A typology of modal, aspectual operators

Modality as a window to cognition

ICL 19, Geneva

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Russian suffix -yva

Progressive interpretation with the suffix *-yva*

(1) *O, bud'te uvereny, čto Kolumb by-l sčastliv ne togda*
      O   rest   assured that Columbus be.PST happy   not then

   kogda otkry-l   Ameriku,   a   kogda otrkr-yva-l   ee.
   when open-PST America   but   when   **open-*yva*-PST**   it

'Oh, rest assured that Columbus was happy not when he discovered America, but while he was discovering it' (Dostoevskij, *Idiot*; quoted by Vinogradov 1972 and cited in Rassudova 1984, 15).

RUSSIAN SUFFIX -YVA

Completive interpretation with –*yva*

(2)   *Da,* *ja*   *otrkr-yva-l*   *okno.*
        Yes   I   **open-yva-PST** window
        'Yes, I (have) opened the window.'
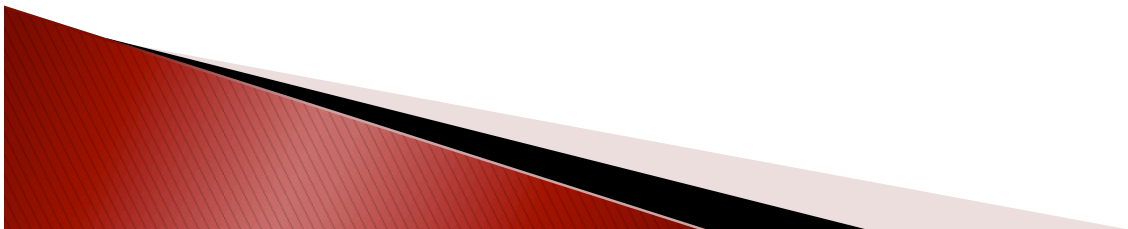
HINDI SUFFIX -YAA

Completive interpretation with –*yaa*
- ◦ Singh 1991, 1998; Arunachalam & Kothari 2010

(3) *maayaa-ne*   *biskuT-ko*   *khaa-yaa*
     Maya-ERG cookie-ACC **eat-*yaa***
     'Maya ate the cookie (in its entirety)'

HINDI SUFFIX -YAA

Completive and non-completive interpretation with –*yaa*

- Singh 1991, 1998; Arunachalam & Kothari 2010

(3) *maayaa-ne   biskuT-ko   khaa-yaa*
    Maya-ERG cookie-ACC **eat-***yaa*
    'Maya ate the cookie (in its entirety)'

(4)   *maayaa-ne   biskuT-ko   khaa-yaa*
      Maya-ERG   cookie-ACC   **eat-***yaa*
      par   use   puuraa nahiin khaa-yaa
      but   it-ACC finish   not   eat-*yaa*
      'Maya was eating the cookie but not completely.'

ACHIEVEMENTS

Completive inference is an entailment with achievements.

(5) *mere pitaa-jii hamaare ghar aa-ye*
  my father our house **come-ye**
  'My father came to our house.

  #*lekin hamaaraa ghar nahiiN DhoonD sake*
  but our house not find could
   but was unable to find our house' (Rajesh Bhatt, p.c.)

- Many other examples of achievements in Singh 1998
- e.g. *res jiitii* ('win the race'); *pyaalaa to*R ('break a cup')

THE PUZZLE

▸ Completive/non-completive readings
▸ Sensitive to achievement/non-achievement distinction

▸ *-yva* (Russian): 'imperfective' according to all grammarians
▸ *-yaa* (Hindi): 'perfective' according to all grammarians

"…there is no such thing as the meaning of the [Russian] imperfective; this 'aspect' is really a non-aspect" (Paslawska & von Stechow 2003: 336).

CARLOTA SMITH'S PROPOSAL

▶ <u>Hypothesis</u>: In addition to the traditional distinction between the perfective and the imperfective—there is an aspectual class called *neutral aspect*.

▶ Neutral aspect has a meaning that generalizes across (at least) the perfective and the imperfective and for whatever reason is sensitive to the achievement/non-achievement distinction.

