

TELIC 2017 - Slides and Handouts

Workshop on Non-culminating, Irresultative and Atelic Readings of Telic Predicates. Combining Theoretical and Experimental Perspectives

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(Non)culmination by abduction

Daniel Altshuler (Hampshire College/UMass), joint work with
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TELIC 2017

Non-culminating accomplishments with PFV_H

(1) Hindi data from Singh (1991)

- a. maĩne aaj apnaa kek khaayaa
I.ERG today mine cake eat.PFV_H
'I ate my cake today'
- b. aur baakii kal khaũũgaa
and remaining tomorrow eat.FUT
'and will eat the remaining part tomorrow.'

Non-culminating accomplishments with PFV_H and IPF_R

(1) Hindi data from Singh (1991)

- a. maĩne aaj apnaa kek khaayaa
I.ERG today mine cake eat.PFV_H
'I ate my cake today'
- b. aur baakii kal khaũũgaa
and remaining tomorrow eat.FUT
'and will eat the remaining part tomorrow.'

(2) Russian data from Padučeva (1996)

- a. Ty čital "Kapitanskiju dočky"?'
'You read.PST.IPF_R Captain's daughter
'Have you read *The Captain's Daughter*?'
- b. Da, xotja ne do konca.
Yes even.though not until end
'Yes, though not until the end.'

Two key questions

1. Where are the truth-conditions for PFV_H and IPF_R such that these operators:
 - ▶ don't trigger a culmination entailment
 - ▶ are consistent with perfective and imperfective operators in other languages (including operators which trigger a culmination entailment)

Two key questions

1. Where are the truth-conditions for PFV_H and IPF_R such that these operators:
 - ▶ don't trigger a culmination entailment
 - ▶ are consistent with perfective and imperfective operators in other languages (including operators which trigger a culmination entailment)
2. How does the culmination implicature come about? That is, how exactly are PFV_H and IPF_R involved in the computation of the implicature?

Roadmap

- ▶ Overview of previous attempts to explain how the culmination implicature comes about.

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- ▶ Propose an abduction framework that explains how the culmination implicature comes about with PFV_H and IPF_R .

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- ▶ Overview of previous attempts to explain how the culmination implicature comes about.
- ▶ Propose an abduction framework that explains how the culmination implicature comes about with PFV_H and IPF_R .
- ▶ Provide a hypothesis for how the proposed analysis could be extended to account for data such as (3):

- (3)
- a. They offered me a position at their bank, but I turned it down.
 - b. Living in a large city offered Rebecca a number of advantages, #but she refused them. (Piñón 2014)

Bar-El et al. 2005

- ▶ Adopts a Dowty (1979)-style analysis of perfective forms in two Salish languages.
- ▶ Proposes that the “implicature of culmination arises [with perfective forms] because in all inertia worlds, the event culminates. In the absence of other information, the hearer assumes that the ‘normal’ course of events (culmination) takes place.”
- ▶ A culmination implicature is absent in the case of the English progressive — which has the same inertia-worlds analysis — due to the presence “of a contrasting perfective form which *entails* culmination.”

How to extend to PFV_H and IPF_R?

Bar-El et al.'s (2005) line of reasoning would come up against a problem in the case of PFV_H and IPF_R, both of which have a contrasting perfective form that entails completion.

- (4) a. maĩne aaj apnaa kek khaa li-yaa
I.ERG today mine cake eat take-PFV
'I ate my cake today'
- b. #aur baakii kal khaũũgaa
and remaining tomorrow eat.FUT
'and I will eat the remaining part tomorrow.'
- (5) a. Ty pročital "Kapitanskuju dočky"?'
You PFV.read.PST Captain's daughter
'Have you read *The Captain's Daughter*?'
- b. #Da, xotja ne do konca.
Yes even.though not until end
'Yes, though not until the end.'

Pederson 2008

- ▶ Simple forms in Tamil start out with a culmination entailment, which is weakened as a result of the pronounced availability of an alternative form asserting event realization.
- ▶ English has a number of devices signaling lack of event realization, so there is no comparable reduction of the culmination entailment in simple forms.

A different way of thinking

- ▶ Pederson's analysis is in opposition to many other analyses of non-culminating construals (e.g., Smith 1991; Koenig and Muansuwan 2000; Bar-El et al. 2005; Altshuler 2014), since it assumes for them a semantics that excludes a non-culminating interpretation.

How to extend to PFV_H and IPF_R ?

- ▶ We cannot use it to explain the case of IPF_R , which is an imperfective form and does not exclude non-culmination (indeed, most regard non-culmination a primary interpretation of IPF_R ; see Glovinskaja 1982, 2001, Padučeva 1995, 1996, Grønn 2003 and references therein for discussion.)

Arunachalam and Kothari 2010

- ▶ With respect to PFV_H , Arunachalam and Kothari (2010, p. 18) argue that “[b]ecause full completion (telic) interpretations entail partial completion interpretations, the full completion interpretation is stronger, and therefore speakers may prefer it”.

Need more info

- ▶ What semantics should we assume for the different aspectual operators in different languages, and how does this semantics interact with the suggested pragmatic principle?

Grønn 2007, 2008

- ▶ A culmination implicature is most pronounced in the case of IPF_R exactly when the use of the corresponding PFV_R is excluded for some reason.
- ▶ Develops a bidirectional OT analysis in which the two aspects in Russian “compete” based on various factors.

Unresolved question

- ▶ Fails to explain the fact that the exclusion of PFV_R is not necessary for the culmination inference from IPF_R (Grønn 2008, p. 132–3; see also Altshuler 2014 for discussion.).

Interim summary

In agreement:

- ▶ The defeasible culmination inference has, at its roots, a pragmatic explanation
- ▶ Competing forms play a role in the availability and strength of this inference

What we need:

- ▶ A framework that can incorporate all the insights from previous research on the defeasible culmination inference in a great variety of languages.

Abduction

We propose to exploit *abduction*, i.e., the inference to the best explanation, which is (contrary to deductive reasoning) defeasible.

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- ▶ Abductive reasoning, suggested first by Charles Sanders Peirce, has come to be widely employed in AI (cf., e.g., Hobbs et al. 1993; for an overview, see, e.g., Josephson and Josephson 1996 or McIlraith 1998), and it is also abundantly used in everyday reasoning (cf. Douven, 2011).

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- ▶ Has not yet been exploited much in formal semantics and pragmatics; see Piñón 2009, 2011, Varasdi 2010, 2014 and Gyarmathy 2015 for notable exceptions.

Role of conditionals in abductive reasoning

- ▶ Suppose that we observe that the street is wet and that we know that if it has been raining, then the street would be wet.

Role of conditionals in abductive reasoning

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- ▶ We then infer (abduce!) that it has been raining, as it is a good explanation of our observation that the street is wet.

Role of conditionals in abductive reasoning

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- ▶ We then infer (abduce!) that it has been raining, as it is a good explanation of our observation that the street is wet.
- ▶ Abductive inferences often involve inference to the antecedent of a conditional on observing the consequent:
 - ▶ if we observe q , and our theory tells us that $p \rightarrow q$, then we abduce p , because together with the theory, this entails what we observe, and is definitely at least among the simplest explanations.

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 - ▶ if we observe q , and our theory tells us that $p \rightarrow q$, then we abduce p , because together with the theory, this entails what we observe, and is definitely at least among the simplest explanations.
- ▶ Since an inference to the antecedent from the consequent is not deductively valid, this type of inference is defeasible.

Constraints on abduction

- ▶ Abduction involves:
 - : something that is observed and is to be explained,
 - T: a theory which is the conjunction of the set of non-defeasible rules of reasoning, and
 - E: the explanation abduced on the basis of ○ and T.
- ▶ T and E together entail ○, but neither T, nor E do so alone.

Criteria for best explanation

Reasons to regard explanation E_1 as *better* than E_2 generally include the following (in order of importance; see McIlraith 1998 and Hobbs 2004):

- ▶ E_1 is *simpler*, which in our case means ontologically more parsimonious.
- ▶ E_1 is *logically stronger* or at least *more specific/presumptive*.
- ▶ E_1 explains more observed facts.
- ▶ E_1 is more probable.

Working through an example

1. **Observation:** street_wet

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2. **Theory:**
 - 2.1 rain \rightarrow street_wet
 - 2.2 watercart \rightarrow street_wet

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 - 3.1 rain
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Working through an example

1. **Observation:** street_wet
2. **Theory:**
 - 2.1 rain \rightarrow street_wet
 - 2.2 watercart \rightarrow street_wet
3. **Explanation:**
 - 3.1 rain
 - 3.2 watercart

- ▶ Both rain and watercart are suitable **explanations** for street_wet, since both entail it together with the **theory**.
- ▶ In absence of any further criteria, there is no way to decide between rain and watercart as the *best* **explanation**.
- ▶ We infer: rain \vee watercart.

Further criteria

- ▶ Neither rain, nor watercart appears simpler than the other, and neither one is stronger than the other.
- ▶ However, if the street is in an area where it tends to rain several times a week, while a watercart only comes by once every month, then rain is much more probable than watercart, and is thus a better **explanation** in this respect.

Explaining the culmination inference of non-culminating forms via abduction

First step: There is a core semantic analysis encoding the asserted content, which provides us with the **observation** on hearing an assertion. So our **observation** on hearing an assertion of p is its logical form.

Perfective versus imperfective

PFV_H is distinguished from IPF_R via a requirement for *maximal* events with respect to an event predicate P , building on work by Filip (1999), Koenig and Muansuwan (2000), Bohnemeyer and Swift (2004) and Altshuler (2014).

- ▶ viz. the difference between *maximal* and *culminated events* with respect to P .
- ▶ Perfective operators in the world's languages encode maximality; lack of maximality, but partiality for the imperfective operators (Filip (2008), Altshuler (2014)).

Imperfective forms

We build on Filip 1999 and endorse a distinction between imperfective forms which describe *parts* and those that describe *proper parts* of (possible) events belonging to the relevant predicate.

- ▶ PROG is true of proper parts of (possible) events, while IPF_R is true of (not necessarily proper) parts.
- ▶ As such, the IPF_R , but not PROG, is compatible with both culminating and non-culminating construals.

Explaining the culmination inference of non-culminating forms via abduction

1. First step: There is a core semantic analysis encoding the asserted content, which provides us with the observation on hearing an assertion. So our observation on hearing an assertion of p is its logical form.
2. **Second step:** General principles of mereology and mereological principles relating to predicates, which provides us with the **theory** of our abductive framework.
 - ▶ These are in a conditional form, and some of them will include the relevant observation as its consequent.

On deck...

Overview of abbreviations used to describe the [theory](#) of our abductive framework

Abbreviations (Part 1): *Actualist* and *possibilist* quantifiers over events (see, e.g. Prior and Fine 1977)

- (6) $\exists_{@}e(P(e))$ stands for “there is an actual P -event” and is true at the world of evaluation w_0 just in case there is an event in w_0 which belongs to the denotation of P at w_0 .
- (7) $\forall_{@}e(P(e))$ stands for “all actual events are P -events” and is true at the world of evaluation w_0 just in case all events in w_0 belong to the denotation of P at w_0 .

Abbreviations (Part 1): *Actualist* and *possibilist* quantifiers over events (see, e.g. Prior and Fine 1977)

- (8) $\exists_{\diamond} e(P(e))$ stands for “there is a possible P -event” and is true at the world of evaluation w_0 just in case there is an event in some possible world w which belongs to the denotation of P at w .
- (9) $\forall_{\diamond} e(P(e))$ stands for “all possible events are P -events” and is true at the world of evaluation w_0 just in case $\neg\exists_{\diamond} e\neg(P(e))$ is true at w_0 , that is, just in case at all possible worlds w , all events belong to the denotation of P at w .

Abbreviations (Part 2): Non-defeasible mereological principles

- (10) $\text{Max}(P)(e)$ stands for “ e is a maximal actual part of a possible P -event”. That is, $\text{Max}(P)(e)$ iff $\exists_{\diamond} e' [e \sqsubseteq e' \wedge P(e')] \wedge \neg \exists_{\textcircled{a}} e'' [e \sqsubset e'' \wedge \exists_{\diamond} e' (e'' \sqsubseteq e' \wedge P(e'))]$.
- (11) $\text{PrPart}(P)(e)$ stands for “ e is an actual proper part of a possible P -event”. That is, $\text{PrPart}(P)(e)$ iff $\exists_{\diamond} e' (e \sqsubset e' \wedge P(e'))$.
- (12) $\text{Part}(P)(e)$ stands for “ e is an actual (not necessarily proper) part of a possible P -event”. That is, $\text{Part}(P)(e)$ iff $\exists_{\diamond} e' (e \sqsubseteq e' \wedge P(e'))$.

On deck...

Theory of our abductive framewrk

Partial events

$$(13) \quad \exists_{@} e (\text{PrPart}(P)(e)) \rightarrow \exists_{@} e (\text{Part}(P)(e))$$

- ▶ The part-of relation is a superset of the proper part-of relation.
- ▶ Hence, if the antecedent of (13) is true, then so is the consequent.

Culminated events and partial events

$$(14) \quad \exists @e(P(e)) \rightarrow \exists @e(\text{Part}(P)(e))$$

- ▶ The part-of relation is reflexive: all events that have culminated are parts of themselves.
- ▶ Hence, if the antecedent of (14) is true, then so is the consequent.

Partial events and maximal events

$$(15) \quad \exists_{@e}(\text{PrPart}(P)(e)) \rightarrow \exists_{@e}(\text{Max}(P)(e))$$

- ▶ The set of events are ordered by the part-of relation and form a join semi-lattice (Krifka 1992)
- ▶ If we take the join of all the actual proper parts of a possible P-event, that join will be the maximal part of that possible P-event.
- ▶ Hence, if the antecedent in (13) is true, then so is the consequent.

Culminated events and maximal events

$$(16) \quad \exists_{@e}(P(e)) \rightarrow \exists_{@e}(\text{Max}(P)(e))$$

- ▶ (16) holds for a telic predicate P , because all events that have culminated are necessarily maximal parts, as an event cannot develop (as a P -event) beyond its culmination.
- ▶ (16) holds for an atelic predicate P because the join of a set of P -events in a given situation is the maximal event (and part) in that situation (Filip 2008).
- ▶ in the case of telic predicates P , the ordered event parts are not of the same kind; in the case of atelic predicates P , they are (down to some granularity).

More on telic predicates

These principles encode the idea that accomplishments, but not achievements, describe temporally extended events, i.e., have proper parts (Vendler 1957, Dowty 1979 and Krifka 1989, 1992)

$$\text{Accomplishment}(P) \rightarrow \forall @e (P(e) \rightarrow \exists @e' (e' \sqsubset e)) \quad (1a)$$

$$\text{Achievement}(P) \rightarrow \forall @e (P(e) \rightarrow \neg \exists @e' (e' \sqsubset e)) \quad (1b)$$

On deck...

Abducing the culmination inference with PV_H

Abduction and the culmination inference with PFV_H

Assume an assertion of a sentence with a predicate P in the PFV_H

1. **Observation:**

$$\exists_{@e}(\text{Max}(P)(e)) \quad (O_H)$$

2. **Theory:**

$$\exists_{@e}(P(e)) \rightarrow \exists_{@e}(\text{Max}(P)(e)) \quad (T_H)$$

3. **Explanation:**

$$\exists_{@e}(P(e)) \quad (E_H)$$

- ▶ (O_H) asserts the occurrence of a maximal part of a possible P -event.
- ▶ (T_H) encodes the non-defeasible inference from a complete (realized) event to a maximal part (viz. (16))
- ▶ Based on our theory, the occurrence of a complete event is a possible explanation of the observation.

Remaining task

- ▶ Abduction is the inference to the *best explanation*, which means that it does not preclude the existence of alternative *explanations*.
 - ▶ Recall that this is exactly what guarantees the non-monotonicity of this reasoning process

Remaining task

- ▶ In order to derive the culmination inference for PFV_H , we must therefore show why the existence of a complete P event is the best **explanation** for the existence of a maximal part of a possible P -event.
 - ▶ Recall that simplicity, strength and coverage are often used as criteria in selecting best **explanations**.

Alternative explanation

1. **Observation:**

$$\exists_{@e}(\text{Max}(P)(e)) \quad (O_H)$$

2. **Theory:**

$$\exists_{@e}(\text{PrPart}(P)(e)) \rightarrow \exists_{@e}(\text{Max}(P)(e)) \quad (T_{H\Box})$$

3. **Explanation:**

$$\exists_{@e}(\text{PrPart}(P)(e)) \quad (E_{H\Box})$$

- ▶ While the rule in $(T_{H\Box})$ can be applied for accomplishments, it is *vacuously* true (and hence of no explanatory value) in the case of achievements, which have no proper parts (viz. (1b)).
- ▶ Thus, $(E_{H\Box})$ cannot be abduced in the case of achievements, so it has a worse coverage than (E_H) .

On deck...

Abducing the culmination inference with IPF_R

Abduction and the culmination inference with IPF_R

Assume an assertion of a sentence with a predicate P in the IPF_R

1. **Observation:**

$$\exists_{\theta} e(\text{Part}(P)(e)) \quad (O_R)$$

2. **Theory:**

$$\exists_{\theta} e(P(e)) \rightarrow \exists_{\theta} e(\text{Part}(P)(e)) \quad (T_R)$$

$$\exists_{\theta} e(\text{PrPart}(P)(e)) \rightarrow \exists_{\theta} e(\text{Part}(P)(e)) \quad (T_{R\sqsubset})$$

3. **Explanation:**

$$\exists_{\theta} e(P(e)) \quad (E_R)$$

$$\exists_{\theta} e(\text{PrPart}(P)(e)) \quad (E_{R\sqsubset})$$

Abduction and the culmination inference with IPF_R

1. Observation:

$$\exists_{\textcircled{0}} e(\text{Part}(P)(e)) \quad (O_R)$$

2. Theory:

$$\exists_{\textcircled{0}} e(P(e)) \rightarrow \exists_{\textcircled{0}} e(\text{Part}(P)(e)) \quad (T_R)$$

$$\exists_{\textcircled{0}} e(\text{PrPart}(P)(e)) \rightarrow \exists_{\textcircled{0}} e(\text{Part}(P)(e)) \quad (T_{R\sqsubset})$$

3. Explanation:

$$\exists_{\textcircled{0}} e(P(e)) \quad (E_R)$$

$$\exists_{\textcircled{0}} e(\text{PrPart}(P)(e)) \quad (E_{R\sqsubset})$$

Analogous to PFV_H , there are reasons to favor (E_R) to $(E_{R\sqsubset})$:

- ▶ it is conceptually simpler
- ▶ it has better coverage
- ▶ it is more specific

How do we abduce the processual reading with IPF_R ?

- (17) Včera ja čital “Vojnu i Mir”.
yesterday I read.PST.IPF “War and Peace”
‘Yesterday I was reading “War and Peace”.’

Grønn's (2003) insight, building on Gasparov 1990

(17) Včera ja čital "Vojnu i Mir".
yesterday I read.PST.IPF "War and Peace"
'Yesterday I was reading "War and Peace".'

"if the interval of the assertion time is 'small' compared to what would constitute the normal length of the temporal trace of the event, we get a processual reading" (Grønn 2003, p. 171)

Applying Grønn's (2003) insight to our framework

Observation

$$(18) \quad \exists_{\textcircled{0}} e (\text{Part}(W\&P)(e) \wedge |\tau(e)| \leq 1 \text{ day})$$

Theory:

$$(19) \quad \exists_{\textcircled{0}} e (W\&P(e)) \rightarrow \exists_{\textcircled{0}} e (\text{Part}(W\&P)(e))$$

$$(20) \quad \exists_{\textcircled{0}} e (\text{PrPart}(W\&P)(e)) \rightarrow \exists_{\textcircled{0}} e (\text{Part}(W\&P)(e))$$

$$(21) \quad \forall e \forall e' (e \sqsubseteq e' \rightarrow |\tau(e)| \leq |\tau(e')|)$$

$$(22) \quad \forall_{\textcircled{0}} e \exists_{\textcircled{0}} e' (e' \sqsubseteq e \wedge |\tau(e')| \leq 1 \text{ day})$$

$$(23) \quad \forall e (W\&P(e) \rightarrow |\tau(e)| > 1 \text{ day})$$

Choosing the best explanation

Potential Explanations

$$(24) \quad \exists_{@e} (W\&P(e) \wedge |\tau(e)| > 1 \text{ day})$$

$$(25) \quad \exists_{@e} (W\&P(e) \wedge |\tau(e)| \leq 1 \text{ day})$$

$$(26) \quad \exists_{@e} (\text{PrPart}(W\&P)(e) \wedge |\tau(e)| > 1 \text{ day})$$

$$(27) \quad \exists_{@e} (\text{PrPart}(W\&P)(e) \wedge |\tau(e)| \leq 1 \text{ day})$$

- ▶ (25) must be rejected, because it contradicts the **theory** (in particular, the rule in (23)).
- ▶ (24), (26) and (27) are acceptable **explanations**, because the **observation** can be derived from them.

Choosing the best explanation

Potential Explanations

$$(24) \quad \exists_{\text{@}e} (W\&P(e) \wedge |\tau(e)| > 1 \text{ day})$$

$$(26) \quad \exists_{\text{@}e} (\text{PrPart}(W\&P)(e) \wedge |\tau(e)| > 1 \text{ day})$$

$$(27) \quad \exists_{\text{@}e} (\text{PrPart}(W\&P)(e) \wedge |\tau(e)| \leq 1 \text{ day})$$

- ▶ In the case of (24) and (26) we would infer that the actual event in the **explanation** and the **observed** event are not the same events (because no event can be both shorter and longer than 1 day), so these **explanations** would force us to assume more events than (27).
- ▶ While (24) and (26) are more specific than (27), given ontological parsimony as a more important factor in deciding among **explanations** than specificity, (27) is the best **explanation**.

On deck...

Agent control and defeasible causatives in English

Piñón's (2014) defeasible causatives data

- (28) a. They **offered** me a position at their bank, but I turned it down. [Agent]
b. Living in a large city **offered** Rebecca a number of advantages, #but she refused them. [Causer]

- ▶ Defeasible causatives display a different kind of non-culmination reading than PFV_H and IPF_R : they allow for the total lack of a partial change of the relevant kind, i.e. *zero change of state* (zero CoS) readings.
- ▶ Demirdache and Martin (2015) argue that in most languages, zero CoS readings, as opposed to partial CoS readings, tend to require an agentive external argument.

Observation

- (28) a. They **offered** me a position at their bank, but I turned it down. [Agent]
- b. Living in a large city **offered** Rebecca a number of advantages, #but she refused them. [Causer]
- (28-b) seems to be odd due to a lack of a conversational partner to make the refusal to.

Alleviating the unacceptability

- (29) Living in a large city **offered** you a number of advantages, you just didn't take them. [Causer]

Possible application of abduction

- ▶ It seems that the ease of cancellation of an inference in the case of defeasible causatives in English is:
 1. graded
 2. is dependent on a number of lexical, syntactic and other, contextual, factors. (Time and expertise prevent me from considering more examples here).
- ▶ Given that both 1 and 2 have been observed in the case of partial CoS readings in languages that allow for such construals, it at least suggests the possibility that the defeasible CoS inference of defeasible causatives is also amenable to a similar abductive inference process as the culmination inference from PFV_H and IPF_R .

What's the observation?

- ▶ In order to construct such an inference, a suitable semantic analysis of defeasible causatives is needed which supplies the **observation** about which we can reason.
- ▶ While the semantic analysis of defeasible causatives is still a matter of discussion (cf. Koenig and Davis 2001; Martin 2015; Martin and Schäfer 2016), the recent proposal by Martin (2015) appears a promising proposal to use to this end.

Outline of an abductive inference for defeasible causatives

1. **Observation**: there is a process of type P (e.g., a teacher talking about a topic).
2. **Theory**: If there is an event of type Q (e.g., learners learning about the topic via being taught), then there is a process of type P (i.e., P is a necessary condition for Q).
3. **Explanation**: there is an event of type Q .

Outline of an abductive inference for defeasible causatives

1. **Observation**: there is a process of type P (e.g., a teacher talking about a topic).
2. **Theory**: If there is an event of type Q (e.g., learners learning about the topic via being taught), then there is a process of type P (i.e., P is a necessary condition for Q).
3. **Explanation**: there is an event of type Q .
 - ▶ Because agentive processes in the case of defeasible causatives are very much *indicative* of the corresponding CoS (based on Martin 2015), there cannot be many other Q 's that have P as their necessary conditions
 - ▶ The opposite holds for causer processes: e.g., there being a book including text on some topic (a P -event) is an important necessary component of not just explaining that topic to its readers, but of many other events: e.g., it also features in the reading and in the writing of that text.

