

**Imperfective Aspect as a Modal Operator:  
Arregui, Rivero, & Salanova (2014) “Cross-Linguistic Variation in Imperfectivity”**

**1. Introduction and Overview**

**(1) Our ‘Modalized’ Semantics for IMPRV (English ‘PROG’)**

$$[[ \text{IMPRV VP} ]]^{w,t,g} = [ \lambda t' : \forall w' \in \text{Inert}(w,t') . \exists e . t' \subseteq T(e) \ \& \ [[\text{VP}]]^{w',t,g}(e) = T ]$$

*‘In all the inertia worlds stemming from w at t’, t’ is surrounded by a VP-event’*

- This semantics gives us the ‘event-in-progress’ reading of the Imperfective, which is the ‘canonical’ reading for IMPRV/PROG in English
- However, in most other languages, ‘imperfective’ morphology also allows for a host of other readings (Deo 2009, Altshuler 2014, Arregui et al. 2014)

**(2) The Key Proposal of Arregui et al. 2014**

If we slightly alter the semantics in (1) so that it quantifies over ‘situations’ instead of (whole) possible worlds...

*... then we can capture these other reading of IMPRV by varying the restrictor of the modal quantification (i.e., replacing ‘Inert’ with other kinds of modal relations!*

**(3) Situations in Semantics**

- Situations are *parts* of possible worlds.
  - They can be spatial parts
  - They can be temporal parts
  - They can be other kinds of parts (non spatio-temporal)
  - *All that matters is that they are parts...*
- Worlds, then, are just ‘maximal situations’
  - Worlds are situations that aren’t a proper part of any other situation
- Notation:  $s \leq s'$  = *situation s’ contains situation s*  
*situation s is a part of situation s’*
- Consequence:  
Situations, then, cannot exist in more than one possible world, unlike (potentially) events or entities

(4) **Counterparts and ‘Modal Part of’**

- Although a given situation  $s$  in world  $w$  cannot also exist in world  $w'$ , *it can be sufficiently similar to a situation  $s'$  in  $w'$  that – for all intents and purposes – we can identify  $s$  and  $s'$*

Illustration:

- The situation  $s$  of my actually voting in the 2012 election only exists in this world...
  - However, in another possible world (one where Romney won that election), there could still be a situation  $s'$  of my voting in the 2012 that looks *exactly the same* as the situation that happened in this world.
  - For all intents and purposes, those two situations  $s$  and  $s'$  are ‘the same’
- Counterpart Situations:  
 $s'$  in  $w'$  is a counterpart of  $s$  in  $w$  if  $s$  and  $s'$  are ‘identical for all intents and purposes’
- Modal Part of  
A situation  $s$  is a modal part of ( $\leq_m$ ) a situation  $s'$  iff there exists a situation  $s''$  such that  $s''$  is a counterpart of  $s$  and  $s'' \leq s'$ 
    - If  $s \leq s'$ , then we say that  $s'$  is an *extension* of  $s$
    - If  $s \leq_m s'$ , then we say that  $s'$  is a *modal extension* of  $s$

(5) **Tense in Situation Semantics**

- Following Kratzer (2011), Arregui *et al.* propose that T-nodes denote topic *situations* (rather than topic *times*).
- Since situations can be extremely abstract, any ‘temporal interval’ or ‘temporal instant’ could be recast as a kind of situation...
  - So no generality here is lost...
  - But, we also now allow the denotation of the T-nodes to possibly be ‘event-like’, comprising entities, their relations, and other ‘stuff’...
    - That maybe becomes useful later ; )

(6) **General Syntax and Semantics for IMPRV**

a. Semantic Assumptions:

- (i) T-heads denote situations (5)
- (ii) VPs are functions from events to propositions (functions from situations to truth-values)

$$[[ \text{Dave dance} ]]^{\text{w,t,g}} = [ \lambda e_e : [ \lambda s_s : \text{dancing}(e,s) \ \& \ \text{Ag}(e,s) = \text{Dave} ] ]$$

b. Syntactic Assumptions: [ T<sub>i</sub> [ IMPRV [ VP ] ] ]

c. Key Semantic Proposal Regarding IMPRV

$$[[ \text{IMPRV} ]]^{\text{w,t,g}} = [ \lambda P_{\langle e, \text{st} \rangle} : [ \lambda s_s : \forall s' : \text{ACCESSIBILITY-RELATION}(s)(s') . \exists e . P(e)(s') ] ]$$