▶ Some version of this idea has played a vital role in many analyses:

  ◦ e.g. Schilder 1995; 1997, Iatridou *et al.* 2001, Giorgi & Pianesi 2001, Pancheva 2003, Deo 2006: 104, Chi-Fung 2006: 24, Chen 2008, Boneh & Doron 2008, Dahl 2010: §1.2, Travis 2010; see Csirmaz 2004 for more discussion
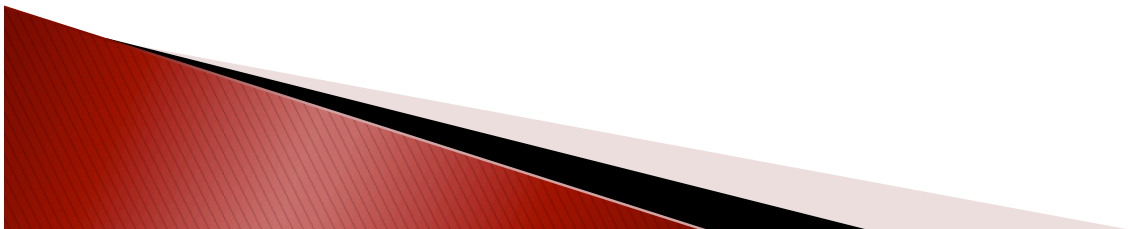
PERFECTIVE ASPECT

(16a) Yesterday afternoon, John built a tree house in my backyard.

The perfective aspect portrays a situation: "from [the] outside" (Comrie 1976, 4).

PERFECTIVE: $\lambda P \lambda t \exists e[\tau(e) \subseteq t \wedge P(e)]$
(e.g. Klein 1994, Kratzer 1998, Katz 2003, Paslawska & von Stechow 2003, Gerö & von Stechow 2003, Bary 2009)
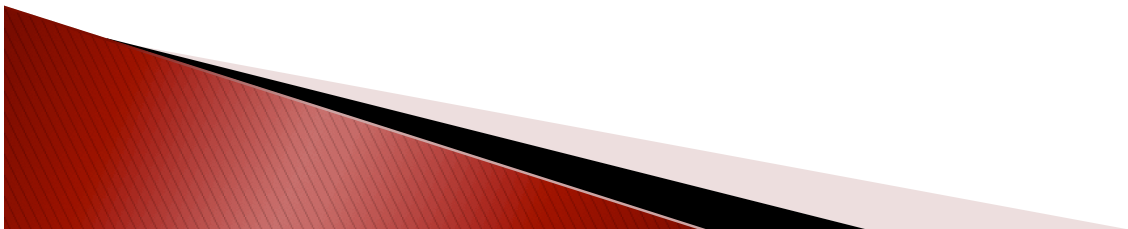
IMPERFECTIVE ASPECT

(16b) Yesterday afternoon, John was building a tree house in my
      backyard.

The imperfective aspect portrays a situation: "from [the] inside" (Comrie 1976, 4).

IMPERFECTIVE: $\lambda P \lambda t \exists e[t \subseteq \tau(e) \wedge P(e)]$
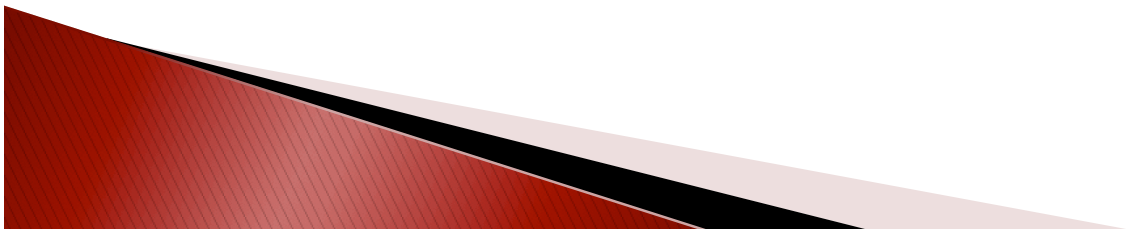(e.g. Klein 1994, Kratzer 1998, Katz 2003, Paslawska & von Stechow 2003, Gerö & von Stechow 2003, Bary 2009)