Adopting Martin's (2015) insight

- ▶ If assume, following Martin (2015) that causatives with a cause rather than an agent must semantically include the caused change as their component, we explain why they are typically bad when we try to defeat the CoS (despite there being many possible *Q* features). They appear to be good only if the process is indicative of the change itself.
- ▶ In the case of agentive causitives, the CoS is inferred via abduction. Since there are not many *Q* features, this inference is quite salient. So much so, that its defeasibility has been somewhat unexplored.

Conclusion

- ▶ Introduction of how abduction can be used to derive culmination inferences with non-culminating accomplishments.
- ▶ Application of the abduction framework to PFV_H and IPF_R .
- ▶ Hypothesis about how to apply the abduction framework to defeasible causatives in English, which allow for zero CoS readings not found with PFV_H and IPF_R .
- ▶ Let's continue hypothesizing, testing and theorizing about other aspectual forms and construals using the abductive framework.
- ▶ Seek collaboration.

Bibliography I

- Altshuler, D. (2014). A typology of partitive aspectual operators. Natural Language & Linguistic Theory, 32(3):735–775.
- Arunachalam, S. and Kothari, A. (2010). Telicity and event culmination in Hindi perfectives. In Proceedings of verb 2010, interdisciplinary workshop on verbs: The identification and representation of verb features, pages 16–19.
- Bar-El, L., Davis, H., and Matthewson, L. (2005). On non-culminating accomplishments. In Bateman, L. and Ussery, C., editors, Proceedings of the 35th annual meeting of the North East Linguistics Society (NELS), pages 87–102.
- Bohnenmeyer, J. and Swift, M. (2004). Event realization and default aspect. Linguistics and Philosophy, 27(3):263–296.
- Demirdache, H. and Martin, F. (2015). Agent control over non culminating events. In López, E. B., Honrubia, J. L. C., and Rosique, S. R., editors, Verb Classes and Aspect, pages 185–217. John Benjamins.

Bibliography II

- Douven, I. (2011). Abduction. In Zalta, E. N., editor, The Stanford Encyclopedia of Philosophy. Spring 2011 edition.
- Dowty, D. R. (1979). Word Meaning and Montague Grammar. D. Reidel, Dordrecht.
- Filip, H. (1999). Aspect, Eventuality Types, and Nominal Reference. Routledge, New York. Page numbers refer to the 1999 published version of the 1993 Ph.D. dissertation.
- Filip, H. (2008). Events and maximalization: The case of telicity and perfectivity. In Rothstein, S. D., editor, Theoretical and Crosslinguistic Approaches to the Semantics of Aspect, pages 217–256. John Benjamins.
- Gasparov, B. (1990). Notes on the metaphysics of russian aspect. In Thelin, N., editor, Verbal aspect in discourse, pages 191–212.
- Glovinskaja, M. (1982). Semantičeskie tipy vidovych protivopostavlenij russkogo glagola. Nauka, Moscow.

Bibliography III

- Glovinskaja, M. (2001). Mnogoznačost' i sinonimija v vido-vremennoj sisteme russkogo glagola. Azbukovnik, Moscow.
- Grønn, A. (2003). The Semantics and Pragmatics of the Russian Factual Imperfective. Ph.d. thesis, University of Oslo, Oslo.
- Grønn, A. (2007). Horn strategies and optimization in Russian aspect. In Benz, A., Ebert, C., and van Rooij, R., editors, Proceedings of Language, Games, and Evolution, ESSLI workshop.
- Grønn, A. (2008). Russian aspect as bidirectional optimization. In Marusic, F., editor, Studies in Formal Slavic Linguistics, pages 121–137. Peter Lang Publishing Group.
- Gyarmathy, Zs. (2015). Culminations and presuppositions. In Brochhagen, T., Roelofsen, F., and Theiler, N., editors, Proceedings of the 20th Amsterdam Colloquium, pages 167–176.

Bibliography IV

- Hobbs, J. R. (2004). Abduction in natural language understanding. In Horn, L. R. and Ward, G., editors, Handbook of Pragmatics, pages 724–741. Blackwell, Oxford.
- Hobbs, J. R., Stickel, M. E., Appelt, D. E., and Martin, P. (1993). Interpretation as abduction. Artificial Intelligence, 63(1-2):69–142.
- Josephson, J. R. and Josephson, S. G. (1996). Abductive inference: Computation, philosophy, technology. Cambridge University Press.
- Koenig, J.-P. and Davis, A. R. (2001). Sublexical modality and the structure of lexical semantic representations. Linguistics and Philosophy, 24(1):71–124.
- Koenig, J.-P. and Muansuwan, N. (2000). How to end without ever finishing: Thai semi-perfectivity. Journal of Semantics, 17(2):147–182.

Bibliography V

- Krifka, M. (1989). Nominal reference, temporal constitution and quantification in event semantics. In Bartsch, R., van Benthem, J., and von Emde Boas, P., editors, Semantics and Contextual Expression, pages 75–115. Foris, Dordrecht.
- Krifka, M. (1992). Thematic relations as links between nominal reference and temporal constitution. In Sag, I. A. and Szabolcsi, A., editors, Lexical Matters, pages 29–53. CSLI, Stanford.
- Martin, F. (2015). Explaining the link between agentivity and non-culminating causation. In Proceedings of Semantics and Linguistic Theory, pages 246–266.
- Martin, F. and Schäfer, F. (under review, 2016). Sublexical modality in defeasible causative verbs. In Modality across Syntactic Categories. Oxford University Press.
- McIlraith, S. A. (1998). Logic-based abductive inference. Technical Report KSL-98-19.

Bibliography VI

- Padučeva, E. (1996). Semantika vremeni i vida v russkom jazyke. Jazyki russoj kul'tury, Moscow.
- Padučeva, E. V. (1995). Taxonomic categories and semantics of aspectual opposition. In Bertinetto, P. M., editor, Temporal Reference, Aspect and Actionality: Semantic and syntactic perspectives, volume 1, pages 71–89. Rosenberg and Sellier.
- Pederson, E. (2008). Event realization in Tamil. In Bowerman, M. and Brown, P., editors, Crosslinguistic perspectives on argument structure: Implications for learnability, pages 331–355. Erlbaum.
- Piñón, C. (2009). Another look at the actuality entailment of certain modal verbs. Talk presented at the *Genericity: Interpretation and Uses*, Paris.
- Piñón, C. (2011). The pragmatics of actuality entailments. Talk presented at the *Aspect and Modality in Lexical Semantics*, Stuttgart.

Bibliography VII

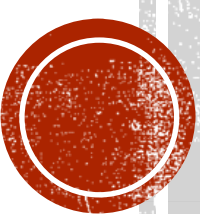
- Piñón, C. (2014). Reconsidering defeasible causative verbs. Talk presented at the *11th International Conference on Actionality, Tense, Aspect, Modality/Evidentiality (Chronos 11)*, Pisa.
- Prior, A. N. and Fine, K. (1977). Worlds, Times and Selves. University of Massachusetts Press.
- Singh, M. (1991). The perfective paradox: Or how to eat your cake and have it too. In Sutton, L., Johnson, C., and Shields, R., editors, Proceedings of the Seventeenth Annual Meeting of the Berkeley Linguistics Society, pages 469–479.
- Smith, C. S. (1991). The Parameter of Aspect. Kluwer Academic Press.
- Varasdi, K. (2010). A higher order extensional framework for the progressive. Journal of Semantics, 27(2):177–206.
- Varasdi, K. (2014). Making progressives: Necessary conditions are sufficient. Journal of Semantics, 31(2):179–207.
- Vendler, Z. (1957). Verbs and times. The philosophical review, 66(2):143–160.

The semantics of viewpoint aspect in nonculminating accomplishments

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TELLIC, Stuttgart 12th January 2017



Non culminating accomplishments

- Heterogeneous events
- Do not entail the culmination of the situation
- Tackle the heart of the relation between:
 - Telicity
 - Heterogenous events
 - not event terminus/completion/telos
 - Perfective viewpoint aspect
 - Perfective: supposed to bring completion; interval bounded



This talk

- Properties of perfective viewpoint when an accomplishment has not culminated in Spanish.
- Semantics and morphosyntax correspondences of viewpoints, more complex than previously thought –see Arche 2014a for an overview.
- Within one given language one form can correspond to more than one meaning
- Different arrays of meanings for apparently the same form across languages
- Imperfective: different readings; vast body of literature
 - modality involved etc. Arregui, Rivero & Salanova 2014, a.o.



- **What about the Perfective?**
- **Monolithic and simplex semantics within a given language and across languages?**
- **Does not seem so (e.g., Altschuler 2014, a.o.)**



Leading cases and points of investigation

- For the sake of the discussion, I will focus on cases such as (1):

(1) Pedro **coloreó** **el castillo** durante tres horas, pero **no terminó**.
 Pedro colour-pfve.3ps the castle for three hours, but not finished
 ‘Pedro coloured the castle for three hours but he did not finish to’



Points for exploration

1. Quality of the eventuality: true accomplishments?
2. Semantics of the perfective
paraphrases as **perfective progressive**
3. Syntax-semantics of the temporal modifiers that seem to foster nonculmination in these cases

“For x time”
4. The **compatibility** of the overt clause declaring the lack of culmination explicitly **“not finish to”** (vs. not completely).



I will explore

- A sort of correlation among these elements
- Which may point to the availability of **PARTITIVE** semantics in the **perfective** in Spanish.



1. Quality of the eventuality

True accomplishment?

yes

1.1. Culmination is possible

(2) Pedro coloreó el castillo durante tres horas y lo terminó.

Pedro coloured the castle for three hours and it finished

‘Pedro coloured the castle for three hours and he finished it’

- The event is susceptible of culminating per se, ergo, it is not an activity.



- The sentence

Pedro coloreó el castillo durante tres horas

Pedro colored the castle for three hours

is **vague with respect to culmination**. It is compatible with both scenarios, one where there is no culmination and another one where it is (Arche 2014a).

- In a similar way in which we speak about vagueness in temporal ordering in the so-called Independent temporal construal observed in relative clauses (Stowell 1993; Arche 2001 for Spanish).



Quality of the eventuality

1.2. Ok after “finish”

(3) ✓ Pedro no **terminó** de colorear el castillo

Pedro did not finish to colour the castle

(4) *Pedro no terminó de pasear.

***ACTIVITIES**

Pedro not finish strolling

▪ **(not) finish + accomplishments:** ok only (Pustejovsky 1988)

▪ Elided VP same kind of eventuality



2. The meaning of the perfective

- In all these cases, the perfective can be paraphrased with what can be called “perfective progressive”:

(5) Pedro **estuvo coloreando** el castillo durante tres horas, pero no terminó.

Pedro was .pfve coloring the castle for three hours, but not finished.

N.B. Note that this form **IS NOT** equivalent in any sense to an imperfective progressive (the typical form known as progressive in short).



3. The semantics of the temporal modifier

(6) Pedro coloreó el castillo, pero no terminó.

Pedro coloured the castle, but not finished (to)

- OK for some speakers, but many react by adding a “*for-time*” modifier.

(7) Pedro coloreó el castillo **durante tres horas**, pero no terminó.

Pedro coloured the castle for three hours, but not finished



The meaning of the temporal modifier

- Why does this adverbial make the sentence better?
- What does it mean?
- *For three hours* gives us the **size** of an interval
- Which interval?

(8) Pedro coloreó el castillo **durante tres horas**...

Pedro coloured the castle for three hours ...

(8) is **true** even if Pedro coloured the castle **for five hours**. (Arche 2014)



The meaning of the temporal modifier

- Which interval?
- The Topic Time/ Assertion Time?
 - The Event Time?
 - The interval we want to assert (the TT, AstT), rather than the interval of the whole event per se.
- *For three hours* can give us only **part** of the interval the event may extend over.



The meaning of the temporal modifier

- *For-time* adverbials sharply contrast with *in-time* adverbials:

(9) Pedro coloreó el castillo **en tres horas**.

Pedro coloured the castle in three hours

- **cannot be true** if it took Pedro five hours to colour the castle.
- **cannot be continued** by “**not finish to**”

(10) *Pedro coloreó el castillo **en tres horas**, pero no terminó.

Pedro coloured the castle in three hours, but not finished



The meaning of the temporal modifier

En tres horas

in three hours → interval of the whole actual event

Durante tres horas

for three hours → interval of the assertion

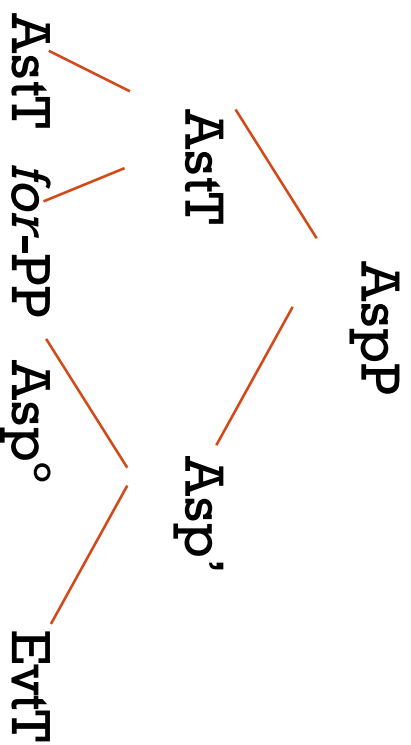
- Demirdache & Uribe-Etxebarria 2004: temporal adverbials are modifiers of the Assertion Time or the Event Time.



The syntax of interval size modifiers

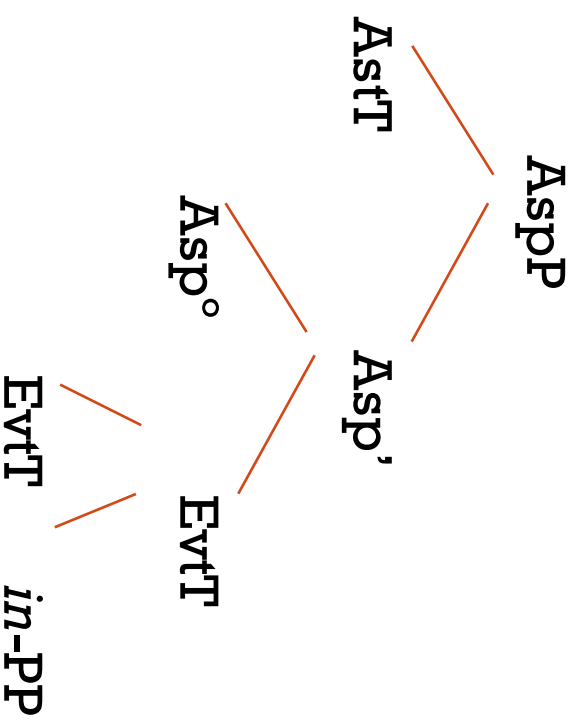
durante-time

for-time



en-time

in-time



Cont. Semantics of interval size modifiers

- Both *for-time* & *in-time* give the size of an interval
 - Hence both are compatible **only with perfective** (in Spanish)
- ❖ *For-time*: measures the Assertion Time, hence the interval can give us only **PART** of the Event Time.
- ❖ *In-time*: measures the Event Time (→ bounds the **whole event**— and that is why it is not okay with activities or states.)



4) Compatibility with ‘not finish to’ vs. ‘not completely’

- Both used in the literature as expressions marking incompatibility with culmination

(11) *Pedro coloreó el castillo **en tres horas** pero no terminó/no del todo.

Pedro coloured.pfive the castle in three hours but not finished/not completely

- However, as noticed by Demirdache & Martin 2015, it is not the case that both are equally compatible with any case of nonculmination. This seems to be the case in the Spanish cases contemplated here:

(12) Pedro coloreó el castillo durante tres horas pero no terminó.

Pedro coloured.pfive the castle for three hours but not finished

(13) ??*Pedro coloreó el castillo durante tres horas pero no del todo.

Pedro coloured.pfive the castle for three hours but not completely



“not finish to” vs. “not completely” & five progr

(14) Pedro estuvo coloreando el castillo durante tres horas, pero no terminó.
 Pedro was.pfive colouring the castle for three hours but not finished

(15) ??* Pedro estuvo coloreando el castillo durante tres horas, pero no del
 todo

Pedro was.pfive colouring the castle for three hours but not
 completely



The correlations noted here

- ▶ *Pfive progressive
- ▶ *For-time
- ▶ *Not completely
- ▶ ✓Pfive progressive
- ▶ ✓ For-time
- ▶ ✓ not finished to



Correlations

1. *For-time*: partitive
2. Perfective is progressive: partitive
3. “Not finished to”: compatible with those cases that allow for perfective progressive and *for-time* adverbials



Some working idea to add to the puzzle

- Spanish perfective may be a partitive perfective
 - Viewpoint aspect properties are responsible for making the partial completion available (Arche 2014a; Demirdache & Martin 2015)
- Array of cases small scale. Not all verbs yield equally acceptable sentences when culmination is negated.
 - Koenig & Davis 2001; Martin & Schaeffer 2015; Demirdache & Martin 2015: lexical semantics seems a factor.
 - Creation/non-creation/performance verb differences
 - Non-creation verbs yield the best formed sentences in Spanish (Arche 2014c)



- The cases where the mentioned correlations hold are argued to be accounted for by the properties of the syntax-semantics of viewpoint aspect, that is:
- Where the perfective can be paraphrased by a perfective progressive. In these cases, the perfective is homophonous to the non-progressive one but different syntax-semantics as in Arche 2014a (next slide)

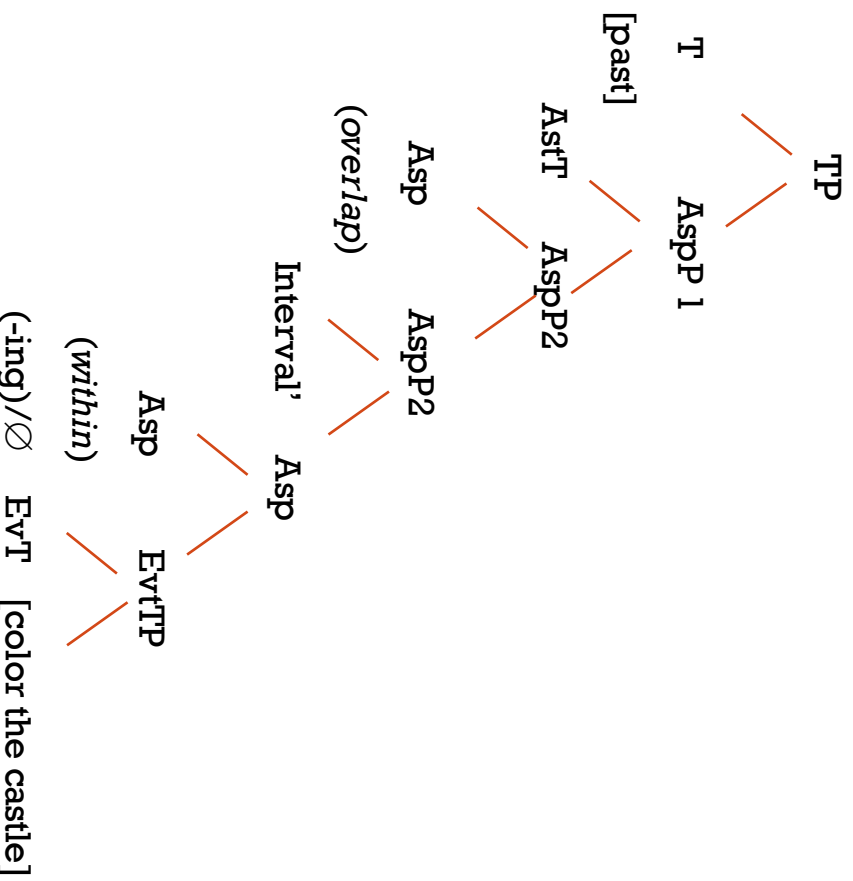


Syntax of the Spanish perfective

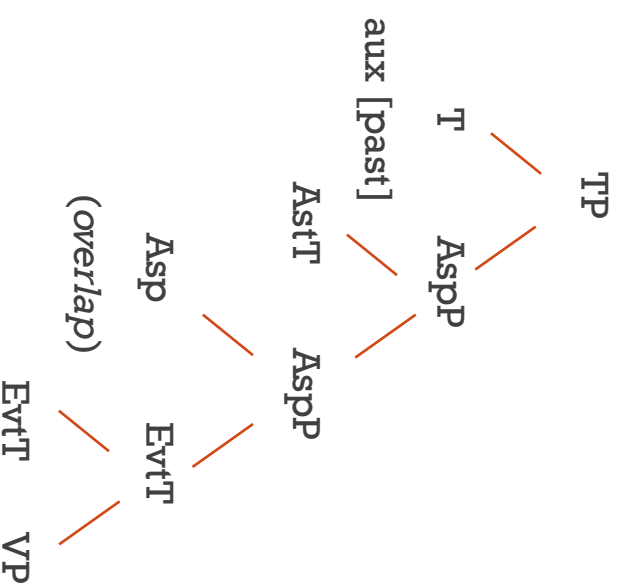
(16) P1ve Progressive (analytical & synthetic)

Estuvo coloreando/coloreó

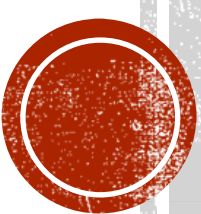
was.p1ve coloring/coloured



(17) Non-progressive



That's it for the moment



References cited

- Altshuler, D. 2014. A typology of partitive aspectual operators. *Natural Language and Linguistic Theory* 32: 735-775.
- Arche, M.J. 2001. A note on distributivity and the independent temporal construal. Working Papers in Linguistics of the Institute Ortega y Gasset. Madrid.
- Arche, M.J. 2014a. The construction of viewpoint aspect: the imperfective revisited. *Natural Language and Linguistic Theory* 32: 791-831.
- Arche, M.J. 2014b. About the primitives of aspect across languages. *Natural Language and Linguistic Theory* 32:711-733.
- Arche, M.J. 2014c. Viewpoint aspect and agent control in Spanish non culminating accomplishments. Talk delivered at *Chronos XI*, Pisa June 2014.



- Demirdache, H. & F. Martin. 2015. Agent control over non-culminating events. In Barrajón et al (eds.), *Verbal Classes and Aspect*, Amsterdam: John Benjamins, 185-217.
- Koenig, J. P., & Davis, A. R. 2001. Sublexical modality and the structure of lexical semantic representations. *Linguistics and Philosophy*, 24(1): 71-124.
- Martin, F., & Schäfer, F. 2015. Sublexical modality in defeasible causative verbs. *Modality across Syntactic Categories*. Oxford University Press, Oxford.
- Stowell, T. (1993). *Syntax of tense*. Ms., University of California, Los Angeles.