- We can get different readings for ‘IMPRV’ by varying the ‘accessibility relation’ that restricts the modal quantification
  - (just like we do for canonical modals like *may*)

2. **Capturing the ‘Canonical Readings’ of IMPRV**

2.1 **The ‘Event in Progress’ Reading (English PROG)**

(7) **Event-In-Progress Imperfective**

$$[ \lambda P_{\langle e, \text{st} \rangle} : [ \lambda s_s : \forall s' : s \leq_m s' \ \& \ \text{all the events that started in } s \text{ continue in } s' \text{ as they would if there were no interruption} . \exists e . P(e)(s') ] ]$$

- This is clearly just building into this framework our ‘inertia-based’ semantics in (1)

2.2 **The ‘Ongoing’ Reading (with Statives and Activities)**

(8) **The ‘Ongoing’ Imperfective**

$$[ \lambda P_{\langle e, \text{st} \rangle} : [ \lambda s_s : \forall s' : s' \leq s . \exists e . P(e)(s') ] ]$$

- This says that every (actual) part of the topic situation is one where P holds.
  - If P is stative, this holds when a single P-state holds throughout s
  - If P is an activity, this holds when a single P-activity holds throughout s
  - This will also hold if there are multiple P-state/events holding throughout s
    - If P is semelfactive (*sneeze*), that’s the only way this could be true!
    -
- This reading (probably?) doesn’t exist for English PROG, but it’s canonical for ‘imperfective’ morphology throughout the rest of the world

## 2.3 The ‘Generic’ Reading

### (9) The ‘Generic’ Imperfective

[  $\lambda P_{\langle \epsilon, st \rangle} : [\lambda s_s : \forall s' : s' \leq s \text{ and } s' \text{ is } normal. \exists e . P(e)(s')] ]$  ]

- This says that in the ‘normal’ parts of the topic situation, there are P-eventualities
  - In a sentence like their (6a), the topic situation is a time 20 years ago
  - (9) would then say that in the ‘normal’ parts of this past time, children watched less TV (than they did now).

### (10) Some Discussion

- Thus, the ‘generic’ reading in their semantics is a more restricted version of the ‘ongoing’ reading.
  - Therefore, we might expect that languages have reading (9) only if they have reading (8)... (which looks like it might be the case)
- The readings in (7)-(9) are the ‘canonical’ uses of the imperfective (Deo 2009). For many people, it’s not an ‘imperfective’ unless it has all three of these meanings...
- For Arregui et al., the operators in (7)-(9) are all ‘flavors’ of the imperfective; languages may differ in whether particular ‘accessibility relations’ are possible
  - English only allows the ‘inertial’ accessibility relation
  - Romance, Slavic, and Mebengokre allow all three...
    - But that doesn’t mean that these languages don’t differ with respect to *other* imaginable readings...

## 3. Beyond the Canonical Readings of IMPRV

### 3.1 ‘Futurate’ Readings of IMPRV: Plans and Preparations

In some languages, IMPRV can be used if the event hasn’t actually started, but rather is only being planned.

(11) The Mets **are playing** the Royals tomorrow.

(12) [ their example (13) in Spanish ]

Not all languages allow this, though! For example, there is much variation within the Slavic languages.

(13) [ their example (14) ]

(14) **The ‘Event-in-Preparation’ Reading (English, Spanish, Bulgarian; *Not* Polish)**

[  $\lambda P_{\langle e, st \rangle} : [\lambda s_s :$   
 $\forall s' : s \leq_m s' \ \& \text{ all the events that are in ‘preparatory stages’ in } s \text{ continue in } s' \text{ as}$   
 $\text{they would if there were no interruption . } \exists e . P(e)(s') ] ]$

**3.2 The ‘Factual Imperfectives’ of Slavic**

In Russian and Polish, you can use imperfective verbs to describe events that were completed (that culminated).