Neutral Aspect

Hypothesis

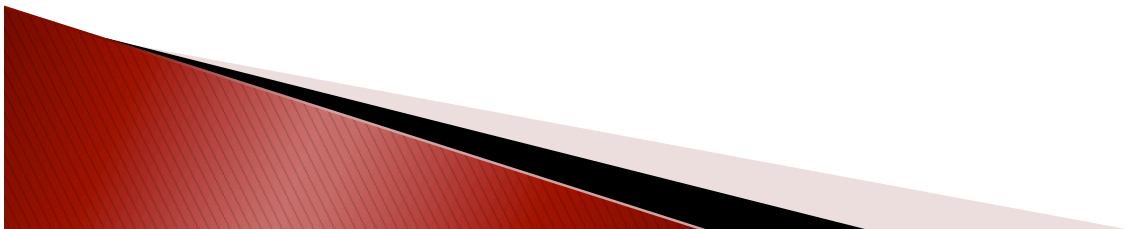The neutral aspect is neutral with respect to whether a situation is presented from the inside or outside

NEUTRAL: $\lambda P \lambda t \exists e[t \bigcirc \tau(e) \wedge P(e)]$

(e.g. Smith 1994, Klein 1995, Grønn 2003)

QUANTIFICATION OVER EVENTS

- IMPERFECTIVE: $\lambda P \lambda t \exists e[t \subseteq \tau(e) \wedge P(e)]$
- NEUTRAL: $\lambda P \lambda t \exists e[\tau(e) \bigcirc t \wedge P(e)]$

QUANTIFICATION OVER EVENTS

‣ IMPERFECTIVE: $\lambda P \lambda t \exists e[t \subseteq \tau(e) \wedge P(e)]$

‣ NEUTRAL: $\lambda P \lambda t \exists e[\tau(e) \bigcirc t \wedge P(e)]$

"To implement this modal element, one could replace the imperfective condition $e \bigcirc t$ with a disjunction $t \subseteq e \vee e \subseteq t$. The modality could then be smuggled into the first disjunct' (Grønn 2003, 58)."

RESEARCH PROGRAM

▶ Get the modality right: what does it mean to be an event-*part?*

  ◦ Distinguish two ways that an event <u>terminates relative to a particular description</u> (cf. Krifka 1989):

  1. An event that *culminated*
  2. An event that *ceased to develop further*

▶ Get the discourse properties right: how is the described event-*part* related to the reference time.
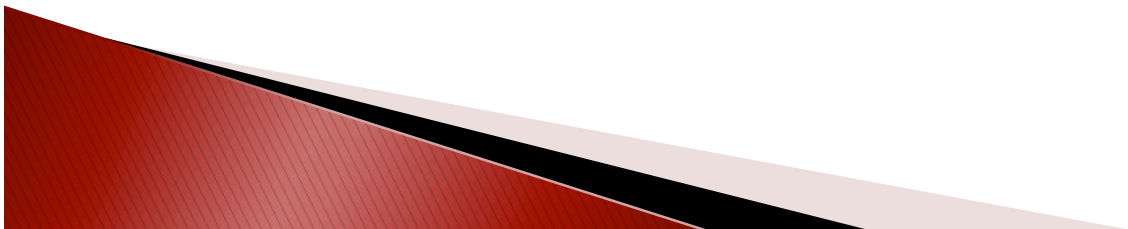
  • Cf. Altshuler 2012, forthcoming

CLAIMS OF THE TALK

▸ There are perfective and imperfective forms that describe an event's culmination; this depends on whether they require *proper event stages* in the extension of the VP that they combine with.

▸ Telicity is independent of *(im)perfectivity*
  ◦ c.f. Verkuyl 1993, Depreaetere 1995, Klein 1995, Borik 2006, Borik & Reinhart 2004.