The acquisition of

aspectual markers and scalar implicatures in Italian monolingual preschoolers

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Investigate children comprehension of aspectual markers in finite sentences

Temporal meaning of a sentence:

- how an event is described in the flow of time (*Aspect*)
- where an event is located in the flow of time (*Tense*)
- how the event structure maps onto the flow of time (*Aktionsart*, VP-meaning)

What's on a verb: **Aspect**

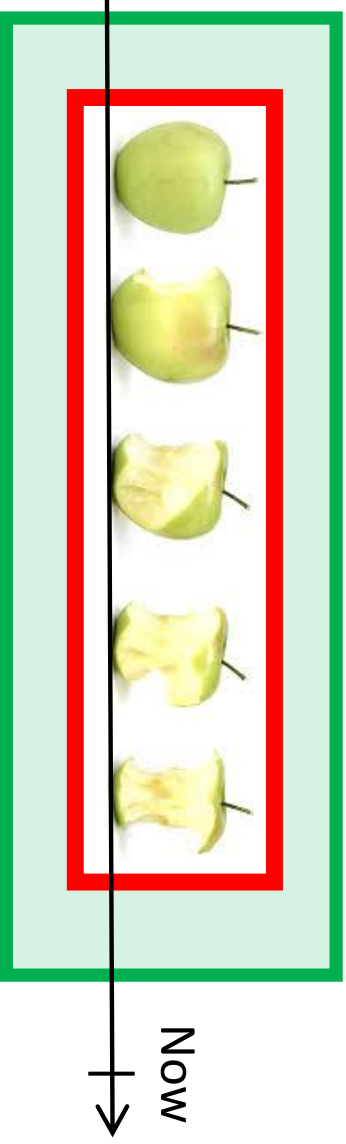
(Klein, 1994; Kratzer, 1998; Musan, 2001; von Stechow, 2002)

1) *Leo ate an apple*

Perfective aspect (PF):
external point of view

on the event

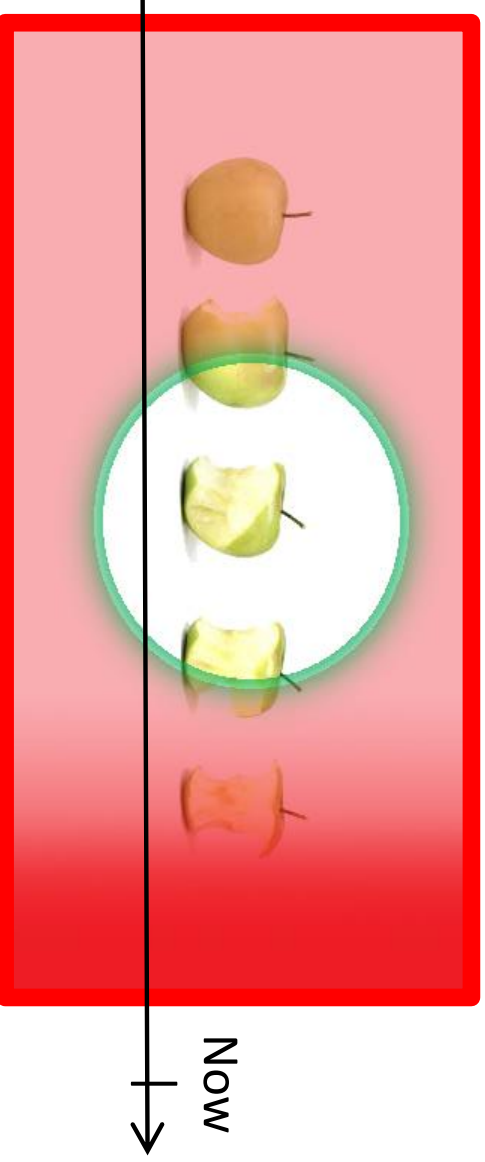
1a) $\exists e \exists t(\text{Leo-eat-an apple}(e) \ \& \ \underline{T}(e) \subseteq \underline{t} \ \& \ t \prec \text{Now})$



2) *Leo was eating an apple*

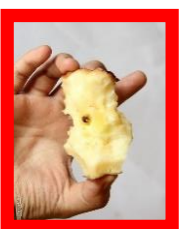
Imperfective aspect (IMP):
internal point of view
on the event

2a) $\exists e \exists t(\text{Leo-eat-an apple}(e) \ \& \ \underline{t} \subseteq \underline{T}(e) \ \& \ t \prec \text{Now})$



Comprehension of Aspect contrast

- 1) *Leo ate an apple* 2) *Leo was eating an apple.*



Children at 5 years of age are not adultlike:

They have a good performance with **perfective** sentence,

They have **problems** with **imperfective** sentences.

⇒ Children accept **imperfective** sentences as
descriptions of telic durative terminated events



John was building a house

Adults: NO

Children: YES

Acquisition of Aspect

Possible hypotheses:

➤ **IMP** changes non homogeneous telic predicates into homogeneous ones while **PERF** does not: the change is costly (van Hout, 2005; 2007; 2008).

➤ **IMP** sentences are ambiguous: **IMP** morphemes are more difficult to grammaticalize (van Hout, 2007).

➤ **IMP** morphemes introduce anaphoric tenses: children find difficult to understand them when an anaphoric link is not explicitly provided (Kazanina & Phillips, 2007).

Acquisition of Aspect

- **IMPF** sentences are used to establish background information in discourse; children have problems in distinguishing which information is new and which one is given (Hodgson, 2003; Vinnitskaya & Wexler, 2001);
- Experimental demands and confounds:
 - Presence/absence of an agent in videos; or props: children cannot compute grammatical aspect if they can only rely on information about the object (Wagner, 2002).

In our study

- 1) *Leo ha mangiato una mela* 2) *Leo sta mangiando una mela*
Leo has eaten an apple Leo was eating an apple

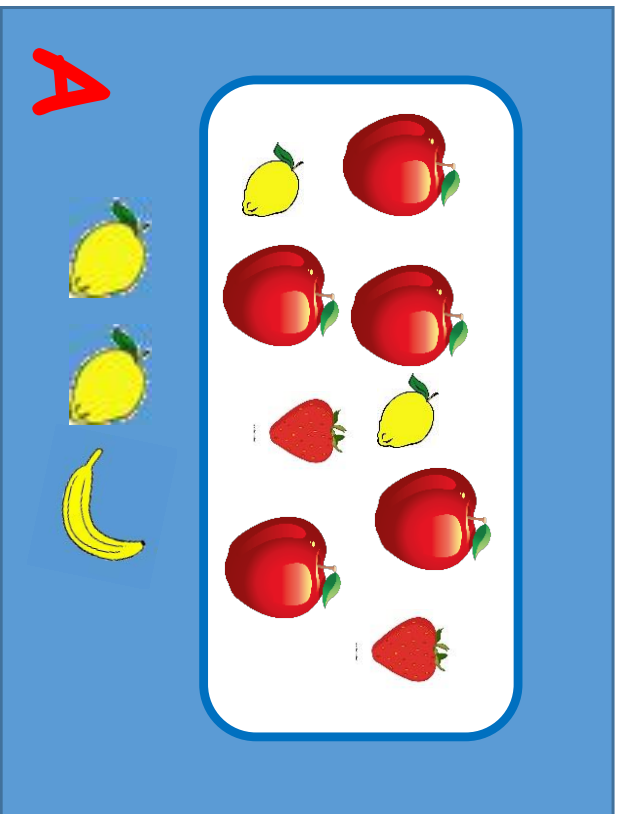


Completed events



Ongoing events

... and compare it to quantifiers comprehension



Quantifiers denote set relations

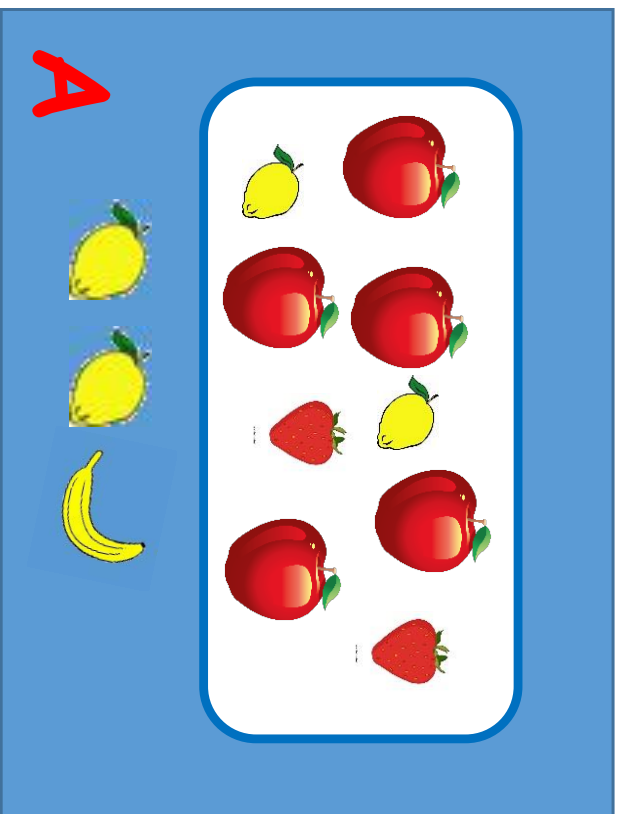
1) **All** apples are in the box



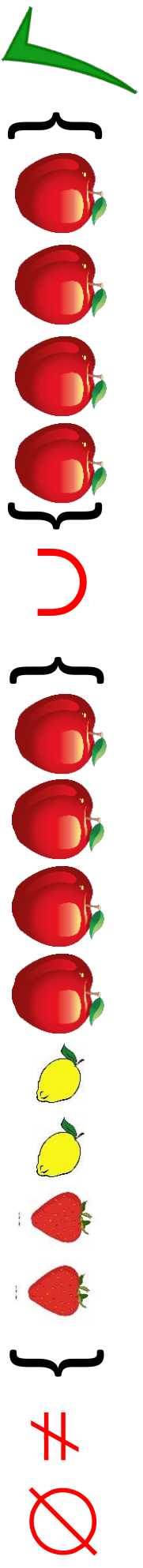
2) **Some** lemons are in the box



Set relations might not be enough



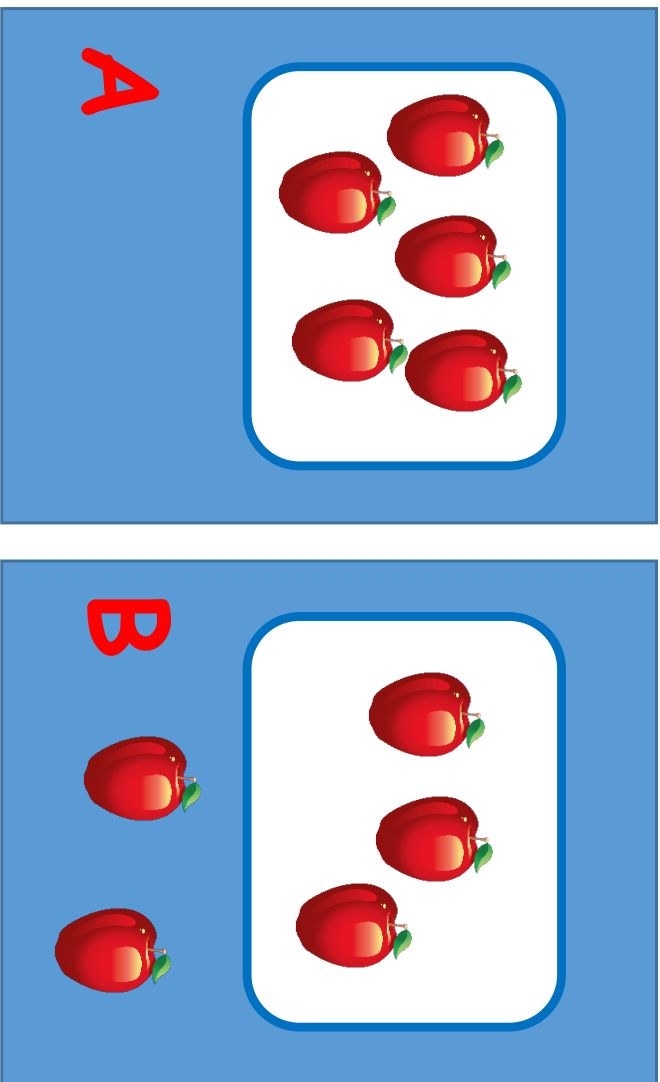
1) **Some** apples are in the box



... adults reject (1) as a felicitous description of A

when hearing (1), we derive the additional meaning NOT ALL

Scalar Implicatures



1) **Some** apples are in the box

2) **All** apples are in the box

Sentence (1) is **semantically true**
in situation A & B

Sentence (2) is **semantically true**
in situation A and false in B

Sentence (2) is more
informative than (1)

Speakers should use the more informative sentence among alternatives:

When we hear (1), we are entitled to derive that (2) is false.

Therefore, (1) is **pragmatically inappropriate** as a description for A

Acquisition of quantifiers

At 5yrs

- They correctly accept sentences like
"ALL S are P", when all S are P;
- They correctly reject sentences like
"ALL S are P", when not all S are P;
- They correctly accept sentences like
"SOME S are P", when some (not all) S are P;
- They correctly reject sentences like
"SOME S are P", when no S are P;
- **They incorrectly accept sentences like
"SOME S are P" when all S are P;**

(e.g., Chierchia et al., 2001, 2004; Papafragou & Musolino, 2003;

Papafragou, 2003; Katsos & Bishop, 2011).

Acquisition of Scalar Implicatures

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There is a bimodal distribution:
some children consistently accept them, some consistently reject them.

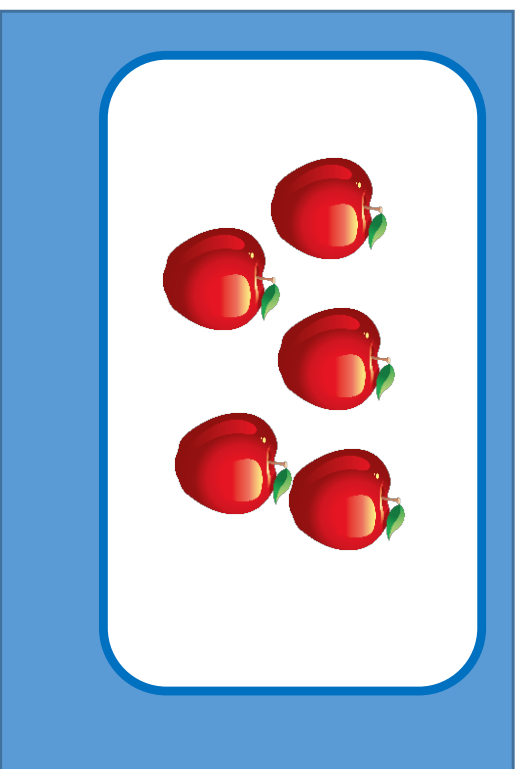
Experimental settings and demands can influence their performance (Foppolo et al 2012).

Possible explanations:

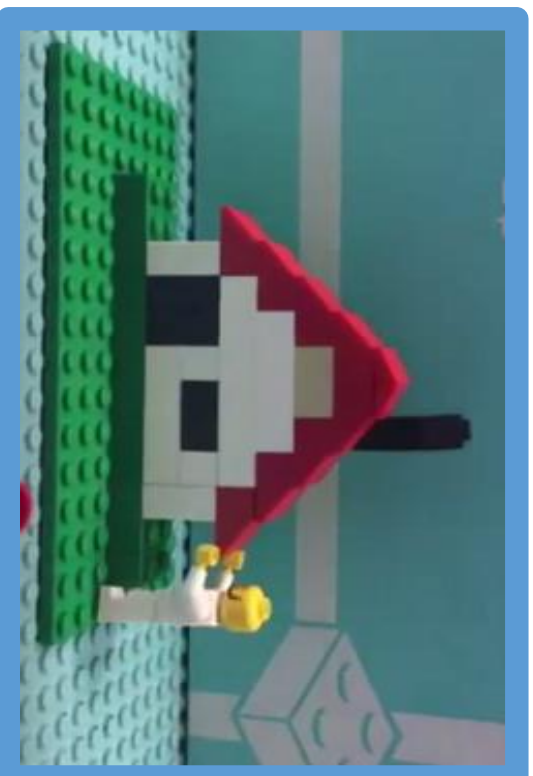
➤ Children have problems in acquiring and automatizing the link between the meaning of a scalar term and the scale (Barner & Bachrach, 2010).

➤ Children are pragmatically more tolerant than adult (Katsos & Bishop, 2012)

Analogies

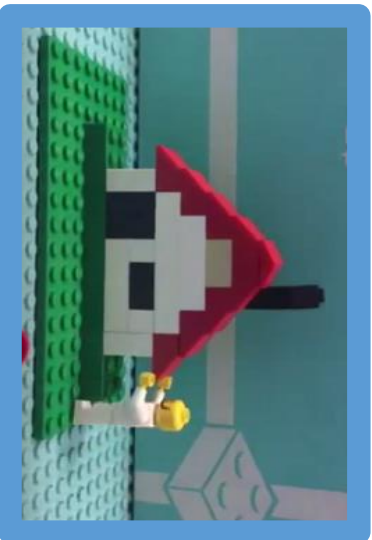


Some apples are in the box

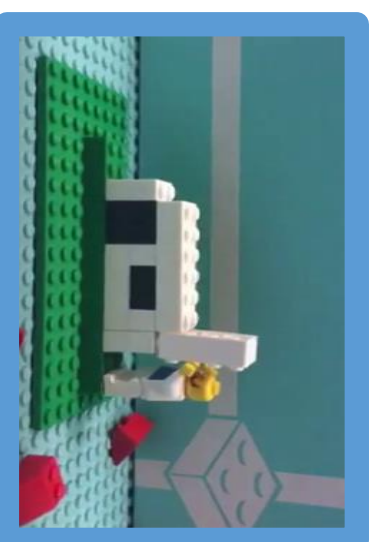


John was building a house

An analogy: entailment relation

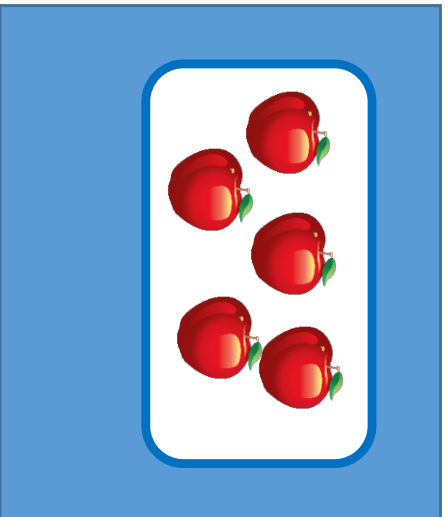


PERF → IMP

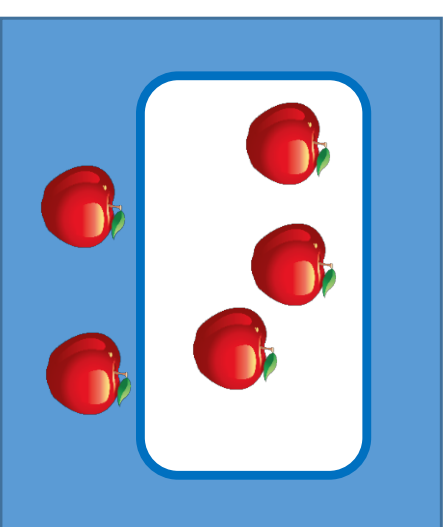


1) John **built** a house

2) John **was building** a house



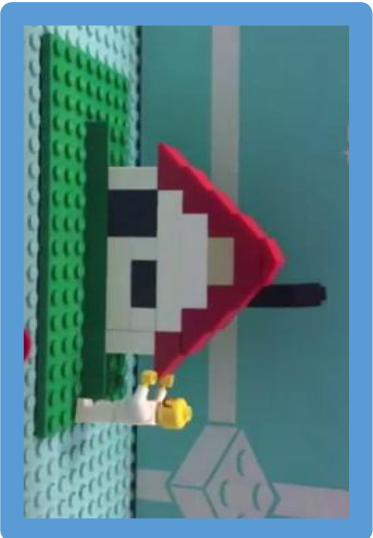
ALL → SOME



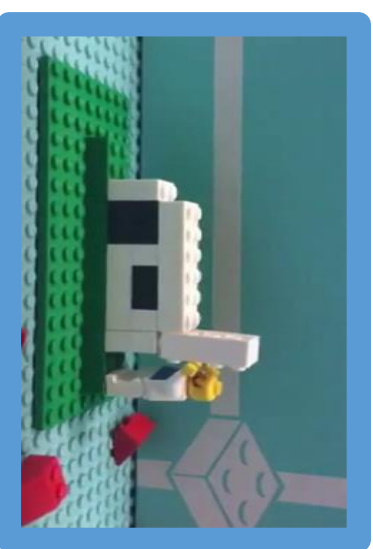
3) **All** apples are in the box

4) **Some** apples are in the box

An analogy: informativeness

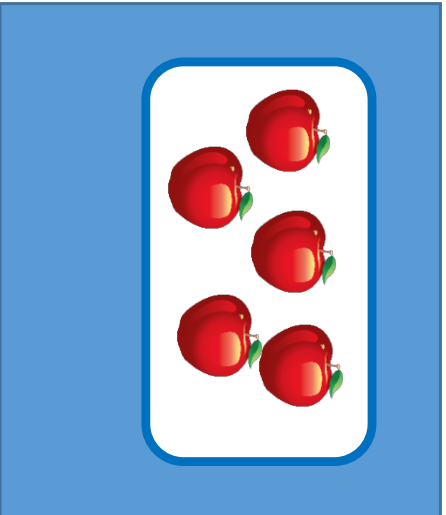


PERF > IMP

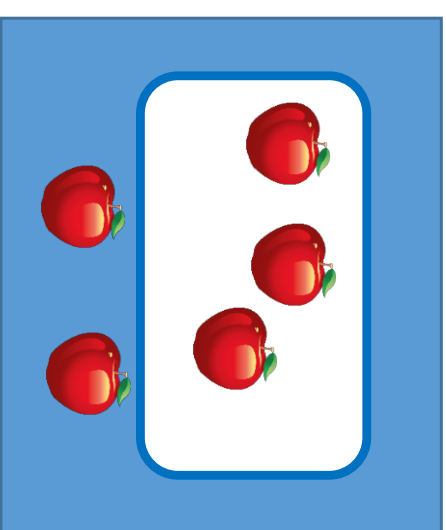


1) John **built** a house

2) John **was building** a house



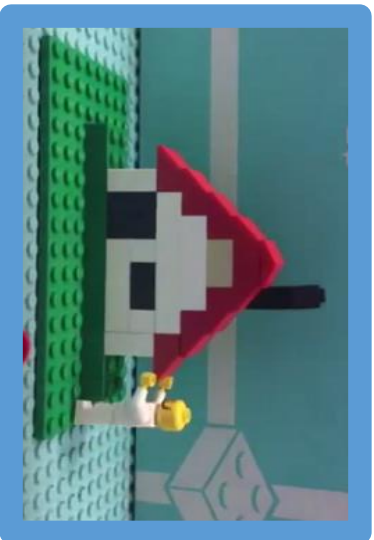
ALL > SOME



3) **All** apples are in the box

4) **Some** apples are in the box

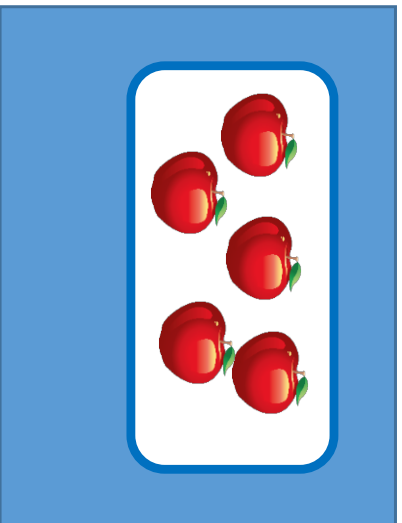
An analogy: children's & adult's performance



1) *John was building a house*

Adults: NO

Children: YES



2) *Some apples are in the box*

Adults: NO

Children: YES

Our questions

Are there analogies in the way **NOT ALL** and **NOT COMPLETED** are conveyed?

Aspectual implicatures?

Are aspectual morphemes scalar terms?

Our study

Children comprehension of quantifiers & aspectual morphemes

... by making use of parallel experimental tasks

Our hypothesis

PREDICTION

	ADULTS	CHILDREN
ALL - PERF	V-F YES	YES
SOME - IMP	V-F YES	YES
SOME - IMP	Under YES	NO

Age differences

Bimodal distribution with **SOME-IMP** under-informative

GRAMMATICALITY JUDGEMENT TASK (Katsos, 2009)

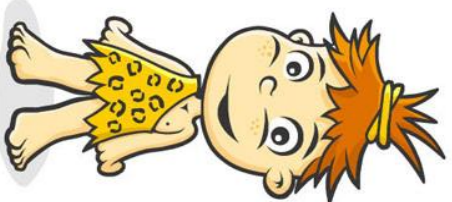
Participants: - 33 Italian speaking children (3;8 yrs - 5;8 yrs)

- 9 adults (mean age 38;6 yrs)

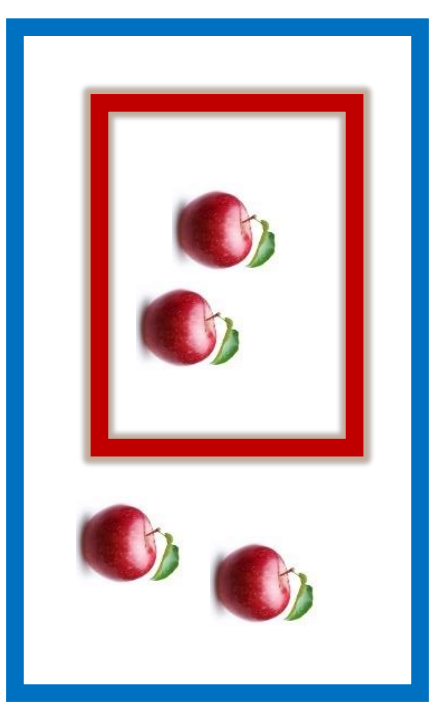
Susanna is learning Italian.

