = set of processual atelic crossing events
- See Oliver 2014 for a treatment of *stone lions* using Pustejovsky-style (1998) lexical representations and Optimality Theory. (This is straightforwardly applicable to our case.)
- Alternatively, we may represent the actional operators as binary event quantifiers $[[v \rightarrow t] \rightarrow [[v \rightarrow t] \rightarrow t]]$ that existentially bind the event variable, so that an $[OP_{At} VERB']$ combination has the type of a unary event quantifier $[[v \rightarrow t] \rightarrow t]$ as in (Champollion 2015).

4. The Imperfective Paradox Re-solved

- Assume a Kleinian (1994) imperfective semantics for the Progressive restricted to processual predicates.

- (19) $\|PROG\| = \lambda P_{v \rightarrow t} : Pr(P). \lambda t_i \exists e_v. t < \tau(e) \& P(e)$ adapted from (Tatevosov 2010: 79)
- where t is the Topic Time variable, $\tau(e)$ is the Time of Situation of e , and $Pr(P)$ is as in (17)

$$(20) \quad ||\text{PROG [Mary Pr cross the road]}|| = \lambda t_i \exists e_v. t < \tau(e) \ \& \ \neg \text{QUA}(\text{go_across}') \ \& \\ \text{CUM}(\text{go_across}') \ \& \ \neg \text{MT}(e) \ \& \ \text{go_across}'(e) \ \& \\ \text{Agent}(m)(e) \ \& \ \text{Theme}(tx. \text{road}'(x))(e)$$

‘The set of times t such that there’s an event e , t is a proper subpart of the Time of Situation of e , the predicate $\text{go_across}'$ is non-quantized, cumulative, and not true at moments, e is a going across event, Mary is the Agent of e and the road is the Theme of e .’

- Thus, we’ve achieved a truth-conditions that does not commit us to there being a (telic) crossing in the actual world with no recourse to quantification over worlds.

5. Summary

- I’ve argued for the “incomplete events” approach to the imperfective paradox.
- Tatevosov-style (2002, 2016) actional class typology is naturally understood in terms of the “Actionality-as-Polysemy” view.
- The relevant actional interpretations are derived from the rich lexical representation of the verb and an actional operator.
 - Due to the Non-Vacuity Principle (Kamp, Partee 1995) the verb’s meaning may be recalibrated if a conflict with the actional operator arises.
- The Progressive is a Kleinian (1994) imperfective that selects for processual predicates.
 - Once we allow verb meaning recalibration, no quantification over worlds is needed in the Progressive’s semantics.

Appendix. A Comparison with Ramchand 2018

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