▸ The possibility of a form being telic has consequences for available coercion strategies with a particular aspectual form.
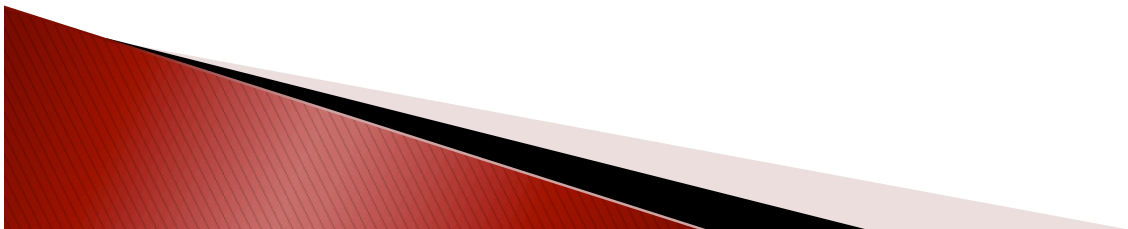
CLAIMS OF THE TALK
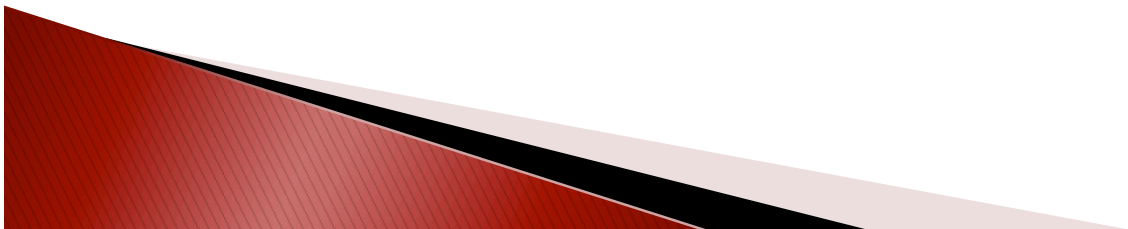
- <u>Hypothesis about (im)perfectivity</u>
  - A form is *perfective* if it requires a *maximal stage* of an event in the extension of the VP that it combines with.
  - A form is *imperfective* if it requires *a stage* of an event in the extension of the VP that it combines with, but this stage need NOT be maximal.

- Cf. Filip 2000, 2004, 2008; Filip & Rothstein 2005

LANDMAN 1992

‣ Events can be ordered by a 'part-of' relation and a 'stage-of' relation.

‣ To be a stage s of an event e, s has to be big enough part of e and share enough with e so that we can call s a less developed version of e (Landman 1992: 23; see also Landman 2007).

‣ PROG is a function from a set of events E to a set of stages of events in E.

‣ A progressive sentence is true if a stage of an event in E develops into an event in E according to a particular recipe.

EXPLAINING CULMINATION ENTAILMENT IN RUSSIAN AND HINDI

(a) Achievement VPs denote a set of events with no proper parts; non-achievement VPs denote a set of events with proper parts.

(b) Russian and Hindi have operators, IPF_{RUSS} and PFV_{HINDI} which combine with VP meanings and return a set of VP-event stages
   - Cf. Filip 1993/1999; Kagan 2007 for Russian IPF
   - Cf. Singh 1998 for Hindi PFV

(c) When combining with achievement VP, IPF_{RUSS} and PFV_{HINDI} lead to a culmination entailment because the only event-stage that could satisfy its truth-conditions is the VP-event.

A Landman-Type-Analysis

(7) $\text{IPF}_{\text{RUSS}}/\text{PFV}_{\text{HINDI}} \rightsquigarrow$
     $\lambda P \lambda e' \exists e \exists w [\text{STAGE}^*(e', e, w^*, w, P)]$

$[[\text{STAGE}^*(e', e, w^*, w, P)]]^{\mathcal{M}, g} = 1$ iff (i)-(iv) holds:
    (i) the history of g(w) is the same as the history of
        g(w^*) up to and including τ (g(e'))
    (ii) g(w) is a reasonable option for g(e') in g(w^*)
    (iii) $[[P]]^{\mathcal{M}, g}(e, w) = 1$
    (iv) $\textcolor{red}{g(e') \sqsubseteq g(e)}$

DIFFERENCE BETWEEN PROG, IPF_{RUSS} AND PFV_{HINDI}

PROG does not give rise to the culmination entailment with achievement VPs; PROG of an achievement VP leads to coercion (Moens & Steedman 1988; de Swart 1998; 2000, Rothstein 2004).