The child is asked to correct her when she is wrong

*In questa foto,
Paolo ha montato
il tavolino*



*Qui, Paolo ha
messo tutte le
mele nella scatola*



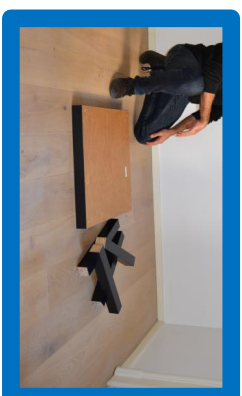
ASPECT TASK

3 items X condition

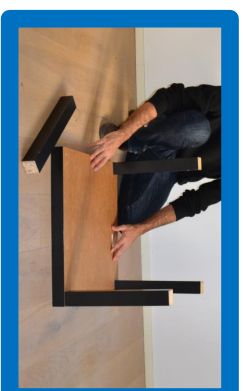
Conditions:

- 1) PERF true
- 2) PERF false
- 3) IMP true
- 4) IMP false
- 5) IMP under-inf

A



B



C



PF) In questa foto, Paolo **ha montato** il tavolino
In this pic, Paolo has built the table

IMP) In questa foto, Paolo **stava montando** il tavolino
In this pic, Paolo was building the table

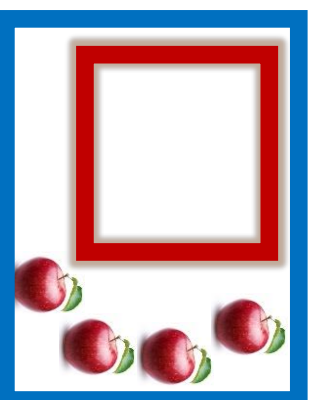
QUANTIFIER TASK

3 items X condition

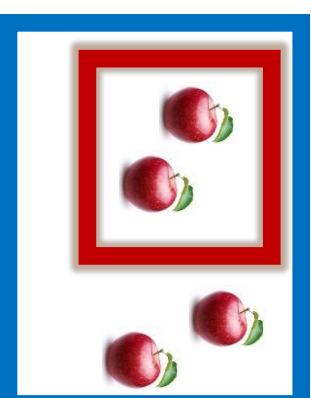
Conditions:

- 1) ALL true
- 2) ALL false
- 3) SOME true
- 4) SOME false
- 5) SOME under-inf

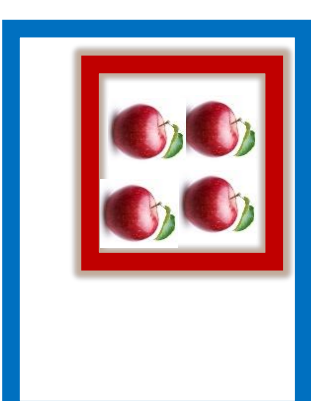
A



B



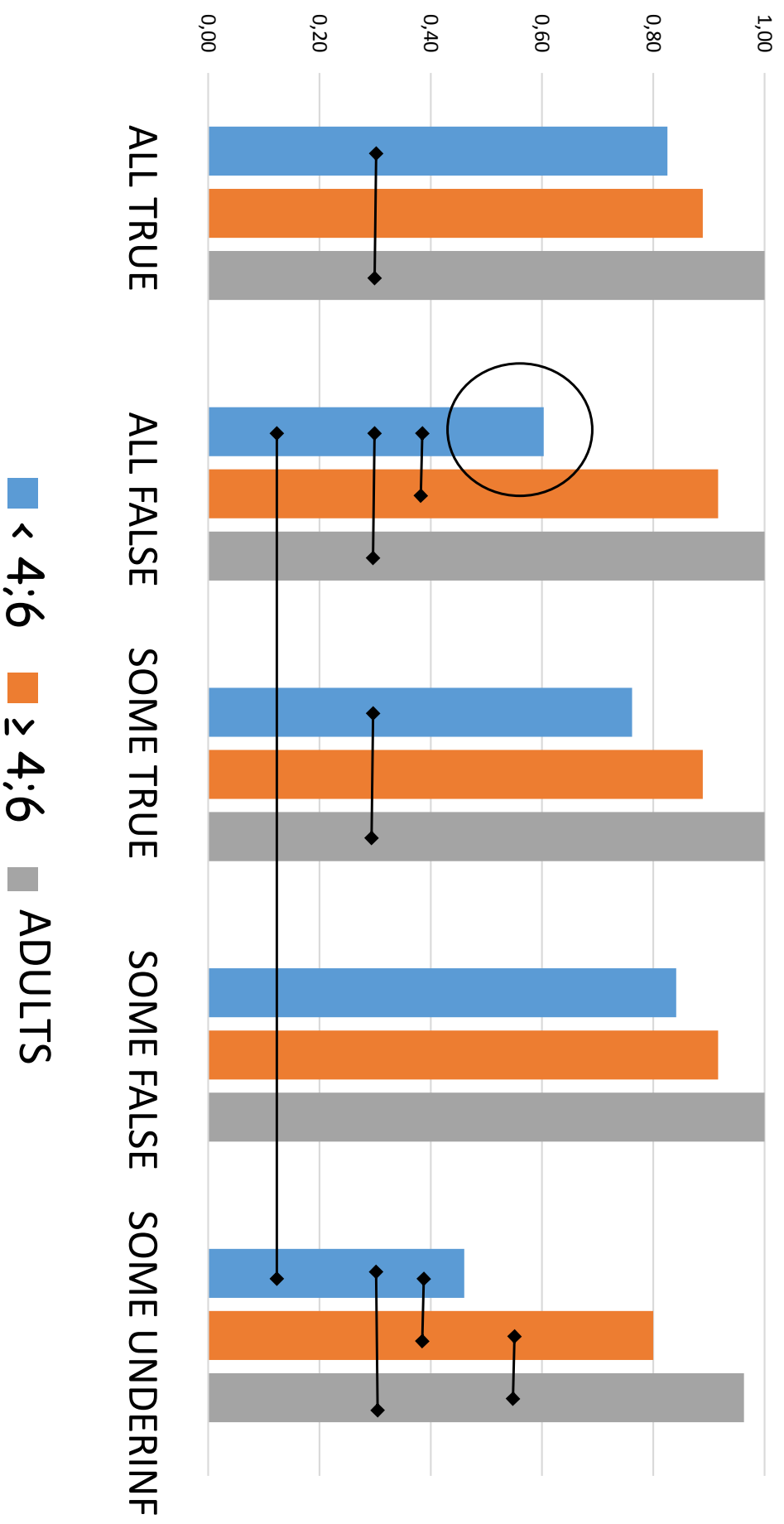
C



ALL) Qui, topolino ha messo **tutte le mele** nella scatola
Here, Mickey has put all the apples in the box

SOME) Qui, topolino ha messo **qualcuna delle mele** nella scatola
Here, Mickey has put some of the apples in the box

QUANTIFIER COMPREHENSION

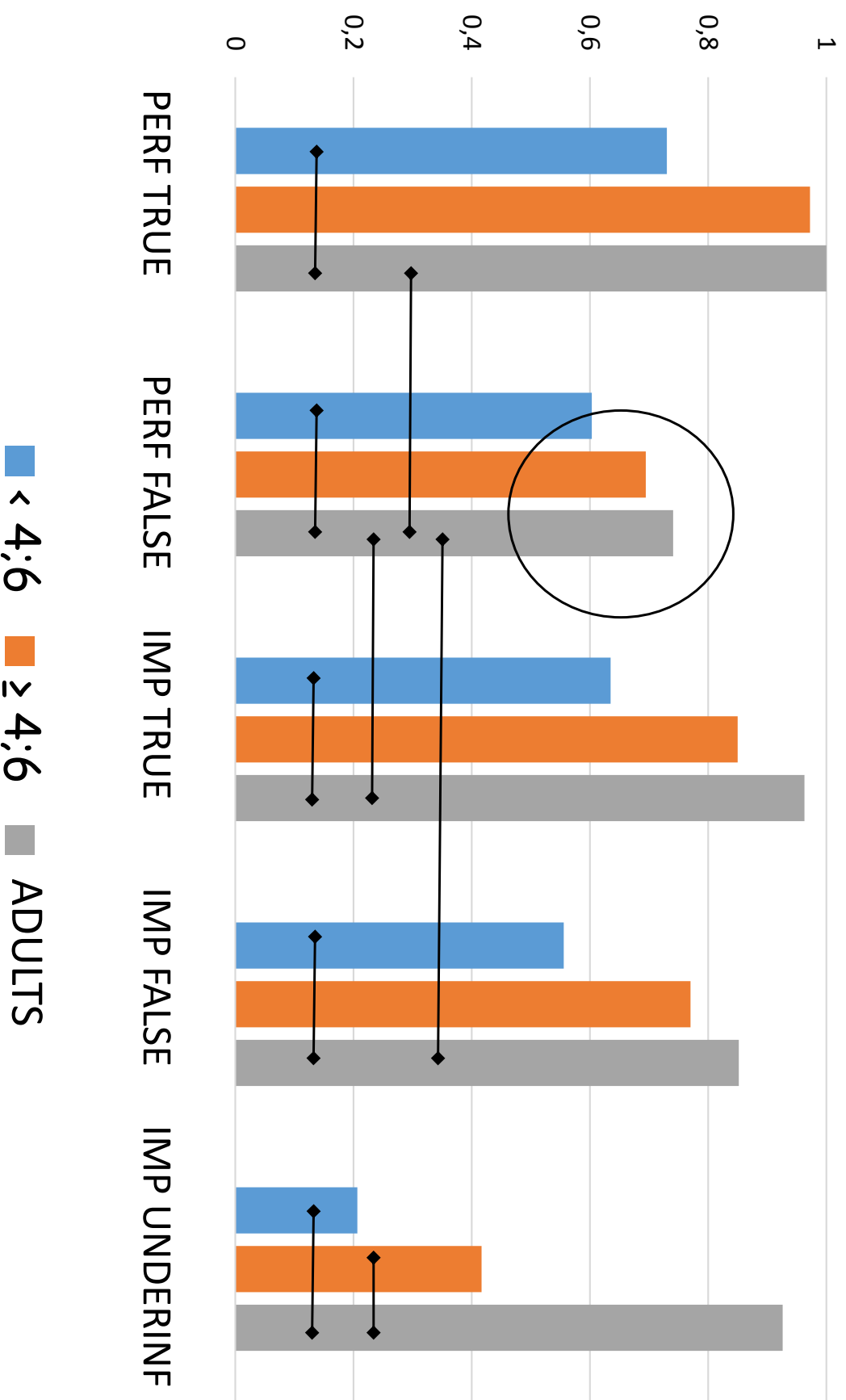


BIMODAL DISTRIBUTION

In **SOME** under-informative **COMPREHENSION**

$\geq 4;6$ (12)	3/3	2/3	1/3	0/3
$< 4;6$ (21)	7	4	1	0
	8	2	3	8

ASPECT COMPREHENSION

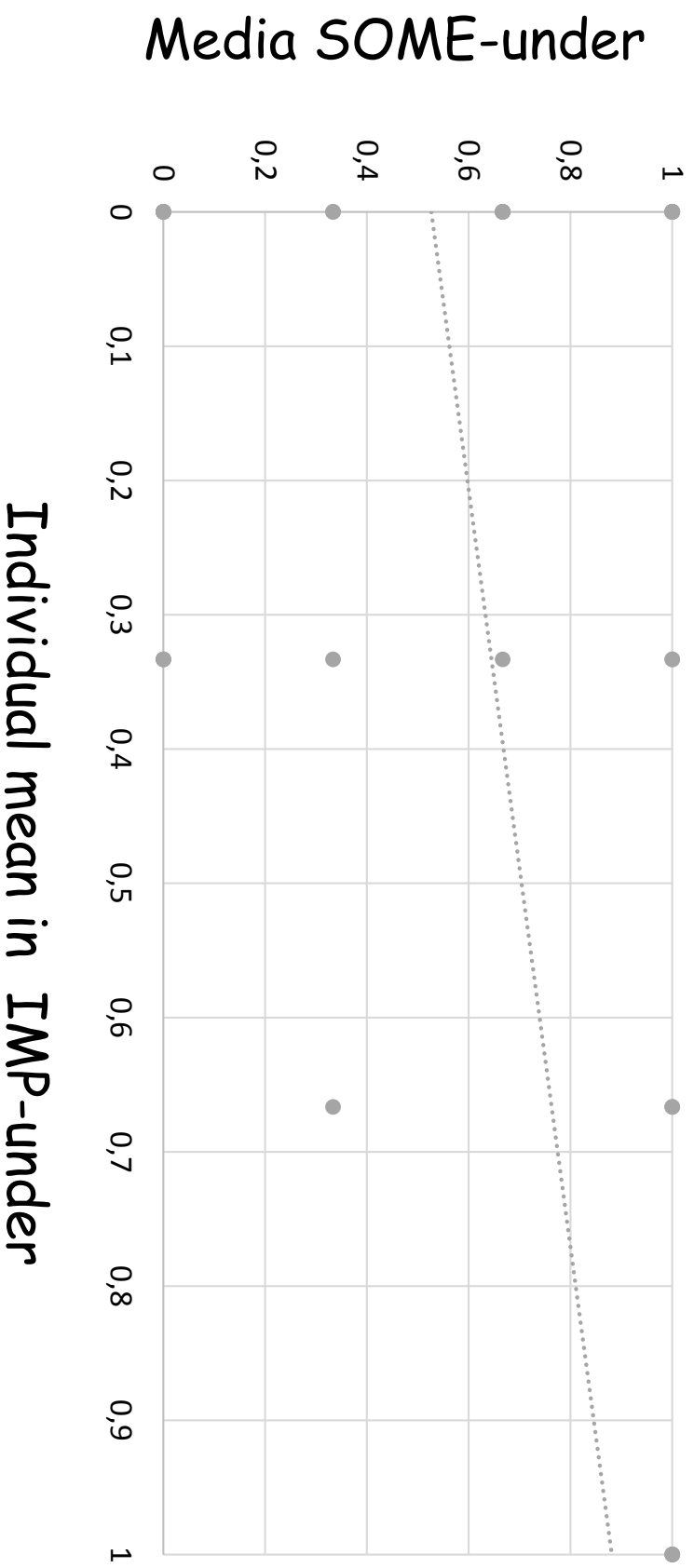


BIMODAL DISTRIBUTION

IMP under-informative COMPREHENSION

Ipv under	3/3	2/3	1/3	0/3
$\geq 4;6$ (12)	4	1	1	6
$< 4;6$ (21)	3	0	4	14

CORRELATION between IMP-under and SOME-under in children $\geq 4;6$



Moderate correlation ($r=0.6$, $p=0.03$)

CONCLUSIONS

There is a correlation between the comprehension of under-informative uses of *IPV morphemes* and *SOME*

Data suggest that *IPV morphemes* trigger implicatures, as *SOME* do.

Children have problems in deriving the implicatures.

Is the *IPV* morpheme a scalar terms?

Research with atelic predicates and languages where the non-terminated information is fully grammaticalized will shed light on this issue

Experimental approaches to understanding non-culmination in infants, children, and adults

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Speech, Language, and Hearing Sciences
& Linguistics

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TELIC 2017





**Angela He,
postdoc**



**Max Kaplan,
MA student**

NEW YORK TIMES BESTSELLER

MICHAEL CRICHT



“DAZZLING.” People
CONGO

Munro stood, and said something quickly in a language that was not Swahili. The pygmy replied. Munro gave him one of the cigarettes they had been using to burn off the leeches.

The pygmy did not want it lit; instead he dropped it into a small leather pouch attached to his quiver. A brief conversation followed. The pygmy pointed off into the jungle several times.

“He says a white man is dead in their village,” Munro said. He picked up his pack, which contained the first-aid kit. “I’ll have to hurry.”

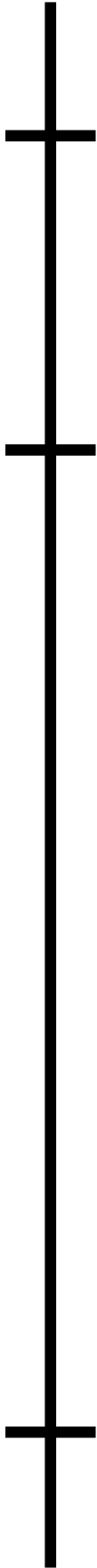
Ross said, “We can’t afford the time.”
Munro frowned at her.

“Well, the man’s dead anyway.”

“He’s not *completely* dead,” Munro said. “He’s not dead-for-ever.”

The pygmy nodded vigorously. Munro explained that pygmies graded illness in several stages. First a person was hot, then he was with fever, then ill, then dead, then completely dead—and finally dead-for-ever.

(p. 166)



concepts concepts,
early language



concepts,
language



Study 1

concepts

concepts,
early language

concepts,
language



concepts concepts,
early language



Study 2 concepts,
language

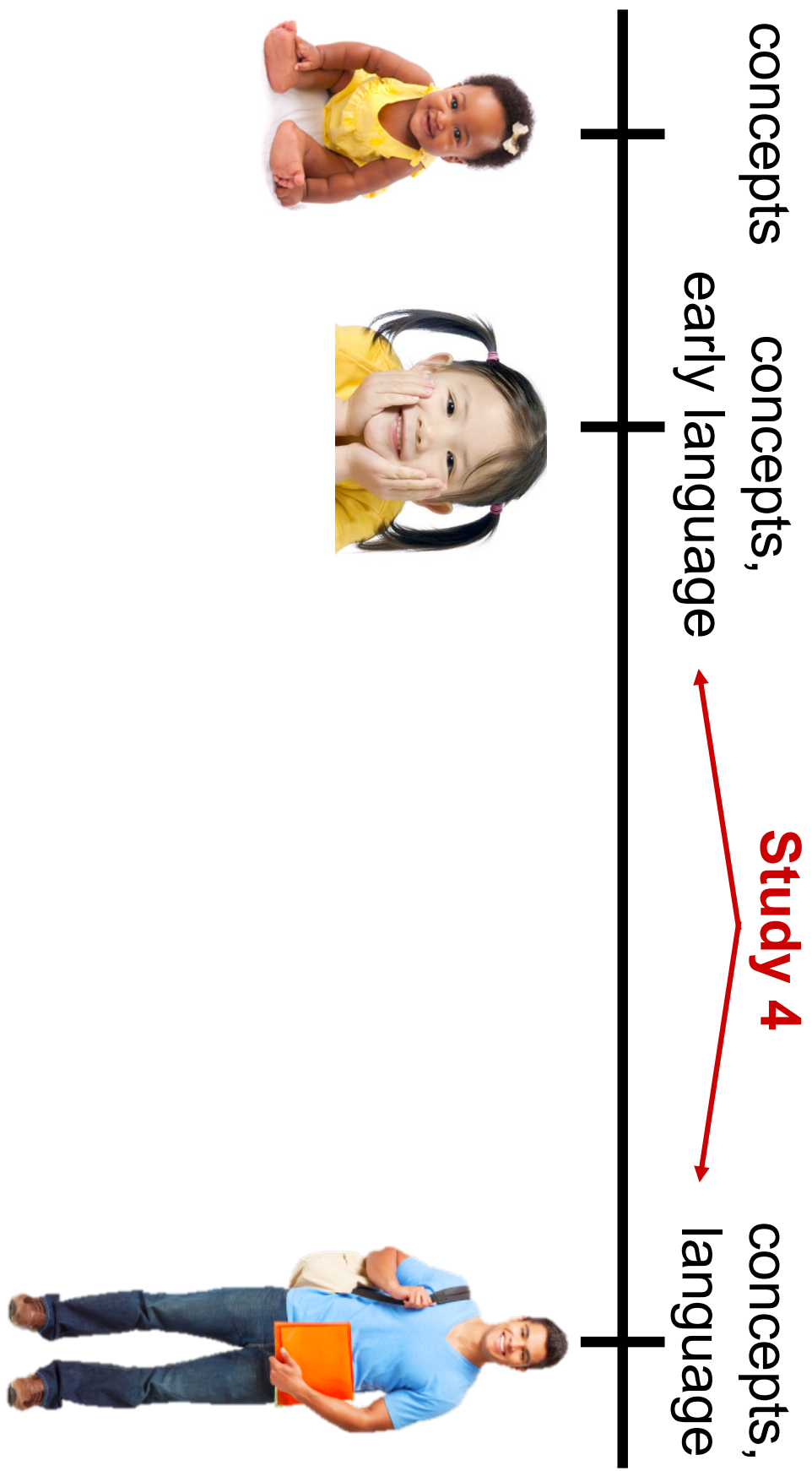


concepts concepts,
early language



concepts,
Study 3 language





Study 1

concepts

concepts,
early language

concepts,
language

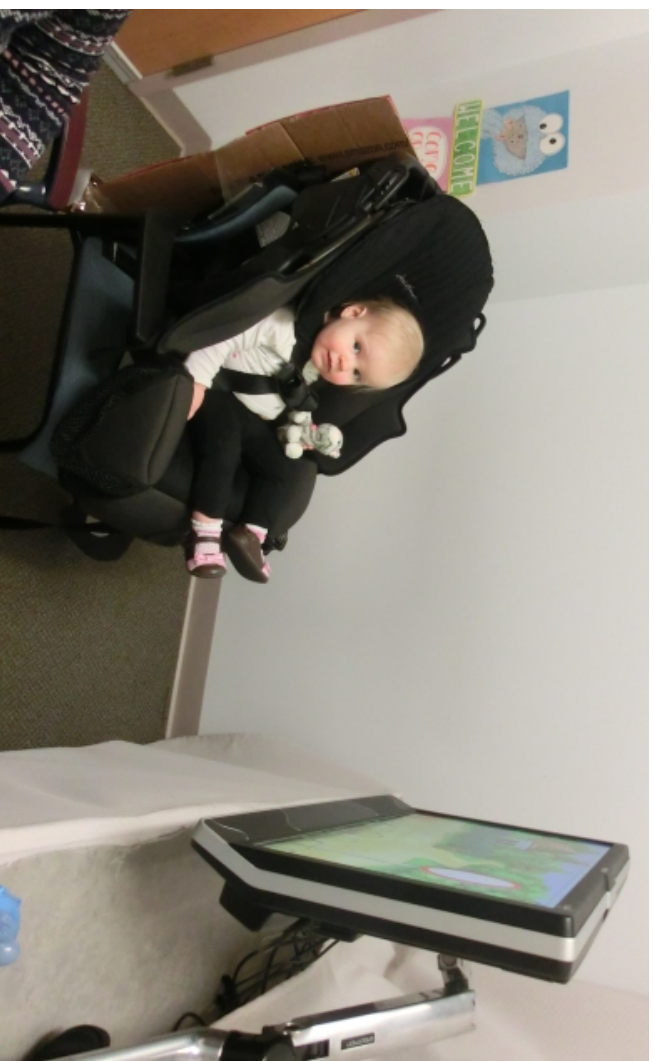


Study 1

- Children may “neglect” the endstates of events (e.g., Wittek, 2002).
- Do they fail to encode the relevance of endstate at all?
- The results of experimental and corpus studies are mixed.
- How do infants conceptualize event endstates?