(15) [ their example (19) ]

(16) **Generalizations They Assume About Slavic Factual Imperfectives (Paduceva 1992)**

- a. Possible for achievements *and accomplishments* (cf. Altshuler 2014)
- b. They are ‘resultative’, focusing upon the fact that the event lead to a result (which holds at the topic time/situation) (they cite Altshuler 2012 for this)
- c. The time of the event is not ordered with respect to any specific time
- d. They do not advance the reference time of the narrative (Gronn 2008)

(17) **Proposed Semantics for Resultative Imperfective**

[  $\lambda P_{\langle e, st \rangle} : [\lambda s_s : \forall s' : s \text{ results from } s' . \exists e . P(e)(s') ] ]$

- This says that all the situations  $s'$  that the topic situation  $s$  results from have P-eventualities in them.

(18) **Predictions Claimed by Arregui *et al.* 2014**

- a. Reading (17) would entail that there are ‘culminated’/‘complete’ P-events, all holding prior to the topic situation. (16a)
- b. We capture the evocation of ‘results’ (16b)
- c. The time of the P-eventuality is not ‘pinned down’ to a specific time; (17) only entails that it precedes the topic situation. (16c)
- d. (i) Hypothesis:  
Sentence advances reference time iff an event is presented as culminating *in* the topic situation.  
(ii) Assuming this hypothesis, sentences with (17) would not ‘advance the reference time’ (16d)

(19) **Property Not Predicted by (17)**

Factual imperfectives in Russian are only possible for ‘secondary imperfectives’, the imperfectives derived from perfective stems. (cf., Altshuler 2014)

**3.3 The ‘Narrative Imperfectives’ of Romance**

In Romance languages, too, you can use imperfective verbs to describe events that were completed (that culminated).

(20) [ their example (22) ]

(21) **Some Key Differences from Slavic Factual Imperfectives**

- The ‘culminated imperfectives’ in Romance typically occur in connected narratives
- In such narratives, the imperfectives *advance the topic time of the narrative*.
- There is no restriction on Aktionsart; non-telics can also get such uses in Romance.

(22) **Proposed Semantics for Narrative Imperfective**

[  $\lambda P_{\langle e, st \rangle} : [\lambda s_s : \forall s' : s' \text{ culminates in } s . \exists e . P(e)(s') ] ]$  ]

- This says that all the situations  $s'$  that *culminate* in the topic situation  $s$  have P-eventualities in them.
- A situation  $s'$  *culminates* in a situation  $s$  *iff* all the events in  $s'$  that *can culminate* do culminate in  $s'$

(23) **Predictions Claimed by Arregui *et al.* 2014**

- a. Reading (22) would entail that there are ‘culminated’/‘complete’ P-events
- b. Reading (22) wouldn’t require P to be a telic event-predicate (thanks to the carefully constructed notion of *situation* culmination)
- c. Given the Hypothesis in (18d), sentences with (22) would indeed advance the topic time of the narrative.

#### 4. Further Cross Linguistic Variation

The system proposed above would definitely predict that not every language will exhibit every attested meaning for IMPRV...

It also predicts that some languages could *lexically distinguish* these meanings...

Arregui *et al.* claim that Mebengokre is such a language.

##### (24) IMPRV Operators in Mebengokre

- a. [[ ma ]] = Event in Preparation Reading (14)
- b. [[ dja ]] = Event in Progress Reading (7)

##### (25) A Key, Striking Feature of their Semantics for IMPRV

- There is no condition whatsoever that the TT be contained in the ET
- In fact, their semantics for the following readings actually rely on the *opposite* arrangement (i.e., the P-event/state is placed in the topic situation)
  - Ongoing reading
  - Generic reading
  - Narrative imperfective
- They claim explicitly that this is the *right* move...
  - Research on the semantics of IMPRV may well have become stymied by too strict an adherence to the ‘Reichenbachian/Kleinian’ hypothesis...
  - There clearly are cases where IMPRV gets a meaning that goes directly against the grain of the R/K hypothesis:
    - Slavic factual imperfectives
    - Romance narrative imperfectives
  - They claim that these cases aren’t bizarre aberrations, but are telling us something important about the semantics of IMPRV
    - i.e., that the R/K semantics makes too strong a leap from the ‘canonical’ meanings of the imperfective...