- *John was arriving,* does not entail that John arrived

How do we account for the difference between IPF$_{RUSS}$ and PFV$_{SV}$ on the one hand, and PROG on the other?
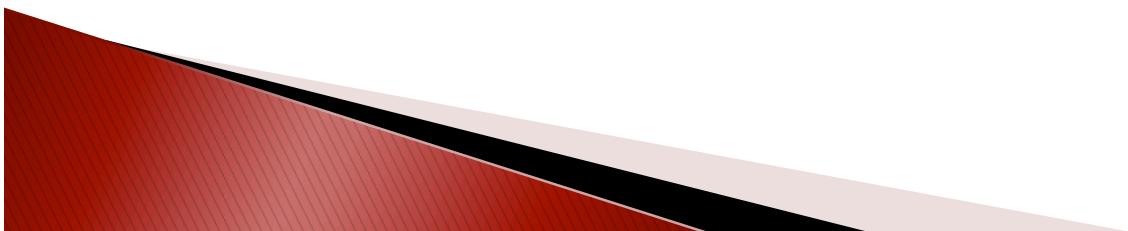
COERCION WITH PROG

(a)   Achievement VPs denote a set of events with no proper parts; Non-achievement VPs denote a set of events with proper parts.

(b)   English has an operator, PROG, which combines with VP meanings and returns a set of VP-event stages.

(c)   When PROG combines with an achievement VP, there is coercion because the truth-conditions of PROG **require proper VP-event-stages**.

- e.g. insertion of a coercion operator in the sense of de Swart 1998; 2000
- or a type shifting rule viz. Rothstein 2004

A Landman-Type-Analysis

(8) PROG ⤳

  $\lambda P \lambda e' \exists e \exists w [\text{STAGE}(e', e, w^*, w, P)]$

  $[[\text{STAGE}(e', e, w^*, w, P)]]^{\mathcal{M}, g} = 1$ iff (i)-(iv) holds:
   (i) the history of g(w) is the same as the history of
      g(w^*) up to and including τ (g(e'))
   (ii) g(w) is a reasonable option for g(e') in g(w^*)
   (iii) $[[P]]^{\mathcal{M}, g}(e, w) = 1$
   (iv) g(e') ⊏ g(e)

QUESTIONS

Question 1: What the difference between IPF_{RUSS} and PFV_{SV}?

Question 2: How do we account for the cancelable culmination inference often associated with IPF_{RUSS} and PFV_{SV}?

Question 3: How does the described event relate to to the time provided by the tense?

A TELLING CONTRAST

(9)   *Ja e-l*   *tort*
        I eat.IPF-PST.1S cake

        no   ego ne   s'-e-l
        but it   not PFV-eat-PST.1S
        'I ate cake, but did not finish it.'

(10)   *Ja e-l*   *tort*
        I eat.IPF-PST.1S cake

        i   sejčas prodolžaju ego est'.
        and now continue   it eat.INF
   'I was eating the cake and I am currently still eating it.'

A TELLING CONTRAST

(11)   *maayaa-ne   biskuT-ko   khaa-yaa*

Maya-ERG cookie-ACC eat-PFV

par use   puuraa nahiin khaa-yaa

but it-ACC finish   not   eat-PFV

'Maya ate the cookie, but did not finish it' (Arunachalam &
Kothari 2010: 1).