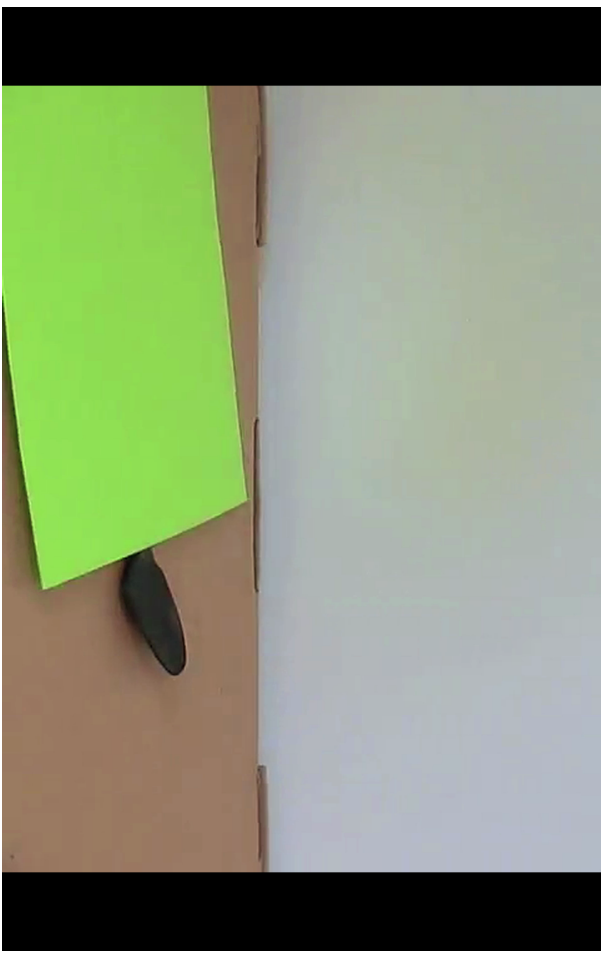
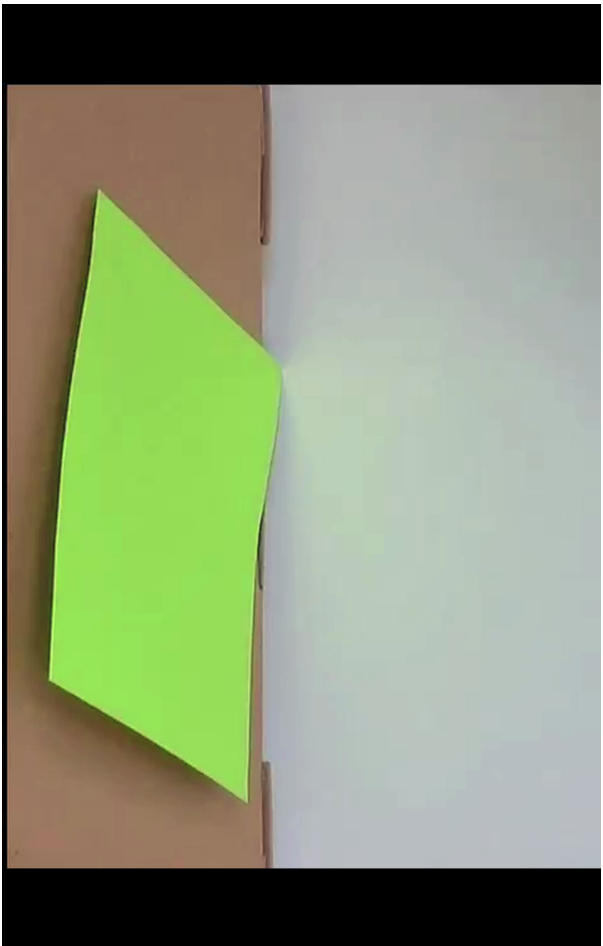
Study 1

- (English-acquiring) infants ages 13-15 months
- Habituation paradigm: habituate to either a fully- or partially-complete event, test for dishabituation to the other

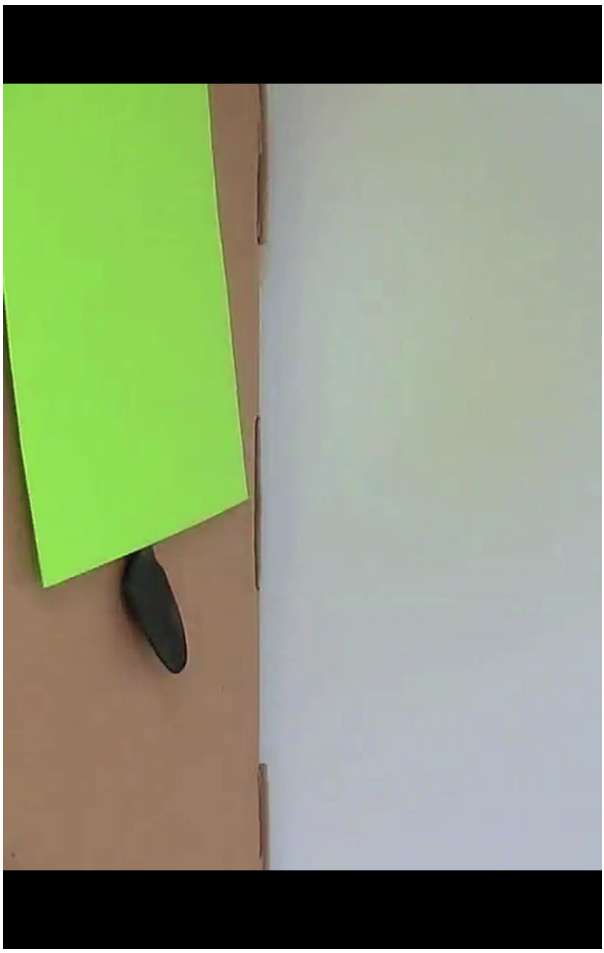
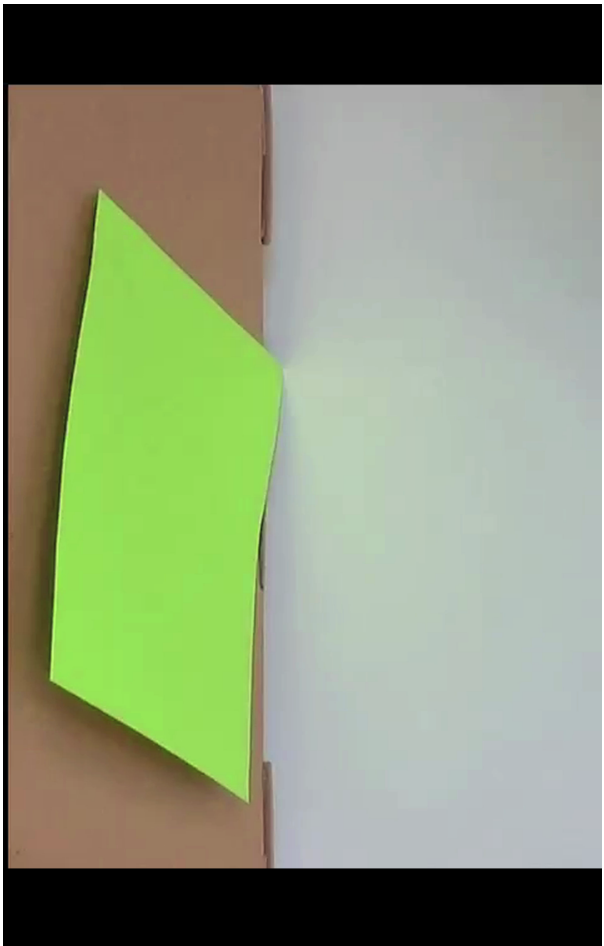




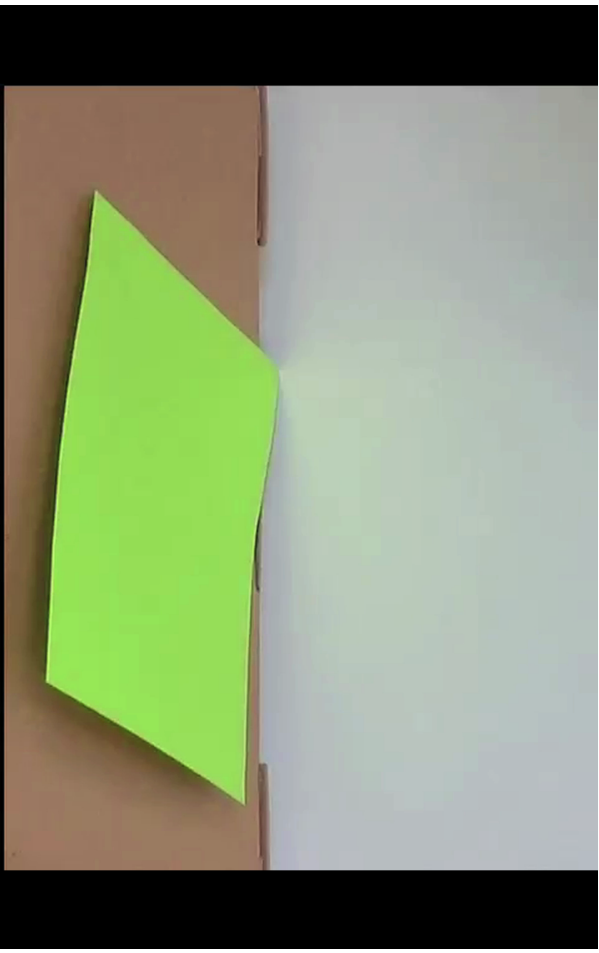
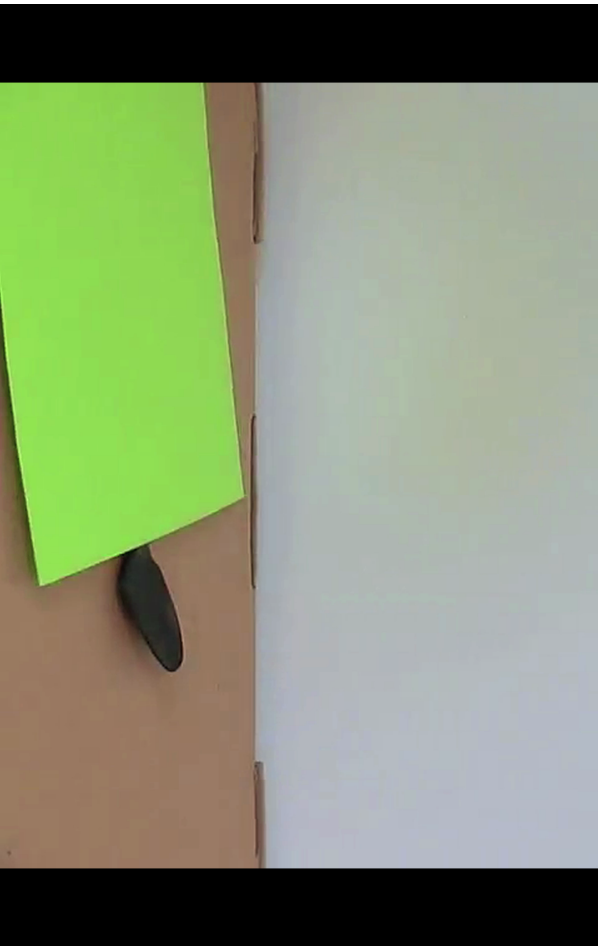
FULL - THEN - PARTIAL



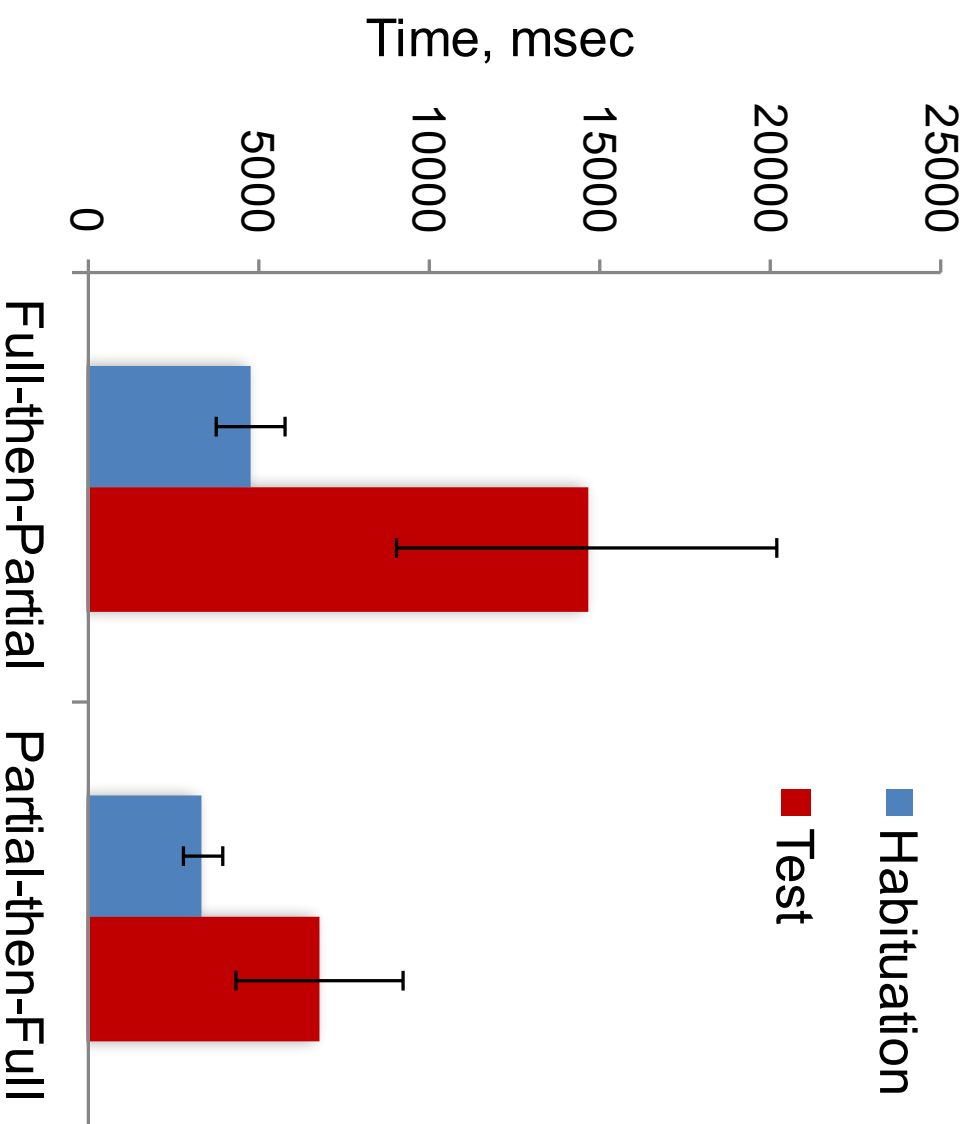
FULL – THEN – PARTIAL



PARTIAL – THEN – FULL



Infants aged 13 to 15 months (N = 13)



Study 1 Conclusions

- For infants, order matters. If you expect a specific natural endstate, you are surprised if you don't see it again.

Next steps:

- Event type must matter—events in which a theme is incrementally affected may show an even stronger effect.
- How does this pattern play out with other types of changes (e.g., covering one half of the spoon *versus* the other)?

concepts concepts,
early language



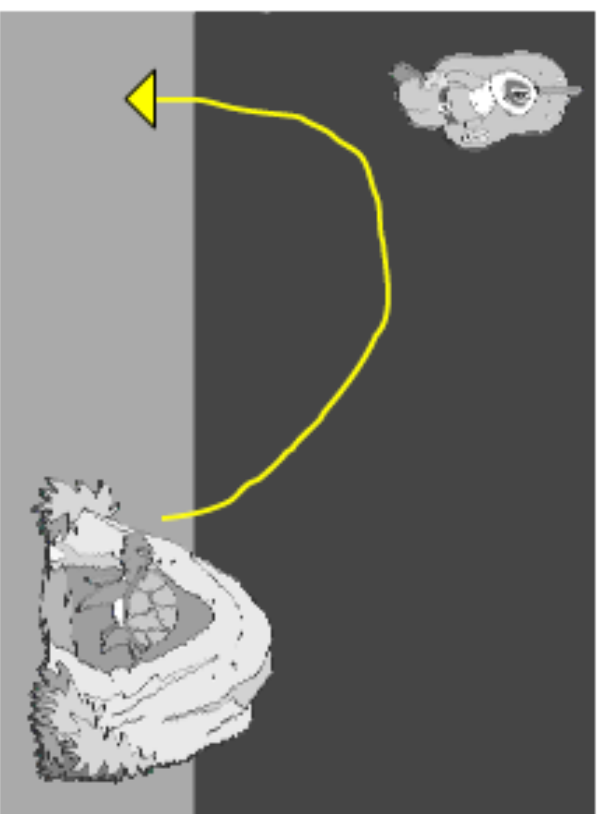
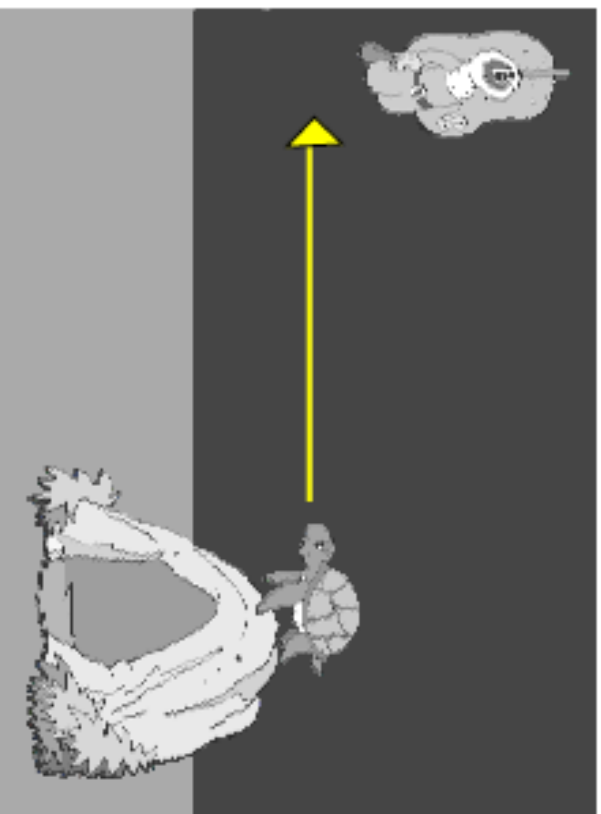
Study 2 concepts,
language



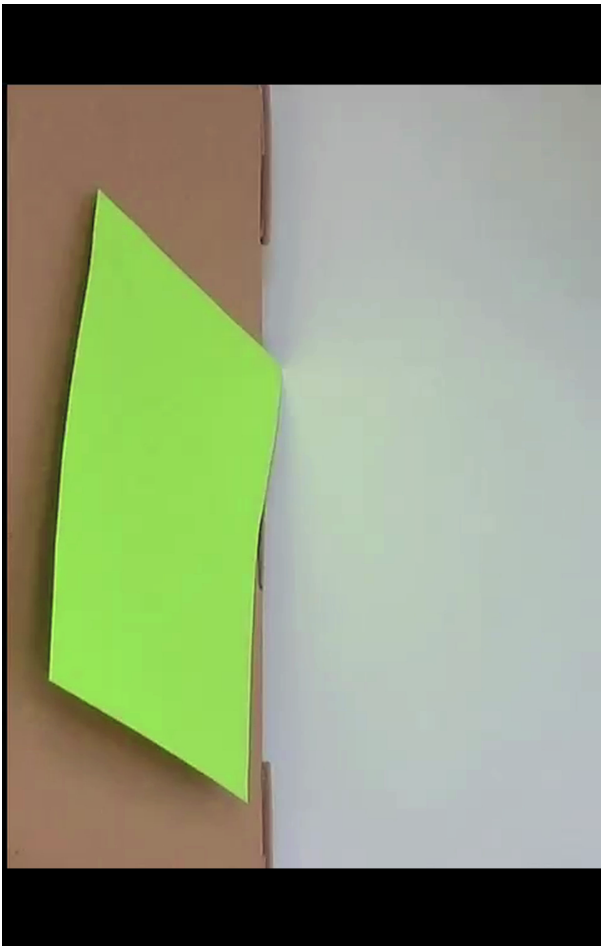
Study 2

- English-speaking adults with a wide variety of events
- Non-linguistic task!
- Similarity judgment paradigm
(least similar) 1 2 3 4 5 6 7 (most similar)
- A completion-related change vs. a “perceptual” change

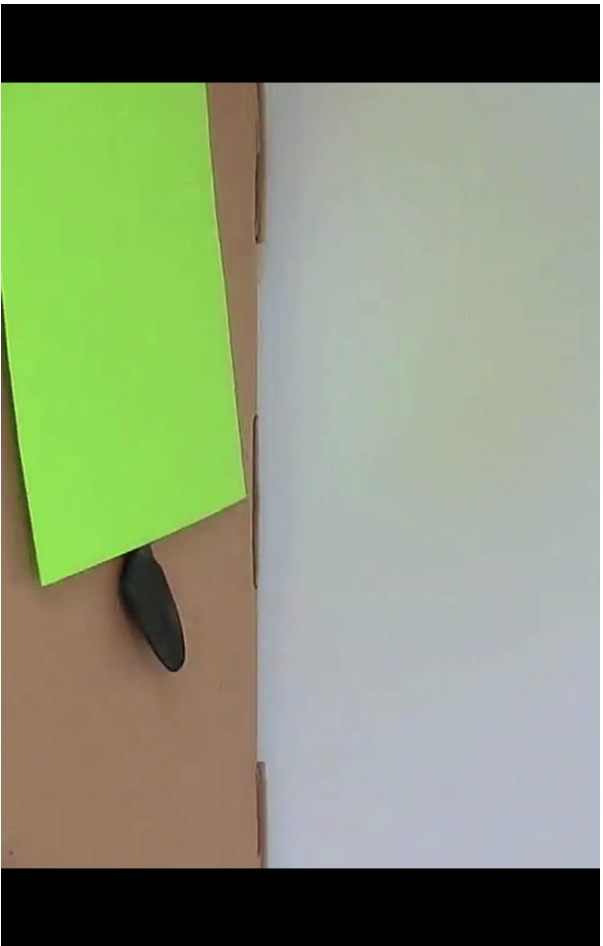
Papafragou & Selimis (2010)



ENDSTATE / COMPLETION CHANGE



OTHER CHANGE



ENDSTATE / COMPLETION CHANGE



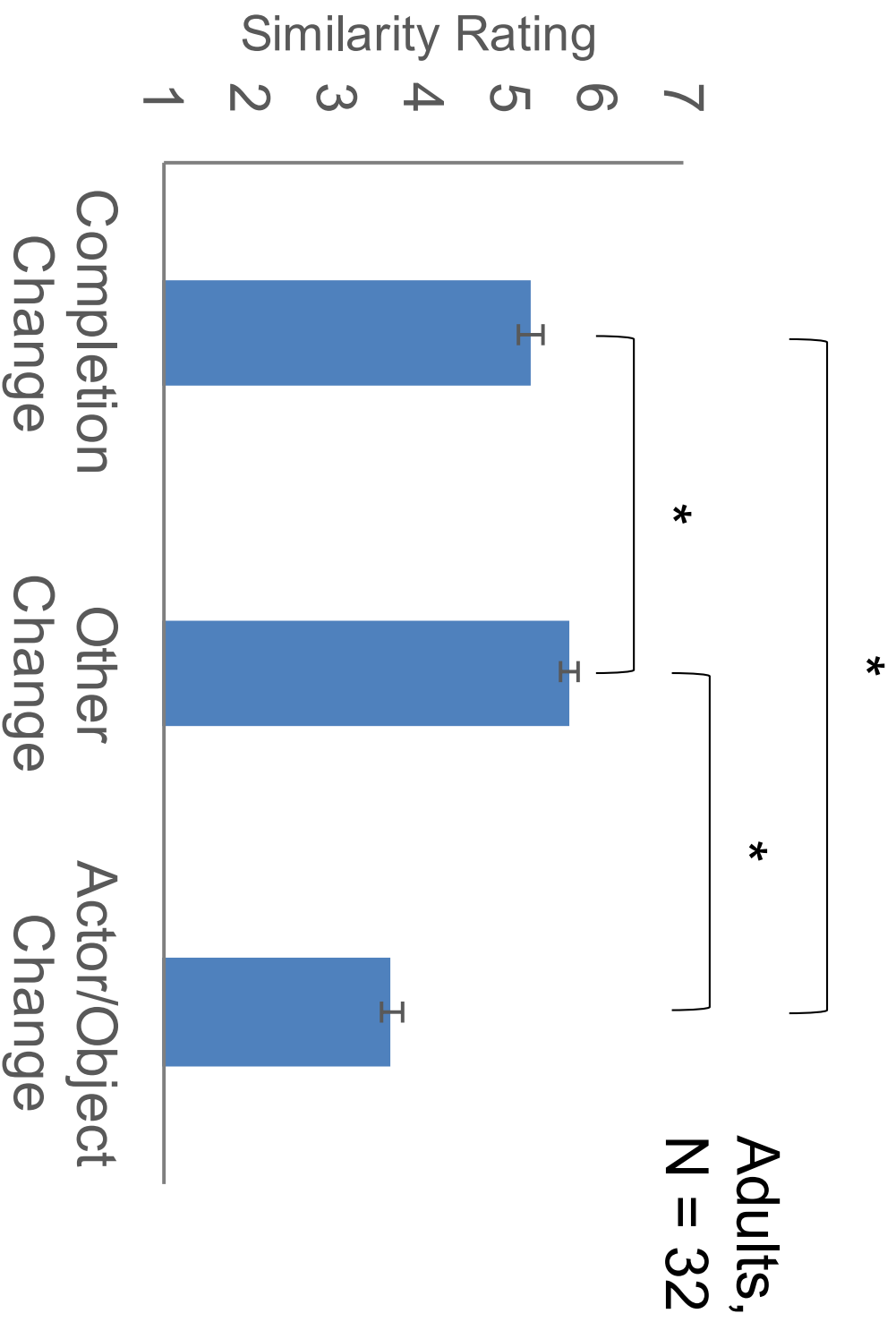
OTHER CHANGE



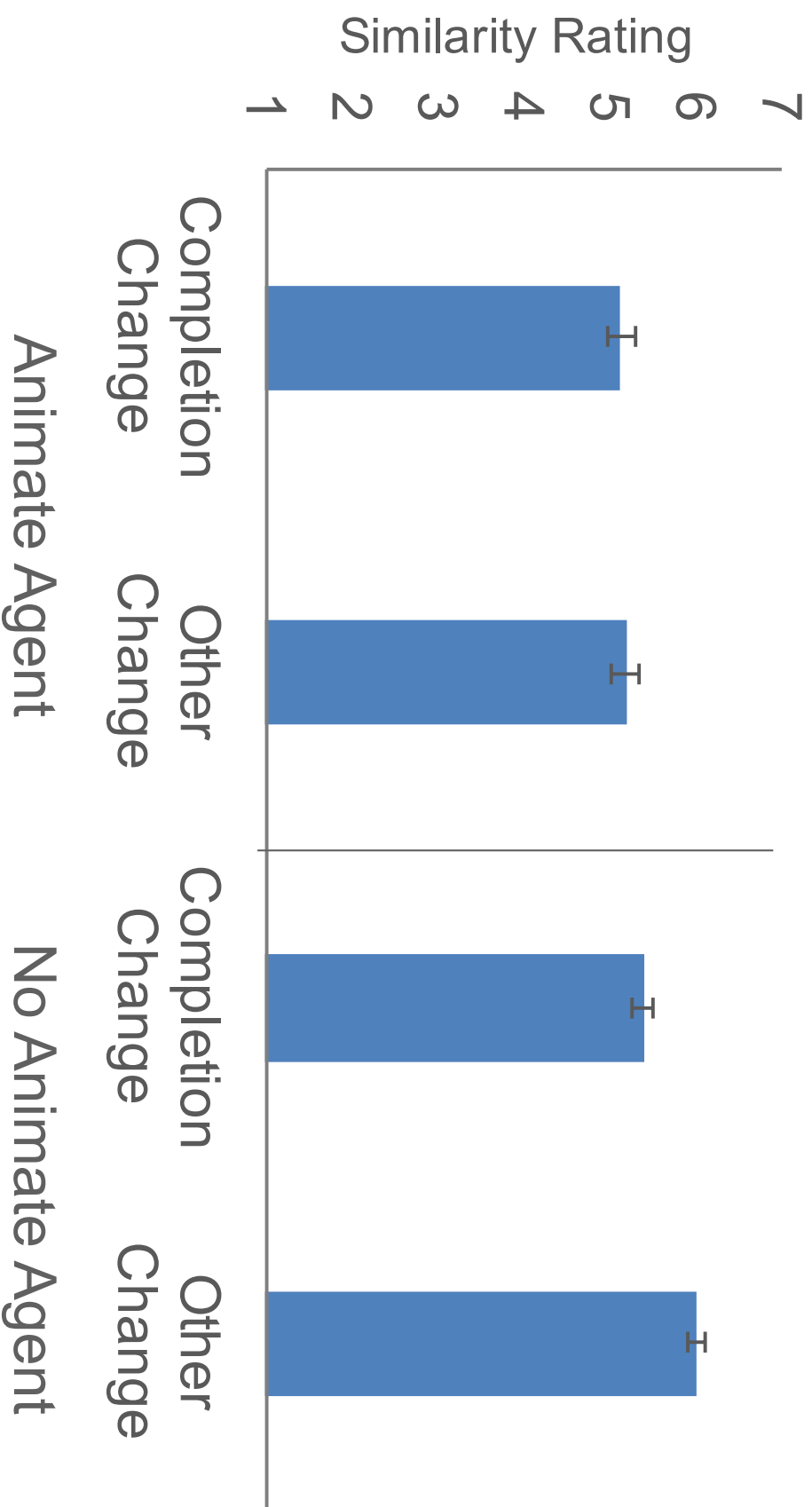
FILLER TRIALS WITH ACTOR OR OBJECT CHANGE



(least similar) 1 2 3 4 5 6 7 (most similar)



(least similar) 1 2 3 4 5 6 7 (most similar)



Study 2 Conclusions

- Adults see completion-related changes as more salient than other changes of a similar type or magnitude.
- Like infants, adults see completion as a critically important event component.

concepts concepts,
early language



concepts,
Study 3 language



Study 3

Arunachalam & Kothari (2011)

Experimental exploration of the basic phenomenon

- With a wide variety of event types
- In both English- and Hindi-speaking adults

SV:

maayaa-ne biskuT-ko khaa-yaa par use puuraa nahiin khaa-yaa
Maya-erg cookie-acc eat-perf but it-acc full not eat-perf
Maya ate the cookie but not completely.



SVs compatible with arbitrary endpoints and partial realization
(but the default interpretation is completive)

CV:

maayaa-ne biskuT-ko khaa li-yaa #par use puuraa nahiin khaa-yaa
Maya-erg cookie-acc eat take-perf but it-acc full not eat-perf
Maya ate the cookie but not completely.



CVs compatible only with natural endpoints and full event realization

Study 3

- Elicited Hindi and English speakers' judgments of perfectives with partially-completed and fully-completed events (TVJT: truth value judgment task)
- 2 x 2 design (both within-subject):
partial completion vs. full completion
SV vs. CV (Hindi); eat vs. eat up (English)

Eat the cookie



Eat the cookie

Partial



Full



Events

- Draw (a flower)
- Eat (a cookie)
- Fill (a glass)
- Extinguish (a candle)
- Close (a door)
- Cover (a pot)
- Pluck (a banana)
- Wake (a sleeping person)

Hindi:

SV: us-ne biskuT-ko khaa-yaa

she-ERG cookie-ACC eat-PERF

CV: us-ne biskuT-ko khaa li-yaa

she-ERG cookie-ACC eat take-PERF

Hindi Predictions

- fully-completed events:
100% acceptance for SVs and CVs
- partially-completed events:
differ by syntactic condition

Hindi Results

- fully-completed events:
100% acceptance for SVs and CVs ✓
- partially-completed events:
differ by syntactic condition
SV: 53%, CV: 29% ✓
- no effect of incremental theme

Hindi:

SV: us-ne biskutT-ko khaa-yaa

she-ERG cookie-ACC eat-PERF

CV: us-ne biskutT-ko khaa li-yaa

she-ERG cookie-ACC eat take-PERF


English:

ate: She ate the cookie.

English Predictions

- If the English simple past permits only natural endpoint readings, then speakers should perform as in the CV condition in Hindi (100% for full completion, 29% for partial completion).

English Results

- If the English simple past permits only natural endpoint readings, then speakers should perform as in the CV condition in Hindi (100% for full completion, 29% for partial completion). 

54% acceptance

Hindi:

SV: us-ne biskutT-ko khaa-yaa

she-ERG cookie-ACC eat-PERF

CV: us-ne biskutT-ko khaa li-yaa

she-ERG cookie-ACC eat take-PERF

English:

ate: She ate the cookie.

ate up: She ate up the cookie.

English Predictions

- If the English simple past permits only natural endpoint readings, then there should be no difference between conditions.

OR

- If the availability of the particle construction draws speakers' attention to the difference between the constructions, then the bare construction should be accepted more often than the particle construction.

English Results

- If the English simple past permits only natural endpoint readings, then there should be no difference between conditions. X

OR

- If the availability of the particle construction draws speakers' attention to the difference between the constructions, then the bare construction should be accepted **more** ✓ **often** than the particle construction.

33%

Study 3 Conclusions

- Evidence that naïve Hindi speakers make judgments consistent with the literature in an experimental task
- They showed the SV/CV distinction across event types (e.g., both incremental theme and non-incremental theme events).
- English speakers too often accept non-culmination interpretations and are sensitive to the differences between syntactic constructions that emphasize completion.

concepts

concepts,

Study 4

concepts,
language

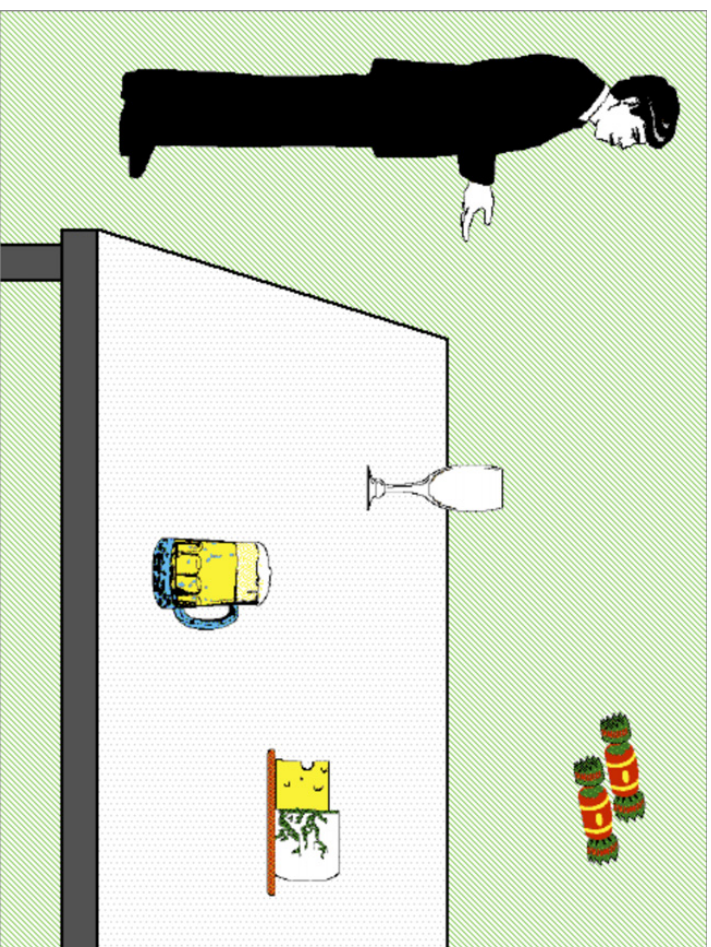
early language



Study 4

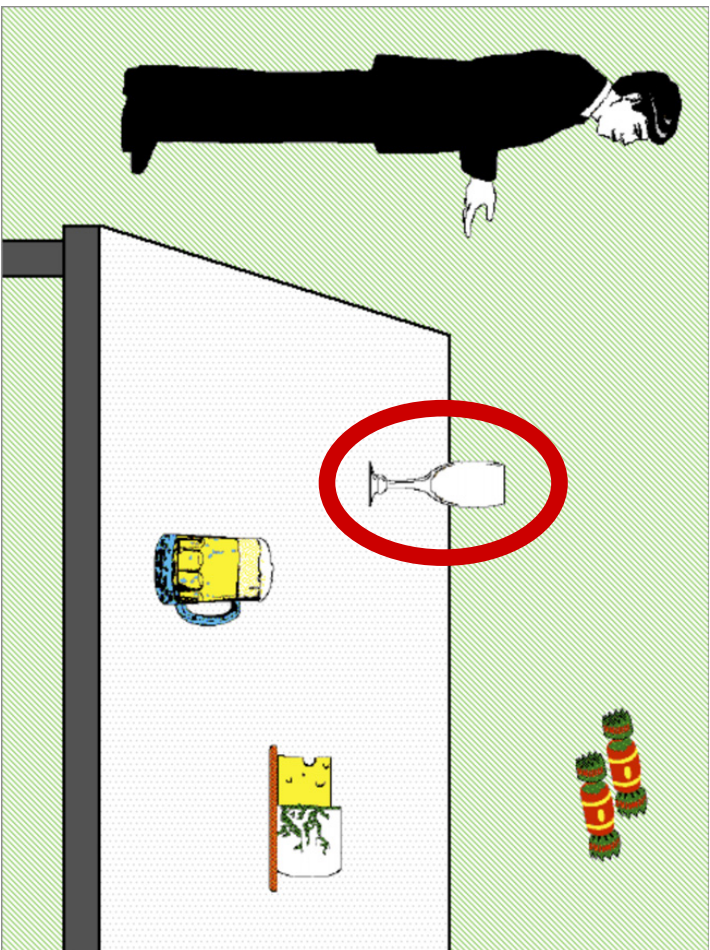
- Even for English speaking adults, partial completion interpretations are acceptable.
- But in non-linguistic tasks, completion may be very important throughout the lifespan.
- Could acceptance of partial completion interpretations be “after-the-fact”? (Pragmatic? Coerced?)
- How do partial completion interpretations emerge over the course of processing a sentence?

The man will drink the beer
The man has drunk the wine

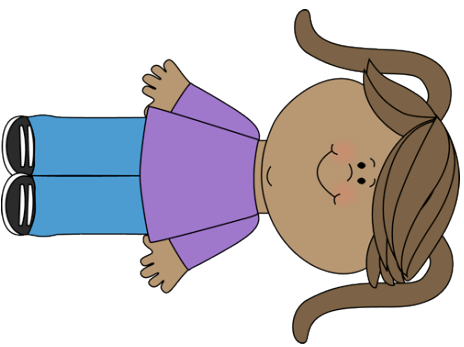


Altmann & Kamide (2007)

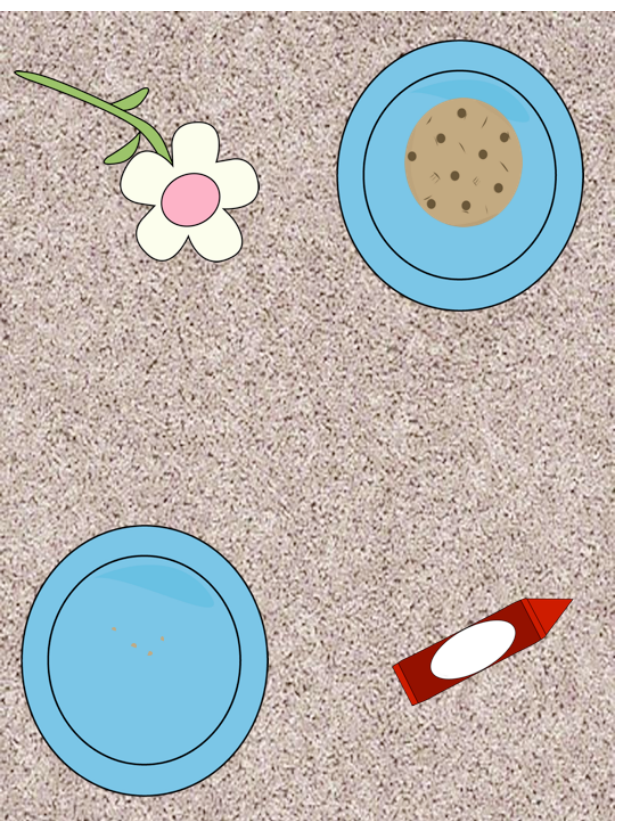
The man will drink the beer
The man **has drunk** the wine



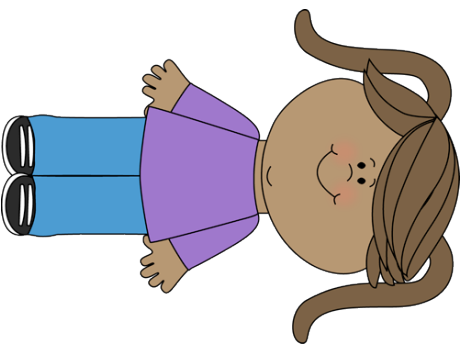
Altmann & Kamide (2007)



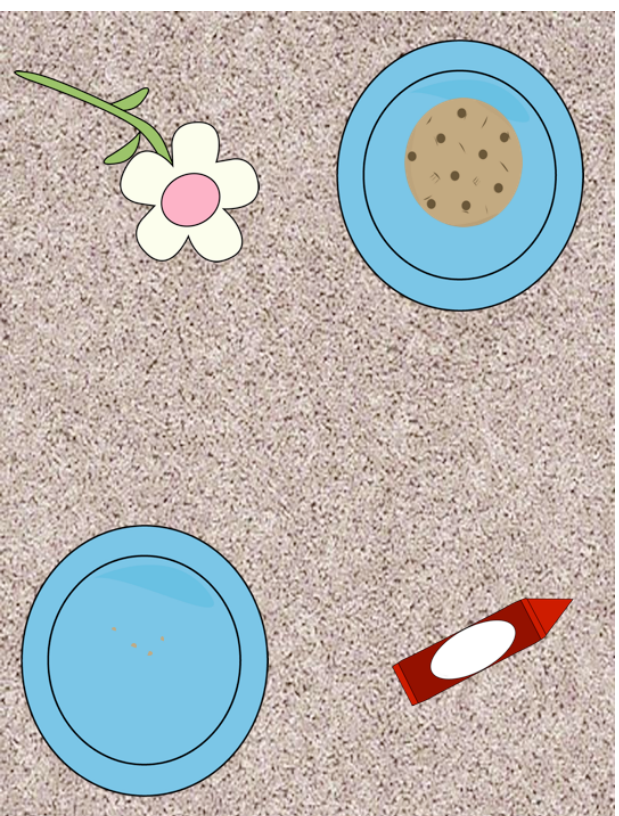
This one is
about a girl.



The girl **has eaten** the cookie.
OR
The girl **was eating** the cookie.



This one is
about a girl.

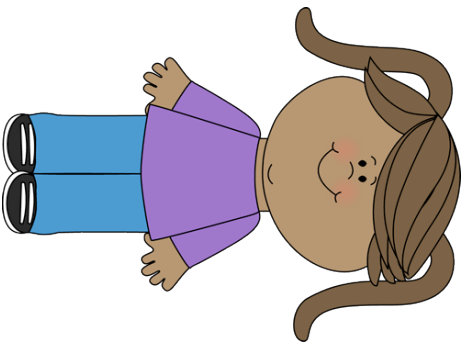


FULL COMPLETION CONDITION

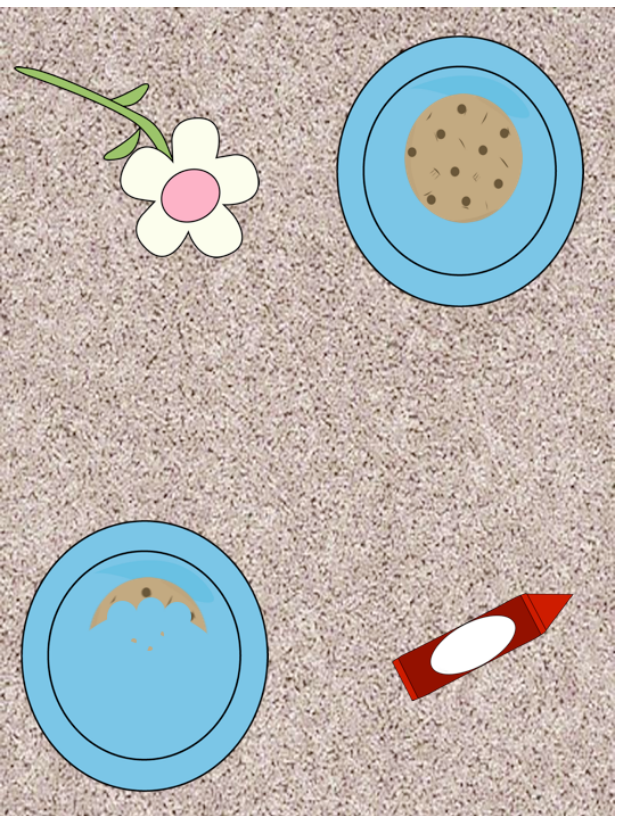
The girl **has eaten** the cookie.

OR

The girl **was eating** the cookie.



This one is
about a girl.



PARTIAL COMPLETION CONDITION

The girl **has eaten** the cookie.

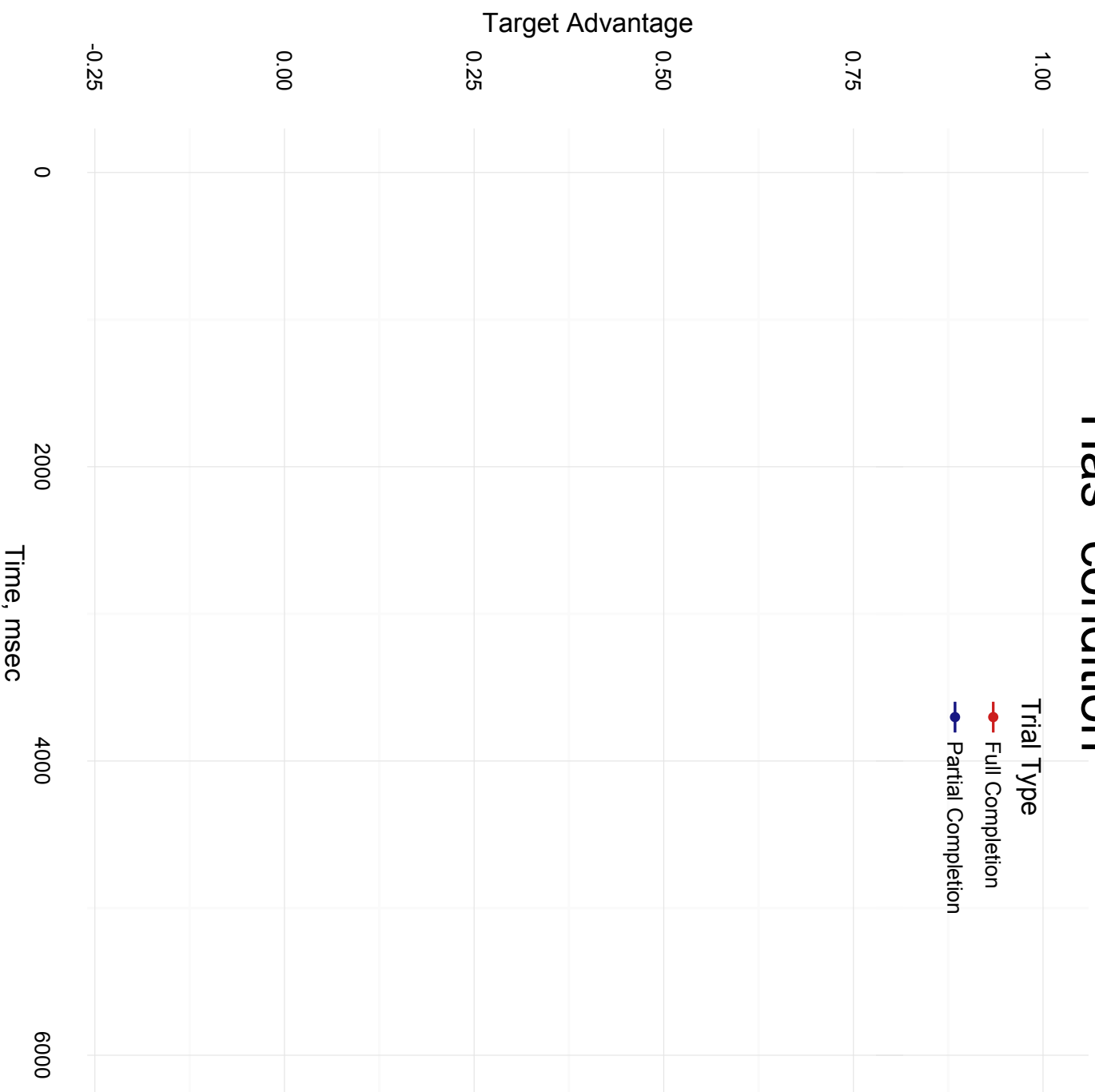
OR

The girl **was eating** the cookie.