(12)   #*maayaa-ne   biskuT-ko   khaa-yaa*

Maya-ERG cookie-ACC eat-PFV

aur   use ab-tak khaa rahii   hai

and it   still   eat   PROG be.PRS

Intended: 'Maya was eating the cookie, and is still eating it'
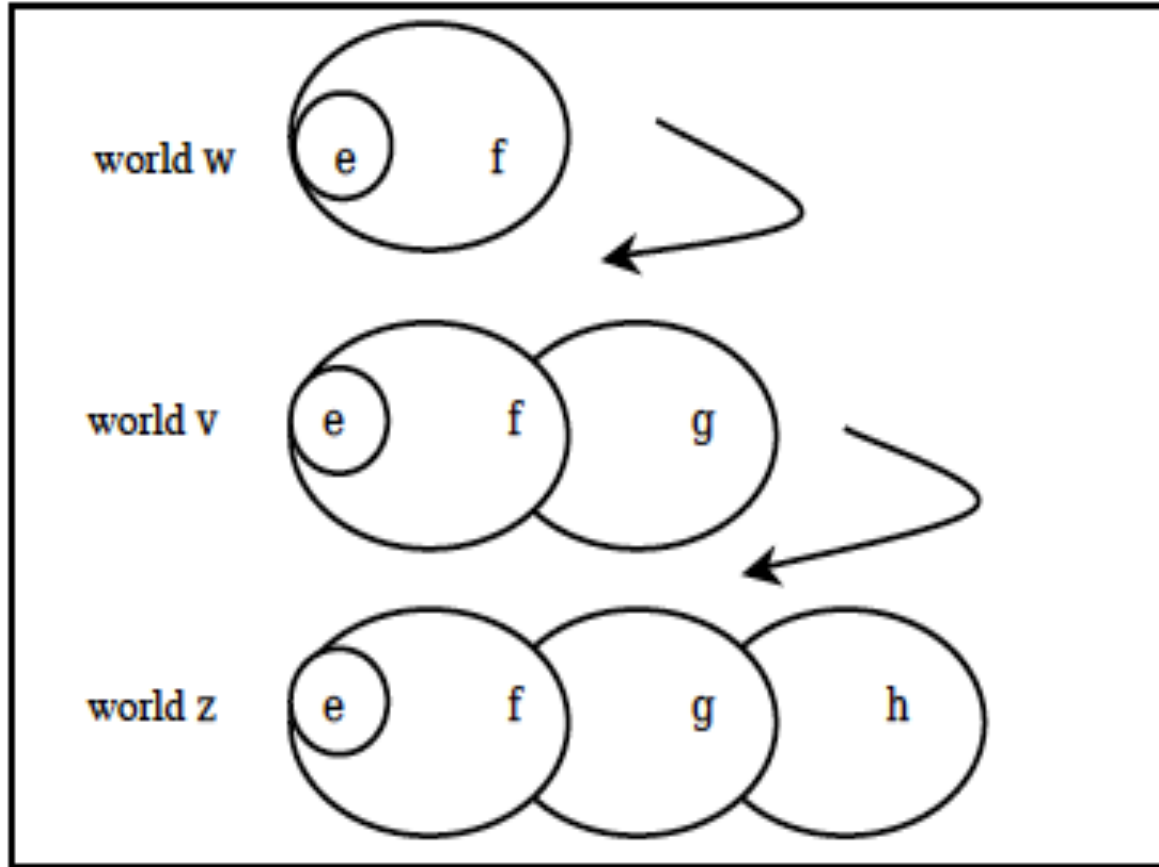
PERFECTIVITY AS REQUIRING A MAXIMAL EVENT STAGE

Hypothesis

Perfective operators require maximal events stages

- ▸ Cf. Filip 2000, 2004, 2008; Filip & Rothstein 2005
- ▸ Cf. Koenig & Muansuwan's (2000) analysis of Thai perfective
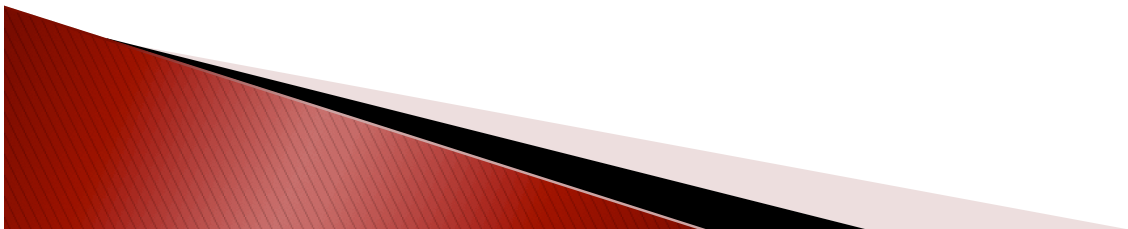
Maximal Stage Requirement

Given an event f that was instantiated in the world of evaluation w and which warrants the assertion by a perfective sentence S, there is no event in w that is a more developed version of f that fits the description provided by S

If g or h were instantiated in w, then S would be false because g and h are more developed than f

This means that S is true if either f culminated or ceased to develop in w

EXTENDING THE ANALYSIS

(13) $\text{PFV}_{\text{HINDI}} \rightsquigarrow \lambda P \lambda e' \exists e \exists w [\text{MAXSTAGE}(e', e, w^*, w, P)]$

$[[\text{MAXSTAGE}(e', e, w^*, w, P)]]^{\mathcal{M}, g} = 1$ iff (i)-(v) holds:

(i) the history of $g(w)$ is the same as the history of $g(w^*)$ up to and including $\tau(g(e'))$