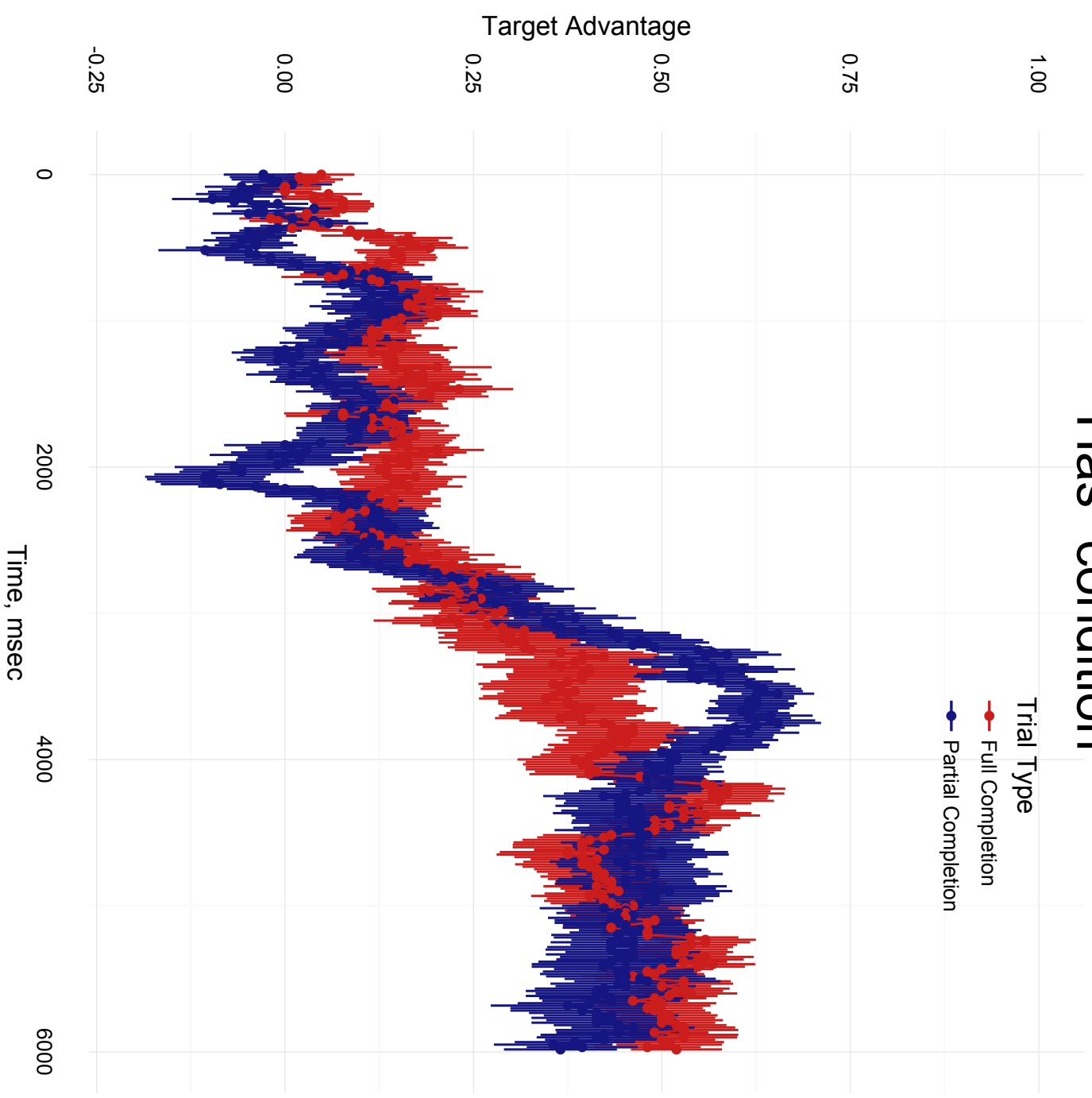
Study 4 “Has” Predictions

- If partial completion interpretations are immediately seen as good candidates, there should be no difference in the preference for the target across conditions.
- If the partial completion interpretations that arise in offline judgments only come about offline, the full completion condition should show a larger target preference than the partial completion condition.

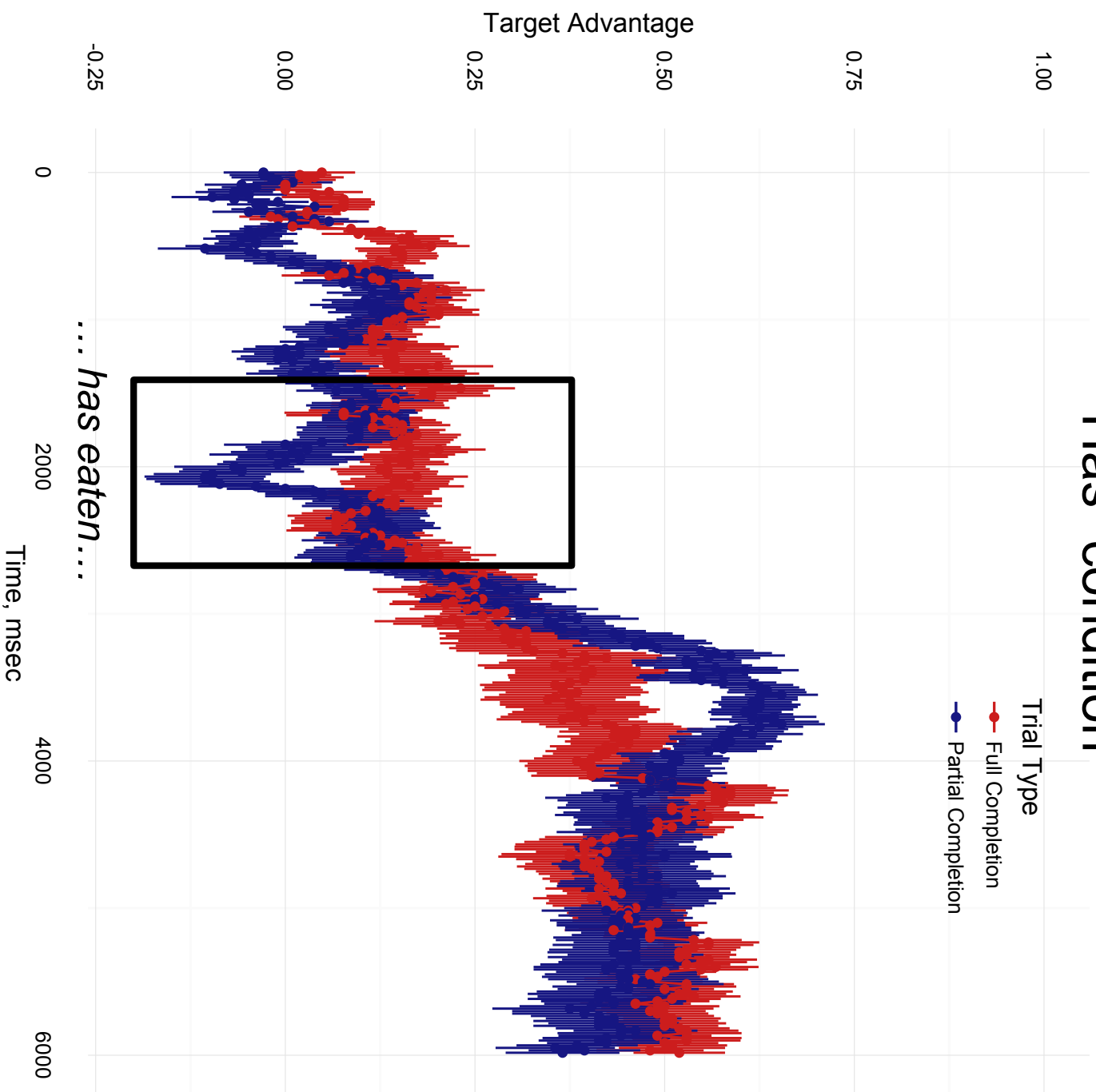
“Has” condition



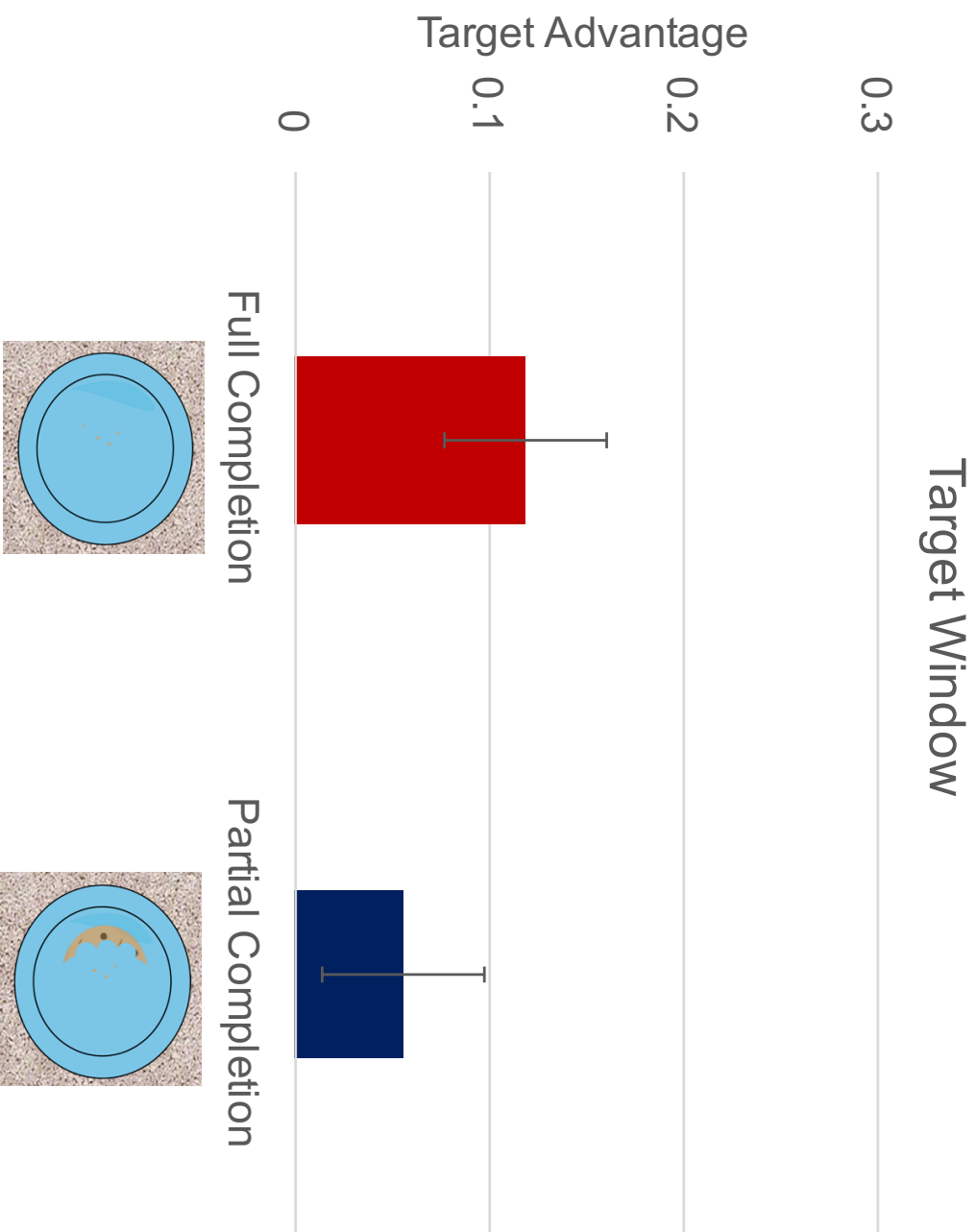
“Has” condition



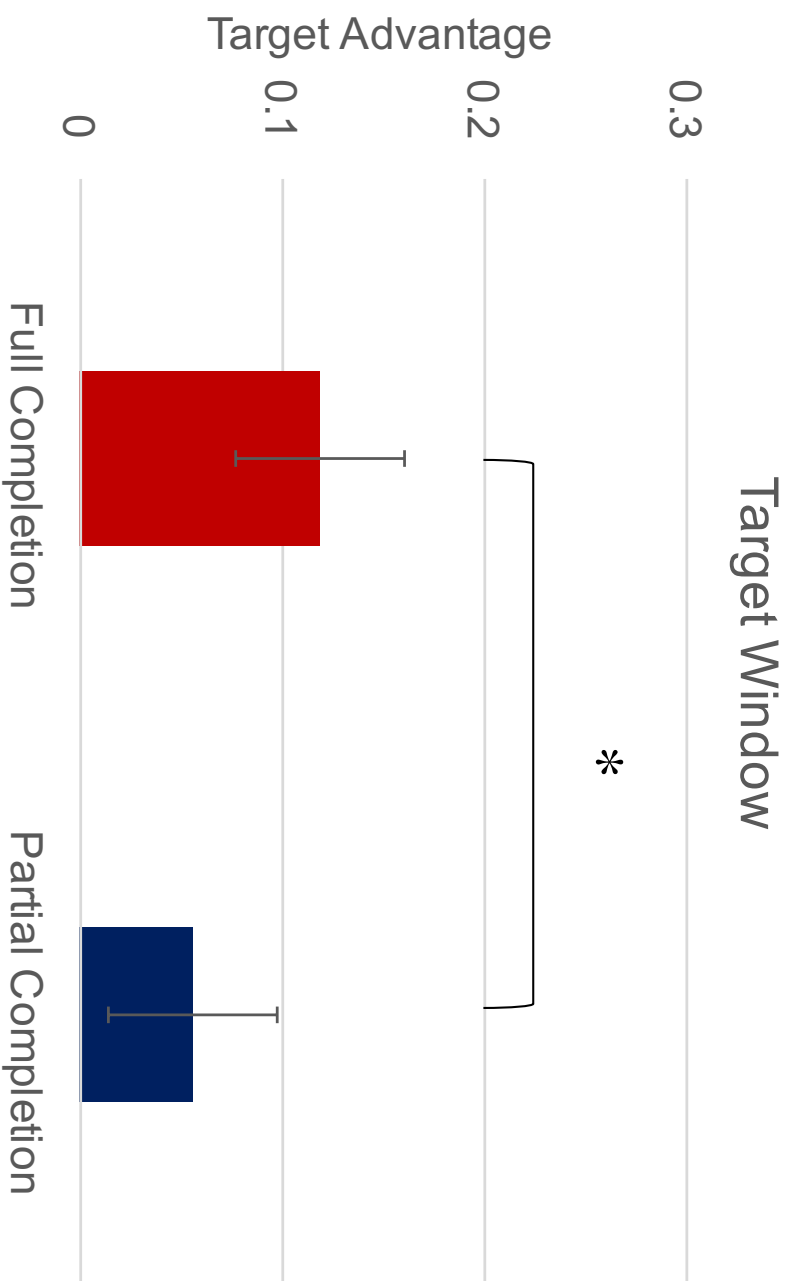
“Has” condition



“Has” condition



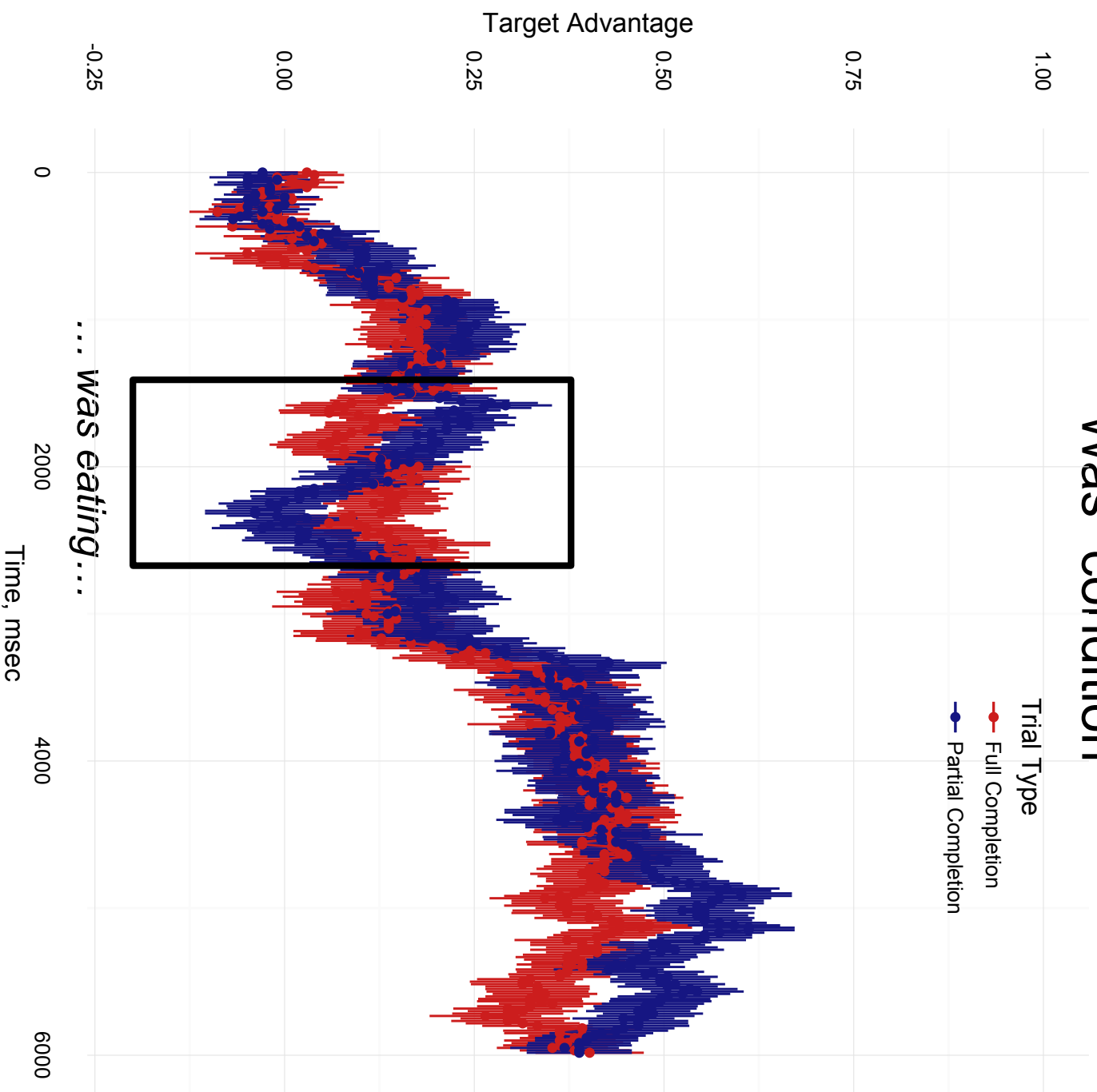
“Has” condition



Study 4 “Was” Predictions

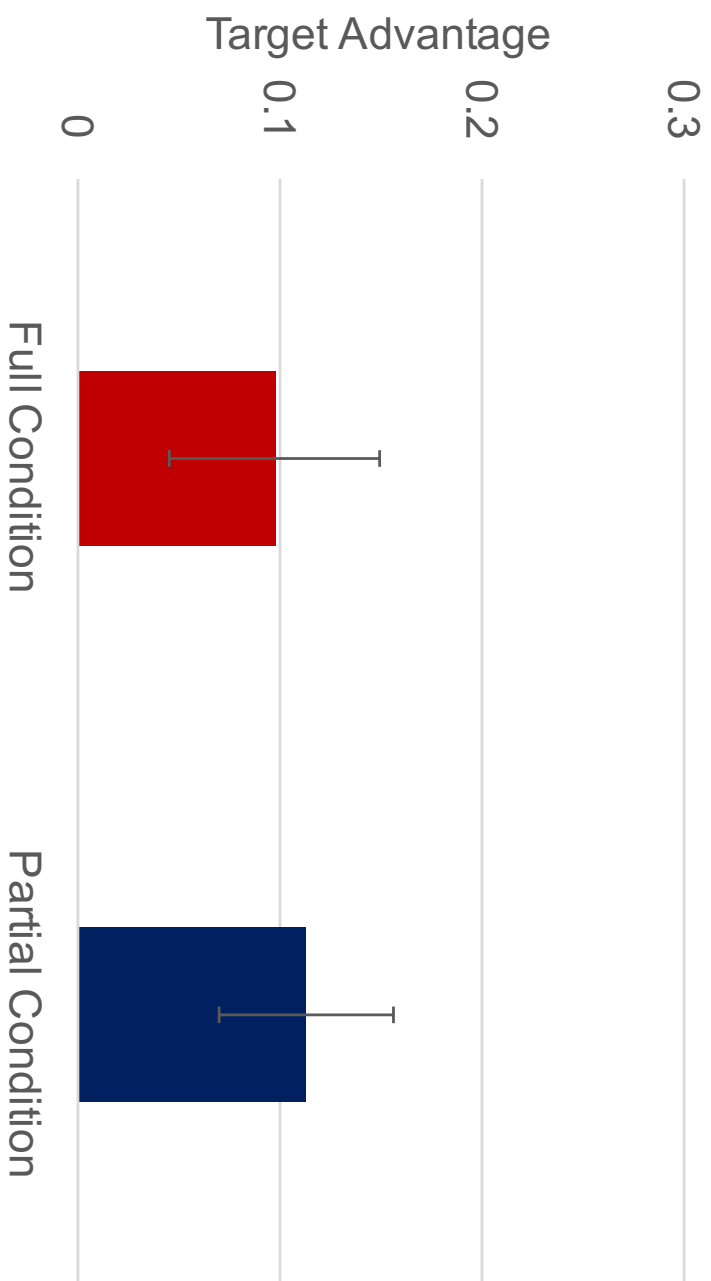
- Possibly a target preference in the Partial Completion condition, signifying that participants think the event is ongoing.
- Or maybe not (e.g., Madden & Zwaan, 2003)

“Was” condition

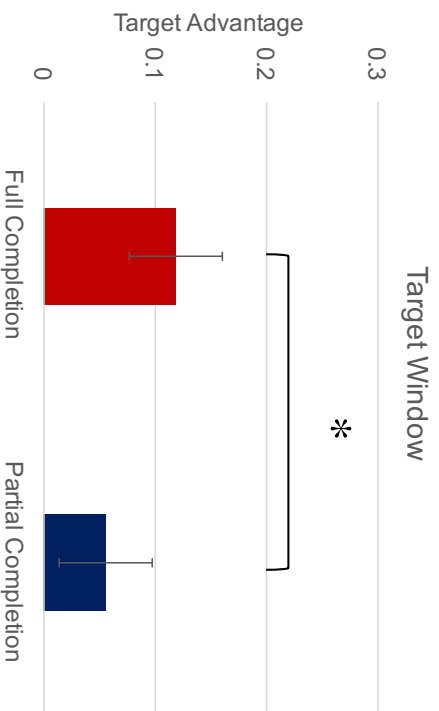


“Was” condition

Target Window



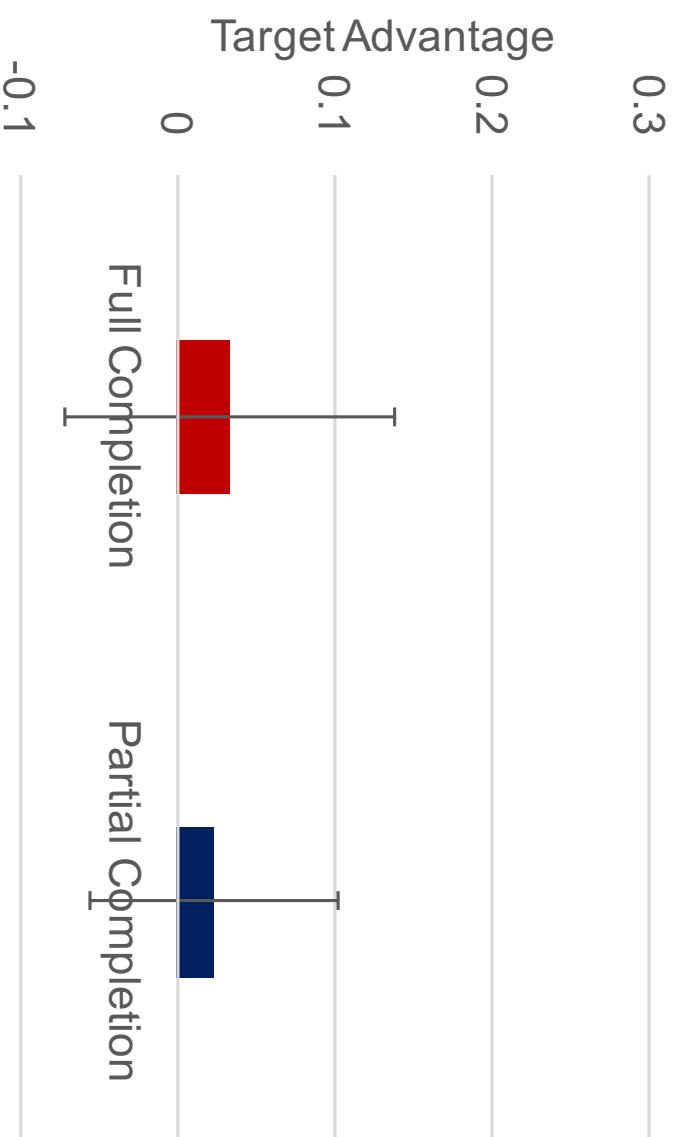
ADULTS



“Has” condition

CHILDREN, ages 4-5
Data collection in progress!