(ii) $g(w)$ is a reasonable option for $g(e')$ in $g(w^*)$

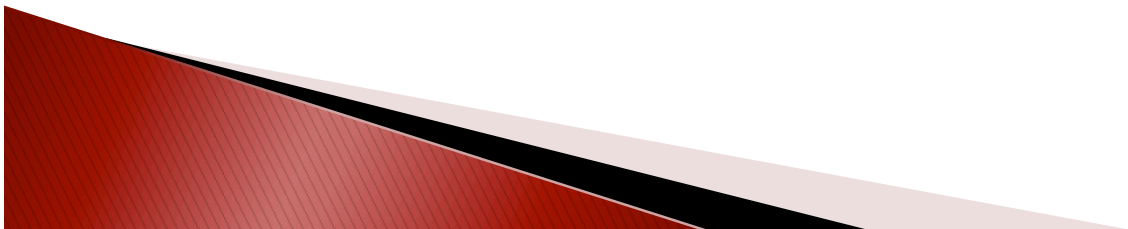(iii $[[P]]^{\mathcal{M}, g}(e, w) = 1$

(iv) $g(e') \sqsubseteq g(e)$

(v) $\forall e''[(g(e') \sqsubset e'' \wedge e'' \sqsubseteq g(e)) \rightarrow [[P]]^{\mathcal{M}, g}(e'', w^*) = 0]$ (Maximal Stage Requirement)

PERFECTIVITY

A form is *perfective* if it satisfies the Maximal Stage requirement

PFV in Russian

(14) *Maja poguljala   v parke desjat' minut.*
        Maya **PFV.walked** in park   ten   minutes
        'Maya walked in the park for ten minutes.'

(15)   *Maja s'ela   tort (#no ne do   konca).*
        Maya **PFV.ate**   cake but not until end
        'Maya ate up the cake (#but not completely).'

▸ Both (14) and (15) satisfy the Maximal Stage requirement because they deny any further development relative to an event description.

▸ VP in (17) is cumulative; (18) entails an event's culmination

(IM)PERFECTIVITY

- Hypothesis about (im)perfectivity
  - A form is *perfective* if it requires a *maximal stage* of an event in the extension of the VP that it combines with.
  - A form is *imperfective* if it requires *a stage* of an event in the extension of the VP that it combines with, but this stage need NOT be maximal.
- No need for neutral aspect
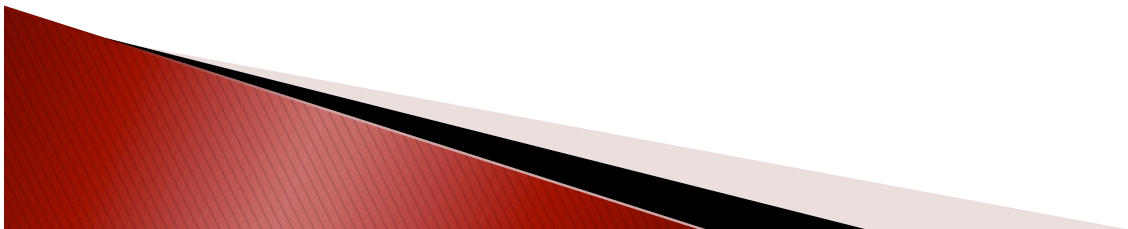
SUMMARY

Partitive OP	Proper stage?	Maximal stage?
PFV$_{\text{HINDI}}$	NO	YES
IPF$_{\text{RUSS}}$	NO	NO
PROG	YES	NO
???	YES	YES

- cf. 'to stop arriving'

ADDING HABITUALITY

Partitive OP	Proper stage?	Singular events?	Maximal stage?
^{SV}PFV	No	Yes	Yes
^{RUSS}IPF	No	No	No
PROG	Yes	Yes	No
^{French}IPF	Yes	No	No
???	Yes	Yes	Yes
???	No	No	Yes
???	No	Yes	No
???	Yes	No	Yes

ONGOING RESEARCH

- Cross linguistic work on the semantics of the perfective and imperfective

- Extending the analysis to incorporate discourse semantics ("relating an event stage to a topical time")

- Capturing temporal implicatures generated by the Russian imperfective and partitive perfective operators.