Target Window



Study 4 Conclusions

- English-speaking adults may immediately, in real-time, assign a full culmination interpretation to, e.g., *has eaten*, only overriding this to permit a partial completion interpretation if it is the best one available.
- Preschoolers may be in an “endstate neglect” stage. Their representations for these predicates may permit both complete and partial culmination interpretations.
- Next step: Test in languages that more readily permit non-culmination interpretations – compare two forms (e.g., Hindi SV vs. CV)

General Discussion

- Infants (“pre-English” wrt this phenomenon) and English-speaking adults both perceive culmination as important when considering events non-linguistically.
- For adults, non-culmination interpretations may be computed in a later processing stage.
- Preschoolers may permit both culmination and non-culmination interpretations (“endstate neglect”), though they too may ultimately prefer the affected referent.

Thank you!

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Culminated telic imperfectives. The presuppositional imperfective passive in Russian¹

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1 Introduction

- Russian past passive participles (PPPs) are regularly derived from perfective (PF) verbs:²

INFINITIVE	LONG FORM PPP	SHORT FORM PPP
<i>sdelat'</i> 'make.PF'	<i>sdelannyj</i> 'made.PF'	<i>sdelan</i> 'made.PF'
<i>rasserdit'</i> 'make-angry.PF'	<i>rasseržennyj</i> 'made-angry.PF'	<i>rasseržen</i> 'made-angry.PF'
<i>zakryt'</i> 'close.PF'	<i>zakrytyj</i> 'closed.PF'	<i>zakryt</i> 'closed.PF'

- However, imperfective (IPF) PPPs can be found as well:

INFINITIVE	LONG FORM PPP	SHORT FORM PPP
<i>delat'</i> 'make.IPF'	<i>delannyj</i> 'made.IPF'	<i>delan</i> 'made.IPF'
<i>slyšat'</i> 'hear.IPF'	<i>slyšannyj</i> 'heard.IPF'	<i>slyšan</i> 'heard.IPF'
<i>krasit'</i> 'paint.IPF'	<i>krašennyj</i> 'painted.IPF'	<i>krašen</i> 'painted.IPF'

NB: A note on terminology:

- We reserve the terms (I)PF for morphological forms of a given verb.
- We study IPF forms used in contexts that might semantically be called perfective (e.g. completed bounded events in the past, see below).
- The Russian IPF can have various meanings in different contexts:
 - Canonical, exclusively IPF: process, habituality, (iterativity; sometimes PF possible)
 - Non-canonical, 'aspectual competition': general-factual (sheer fact that event took place)
- Two types of passives in Russian (and similarly in other Slavic languages):
 - Reflexive passive, formed by the reflexive marker/postfix *-sja*
 - Periphrastic passive, formed by a form of *byt'* 'be' + PPP
- General wisdom: The two types of passives are aspectually restricted (in Russian) (e.g., Babby and Brecht 1975).
 - Only IPF in reflexive passives³

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²We use the following abbreviations: ACT (active), DAT (dative), F (focus), GEN (genitive), IMP (imperative), INSTR (instrumental), IPF (imperfective), FREQ (frequentative), MOD (modal), PF (perfective), PL (plural), PPP (past passive participle), PRT (participle), PST (past tense), PTL (particle) RFL (reflexive), RNC (Russian National Corpus), SI (secondary imperfective)

³Fehrmann, Junghanns, and Lenertová (2010) note that according to Padučeva (2003) (who in turn cites Bulaxovskij 1954) the restriction of reflexive passives to IPFs in Russian is a more recent development and that PF verbs could be used as such until at least the middle of the 19th century. In their system they do not build in an aspectual restriction on Russian reflexive passives, though, noting that such examples can still be found [cf., e.g., (4)].

– Only PF in periphrastic passives

(1) IMPERFECTIVE PARADIGM

- a. Storož otrkyval vorota.
watchman.NOM opened.IPF gates.ACC
'The watchman opened/was opening (IPF) a/the gate.'
- b. Vorota otkryvalis' storožem.
gates.NOM opened.IPF.RFL watchman.INSTR
'The gate was (being) opened (IPF) by a/the watchman.'
- c. *Vorota byli otkryvany storožem.
gates.NOM were opened.IPF.PRT watchman.INSTR

(2) PERFECTIVE PARADIGM

- a. Storož otkryl vorota.
watchman.NOM opened.PF gates.ACC
'The watchman opened (PF) a/the gate.'
- b. Vorota byli otkryty storožem.
gates.NOM were opened.PF.PRT watchman.INSTR
'The gate was opened (PF) by a/the watchman.'
- c. *Vorota otkrylis' storožem.
gates.NOM opened.PF.RFL watchman.INSTR

• However, there are exceptions on both sides.

– Periphrastic passives of IPFs: This paper, cf.:

- (3) Oni byli šity kornjami berezy ili vereska i byli očen' krepki.
they were sewn.IPF roots.INSTR birch.GEN or heather.GEN and were very tough
'They were sewn with birch or heather roots and were very tough.'

– Reflexive passives of PFs, e.g. (4) (from Schoorlemmer 1995:208, citing Gerritsen 1988, who in turn cites Janko-Trinickaja 1962, 133)

- (4) Kniga Polja de Krjui "Oxotniki za mikrobami" **pročitaetsja** s bol'sim
book Paul.GEN de Krui Hunters after microbes reads.PF.RFL with great
interesom i specialistom-mikrobiologom, i junošej, ne
interest and specialist-microbiologist.INSTR and youth.INSTR not
vidavšim ešče ni odnoj naučnoj knigi.
see.PST.ACT.PRT.INSTR still not one scientific book
'Paul de Kruif's book "Microbe Hunters" will be read with great interest both by the
professional microbiologist and by the youth who has never seen a scientific book in his
life.'

→ The main views on (the use of) IPF PPPs in the literature are as follows:

- IPF PPPs are rare/idiomatic/frozen forms that functions like adjectives: Academy Grammar (Švedova 1980), Schoorlemmer (1995), Dickey (2000)
- IPF PPPs are ignored: Babby and Brecht (1975); Paslawska and von Stechow (2003)
- A more refined view in Knjazev (2007): IPF PPPs are (somehow) restricted in use, in comparison to more 'regular' PF PPPs.

Our goals

- Show that IPF PPPs can be regular participles, not necessarily adjectives, on the basis of
 - Their formation: Fully compositional meaning
 - Their use: IPF PPPs occur in regular periphrastic passive constructions.
- Examine the type(s) of passive(s) that IPF PPPs occur in
- Argue that a subgroup of IPF PPPs in passives constitute a case of the presuppositional factive IPF (in the sense of Grønn 2004)

2 The data

- Russian National Corpus (RNC) (ruscorpora.ru)
 - Grammatical features: partcp,praet,pass,ipf
 - 109,028 documents, 22,209,999 sentences, 265,401,717 words
- We focused on IPF PPPs directly preceding or following a form of *byt'* 'be' (BE).
 - partcp,praet,pass,ipf distance: 1 from *byt'*: 2,632 contexts
 - *byt'* distance: 1 from partcp,praet,pass,ipf: 17,015 contexts(excludes: PPPs with null BE, PPPs as second conjuncts in coordination with other PPPs, etc.)
- Data we excluded manually (because we used the non-disambiguated corpus version):
 - Biaspectual forms (marked as IPF in RNC; e.g., *obeščan* 'promised', *velen* 'ordered'; verbs in *-ovat'*: *ispol'zovan* 'used', *realizovan* 'realized', etc.)
 - Long form PPPs and (LF and SF) PPPs in attributive uses
 - Errors in tagging (e.g., *Biorndalen*, *Sezan*; *strašen* 'terrible/scary.ADJ' tagged as PPP; *otvečen* 'answered.PF', *pereključen* 'over-switched.PF' tagged as IPF)

→ No quantitative analysis

Our questions

Q1 Are IPF PPPs limited to idiomatic expressions, and/or are they genuine adjectives?

Our answer: No.

Q2 If we find non-idiomatic IPF PPPs in clear passive constructions, in what kind of contexts do they occur; can they express eventive/verbal passives?

Our answers:

- IPF PPPs occur in both stative/adjectival and eventive/verbal passives
- There is one prominent group of IPF passives which presuppose a completed event (normally referred to by PF) and focus on some other aspect of this event
- In this group: obligatory modifiers, special information structure

Q3 What would be a general semantic characterization of an IPF PPP?

Our answers:

- There are several subclasses of IPF PPPs in passives.
- Presuppositional factive IPF PPPs constitute one solid subclass.
- See section 5 for a sketch of an analysis.

3 Q1: IPF PPPs: regular/idiomatic/adjectival and compositional

- Of course we found IPF PPPs that cannot be analysed as compositional passive participles, e.g.:
 - Idiomatic cases: *(ne) lykom šit* lit. ‘(not) sewn with bast fiber’, meaning ‘simple(-minded)’
 - Fixed expressions: *rožden/kreščen* ‘born/baptized’
 - Genuine adjectives: *viden*, lit. ‘seen’, meaning ‘visible’

- **Regular, productive, repeated forms with predictable (compositional) meaning:**

pisan (written.IPF), čitan (read.IPF), pit (drunk.IPF), eden (eaten.IPF), šit (sewn.IPF), delan (made.IPF), čekanen (minted.IPF), bit (beaten.IPF), myt (washed.IPF), brit (shaved.IPF), strižen (haircut.IPF), kormlen (fed.IPF), nesen (carried.IPF), govoren (said.IPF), prošen (asked.IPF), zvan (called.IPF), kusan (bitten.IPF), kryt (covered.IPF), venčan (married.IPF), njuxan (smelled.IPF), etc.

(5) V silu delikatnosti situacii gosti zvany byli s osobym razborom.
in power delicacy.GEN situation.GEN guests called.IPF were with particular selection
‘Due to a delicate situation the guests were invited upon careful selection.’

(6) Ništo vam, prinjuxaetes’, i ne takoe njuxano bylo.
nothing you.DAT.PL sniff.PF and not such smelled.IPF was
‘It does not matter, you will get used to the smell, there are worse smells.’

(7) Bylo pito, bylo edeno, byli slezy prolity.
was drunk.IPF was eaten.IPF were tears poured.PF
‘(Things) were drunk, (things) were eaten, tears were shed.’
[lit.: Was drunk (neutr), was eaten (neutr), tears were shed]

⇒ Conclusion: There are IPF PPPs whose semantics is built compositionally.

Productive IPF PPPs: No idiomatic/special meanings, compared to the base verbs

⇒ A lot of IPF PPPs formed from verbs of saying (*say, call, ask* etc.) and incremental verbs (*write, sew, read* etc.), though not exclusively (cf. examples above (5)).

This suggests that there might still be lexical restrictions. (or: limitations of the corpus?)

- Very few SI PPPs in passives, all archaic (i.e. from biblical texts or from before the 19th century):

(8) V leto 7010 mesjaca avgusta v šestoe na Preobraženie Gospoda
in summer 7010 month-GEN august-GEN in sixth on transfiguration lord.GEN
našego Iisusa Xrista načata byst’ podpisivana cerkov’ [...]
our.GEN Jesus.GEN Christ.GEN begun.PF be.AOR signed.SI church

⇒ We conclude for now that PPPs formed from SIs are (at most) extremely rare.

We do not have an explanation yet, but some speculations (at the end).

⇒ **First data observations:**

- There are not many IPF PPPs, but there are clearly compositional ones. → need for analysis
- Although the BE-PPP order is generally much more frequent, for relevant IPF PPPs there are even more instances in the rather marked PPP-BE order.
- Marked word order with the postverbal subject → word order of ‘explicative’ sentences, which presuppose that an event happened (the event’s existence) and explicate further aspects of this event (cf. Mehlig 2008, and references cited therein).

4 Q2: IPF PPPs in passives

- Main point: There are IPF PPPs that are used productively in passive constructions.

4.1 Q2.1: What kind of passives?

- Are IPF PPPs restricted to just one type of passives or can they be found in both adjectival/stative and verbal/eventive passives?

4.1.1 Background on verbal/eventive vs. adjectival/stative passives

- Russian: (Short form) PF PPPs can be both verbal and adjectival (see, e.g., Schoorlemmer 1995; Borik 2013, 2014).
- English, German, Spanish:
 - Unlike with verbal passives, the underlying event in adjectival passives lacks spatiotemporal location and referential external arguments.
 - Only possible with verbal passives: (event-related) spatiotemporal event modifiers, (referential) *by-/with*-phrases, agent-oriented adverbs, purpose clauses etc.
 - Possible with both: manner modifiers, state-related modifiers

(cf. Rapp 1997; Kratzer 2000; Maienborn 2007; Gehrke 2011, 2015; Gehrke and Marco 2014; Alexiadou, Gehrke, and Schäfer 2014; Alexiadou, Anagnostopoulou, and Schäfer 2015, i.a.)

4.1.2 Our findings, applying the diagnostics from English etc. to Russian

- IPF PPPs in possibly stative/adjectival passives:
 - (9): Stative extent reading (cf. Gawron 2009, i.a.), non-referential INSTR-marked NPs that additionally relate to the state
 - (10): State-related modifiers

- (9) a. Kryt byl dom solomoj [...]
 covered.IPF was house hay.INSTR
 ‘The house was covered with hay.’
 b. [...] ne skazal, čto vagon-to naš učebnikami gruzen byl?
 not said.PF that waggon-PTL our textbooks.INSTR loaded.IPF was
 ‘He did not tell us that our waggon was loaded with textbooks?’
- (10) a. Dver’ kvartiry byla krašena svetlo-koričnejvoj kraskoj [...]
 door apartment.GEN was painted.IPF light-brown.INSTR paint.INSTR
 ‘The apartment door was painted in a light-brown color.’
 b. My oba byli striženy nagolo [...]
 we both were haircut.IPF bald
 ‘We were both shorn / we both had shaven heads.’ [German: *kahlgeshoren*]

- IPF PPPs in clearly eventive/verbal passives: (11)-(12) (e.g. temporal event modifiers, referential *by*-phrases, other event-related modifiers)

- (11) a. Pisano èto bylo Dostoevskim v 1871 godu [...]
 written.IPF that was Dostoevskij.INSTR in 1871 year
 ‘That was written by Dostoevskij in 1871.’

- b. Recepty im pisany byli i na drugoe imja [...] prescriptions he.INSTR written.IPF were and on other name
‘The prescriptions were written by him for different names as well.’
- (12) Znamenitij pokojnik nesen byl do mogily na rukax [...] Famous deceased.NOM carried.IPF was until grave on arms
‘The famous deceased was carried in arms until the grave.’

⇒ IPF PPPs can have typical features of a verbal passive participle.

4.2 Q2.2: Which IPF contexts?

- Knjazev (2007): Passive IPF PPPs are found in non-progressive IPF contexts.
- Our data corroborate this generalization.
- Typical IPF-inducing contexts:
 - Negation, repetition, habituality → see appendix.
 - We focus on the most frequent type in our set of data: **Presuppositional factives** (see (9)-(12) and below)

5 Q3: The semantics of IPF PPPs

- We argue that a substantial number of the examples found should be analyzed as presuppositional factive IPFs; e.g. (13) (more below).
 - Intonational focus is not on the verb but on some other element in the sentence.
 - The completion of an event is backgrounded and presupposed.
 - In focus: obligatory modifier(s) specifying the manner, quality, purpose or other aspect of the event itself (and not its culmination)

Often marked word order, e.g. (5)-(6), (9), (11), (13-a), (29-c):

- PPP in sentence-initial topic position, modifier after BE, in focus

- (13) a. Stroeno bylo èto ploxo, xromo, ščeljasto.
built.IPF was that badly lamely with.holes
- b. Zapiski byli pisany ne dlja pečati [... no ...]
notes were written.IPF not for print but

5.1 Some background: The general-factual (*obščefaktičeskoe*, OF) meaning of the IPF

(Term goes back to Maslov 1959; cf. Mehlig 2016 for recent discussion see also appendix)

- No consensus in the literature wrt (cf. Grønn 2004: ch. 4 for overview and references):
 - Empirical delineation
 - Subtypes (yes or no; if yes, how many; etc.)
 - Theoretical account: IPF meaning in its own right, or a subtype of core IPF meanings (i.e. process or iterative/habitual)
- Aspectual competition: both IPF and PF can be used, with very subtle meaning differences)

- Grønn (2004): Two subtypes (see also Padučeva 1996)

→ Existential factive IPF:

- (often) intonational focus on the verb
- only possible with temporal frame adverbials (modify the assertion time) and temporally underspecified (vague) adverbials
- often with discourse reminders
- e.g. epistemically indefinite *kogda-nibud'* 'ever' requires existential factive IPF, e.g. (14) (additionally illustrates: with lexical marking of event completion SI is preferred)

(14) Ty kogda-nibud' {pročityval / #pročital / čital} roman Prusta do konca?
 you ever read.SI read.PF read.IPF novel Proust.GEN until end
 'Have you ever read a novel by Proust to the end?' (Grønn 2004, 73)

→ **Presuppositional factive IPF:**

- The verb is deaccentuated, the focus is on some other constituent.
- The verbal predicate has an eventive argument, an event is backgrounded and an instantiation of it is presupposed.
- This is the type of factive IPF relevant for us is, e.g. (15).

(15) Anna otkrovenno brosilja emy v lico obvinenie: èto ty ubival ix, a
 Anna openly threw.PF him in face accusation that you killed.IPF them and
 ispol'zoval dlja ètogo menja!
 used.(I)PF for that me
 'Anna openly accused him: It was you who killed them, and you used me to achieve
 your goal!' (Grønn 2004, 131)

5.2 Arguments for treating these IPF PPPs as presuppositional factive

1. Comparison with a PF variant (in those cases where a PF option exists)

- E.g. the examples (9)-(12) from above, repeated below, all have a PF variant:

- (16) a. (Po)kryt byl dom solomoj [...] (PF)covered.IPF was house hay.INSTR
 b. [...] ne skazal, čto vagon-to naš učebnikami (za/na)gružen byl? not said.PF that waggon-PTL our textbooks.INSTR (PF)loaded.IPF was
- (17) a. Dver' kvartiry byla (po)krašena svetlo-koričnejvoj kraskoj [...] door apartment.GEN was (PF)painted.IPF light-brown.INSTR paint.INSTR
 b. My oba byli (po)striženy nagolo [...] we both were (PF)haircut.IPF bald
- (18) (Na)pisano èto bylo Dostoevskim v 1871 godu [...] (PF)written.IPF that was Dostoevskij.INSTR in 1871 year
- (19) Znamenityj pokojnik (do)nesen byl do mogily na rukax [...] Famous deceased.NOM (PF)carried.IPF was until grave on arms

- The meaning differences between IPF and PF PPPs are very fuzzy and difficult to describe, just like with active PF vs. factual IPF; cf. 'classicals' examples in Padučeva (1996):

- (20) a. Ja ubiral komnatu včera. vs. Ja ubral komnatu včera.
 I cleaned.IPF room.ACC yesterday I cleaned.PF room.ACC yesterday
 b. Gde apel'siny pokupali? vs. Gde apel'siny kupili?
 where oranges.ACC bought.IPF.PL where oranges.ACC bought.PF.PL

2. IPF passives under negation

- The presuppositional part of the sentence meaning, unlike the asserted part (the at-issue content) is not affected by negation.

→ If event completion is implied in the positive counterpart, the same implication holds in a negated sentence, cf. contrast between (21) ((13) from above) and (22):

- (21) a. Stroeno bylo éto ploxo, xromo, ščeljasto.
 built.IPF was that badly lamely with.holes
 b. Zapiski byli pisany ne dlja pečati [... no ...]
 notes were written.IPF not for print but
- (22) a. Stroeno éto ne bylo ploxo, xromo, ščeljasto.
 built.IPF that not was badly lamely with.holes
 [Or even more neutral word order: *Éto ne bylo stroeno ploxo, xromo, ščeljasto.*]
 b. Zapiski ne byli pisany ne dlja pečati [... no ...]
 notes not were written.IPF not for print but

→ What you seem to negate in both cases is manner, not really the existence of the event itself and not its completion.

- The fact that the negated examples might sound unnatural has an explanation: Sentential negation usually negates the whole predicate, including the event.
- The same observation largely holds for examples (16)-(19) above, all with obligatory or 'almost' obligatory modifiers.
 - 'Almost obligatory': The acceptability of an example decreases greatly without a modifier.

5.3 The analysis

- Grønn's (2004) analysis of the presuppositional factive IPF in (23-a) (attributed to Forsyth 1970) is illustrated in (23-b) (semantics of the VP) and (23-c) (the VP embedded under Aspect).

- (23) a. V étoj porternoj ja napisal pervoe ljubovnoe pis'mo. **Pisal** [karandašom]_F.
 in this tavern I wrote.PF first love letter wrote.IPF pencil.INSTR
 b. [VP]: $\lambda e[x|INSTRUMENT(e, x), \mathbf{pencil}(x)]_{[|write(e)]}$
 c. [AspectP]: $\lambda t[x|INSTRUMENT(e, x), \mathbf{pencil}(x)]_{[e|write(e), eot]}$

His analysis is couched in DRT (cf. Kamp and Reyle 1993), plus Neo-Davidsonian event semantics, λ -calculus, and presuppositional analysis of anaphora (e.g. van der Sandt 1992):

- Background-focus division at the VP level (23-b):
 writing event (background) & with pencil (focus)
- Backgrounded material is argued to be presupposed: The subscripted part introduces presupposed information into the DRS.
- Underspecified meaning of the IPF: $e \circ t$ (building on Klein 1995)

- Presuppositions are treated as anaphora: bound to an antecedent (e.g. PF *napisal* in the first sentence in (23-a)), or: justified by the input context; e.g. (24)

(24) Dlja bol'šinstva znakomyx vaš [ot'ezd]_{(pseudo-)antecedent} stal_{PF} polnoj neožidannost'ju ... Vy [uežžali]_{IPF}_{anaphora} v Ameriku [ot čego-to, k čemu-to ili že prosto voznamerilis'_{PF} spokojno provesti_{PF} tam buduščuju starost'_F?
 'For most of your friends your departure to America came as a total surprise ... Did you leave for America for a particular reason or with a certain goal, or did you simply decide to spend your retirement calmly over there?' (Grønn 2004, 207f.)

- A first attempt at a proposal for (presuppositional factive) IPF PPPs:

- Extension of Grønn's account; e.g. the analysis of (13-a)/(25) in (26):

(25) Stroeno bylo èto ploxo, xromo, ščeljasto.
 built.IPF was that badly lamely with.holes

(26) [VP]: $\lambda e[|\mathbf{bad}(e) \wedge \mathbf{lame}(e) \wedge \mathbf{with-holes}(e)|]_{[|\mathbf{build}(e)|]}$

Main ingredients of the (still rather informal) analysis for (partially repeated) cases like (27):

- The completion/culmination of the event is not part of the asserted meaning.
- IPF shifts the focus on another aspect of the event, expressed by the obligatory modifier, instead of the culmination of the event itself.

(27) a. Zapiski byli pisany [ne dlja pečati]_F [... no ...]
 notes were written.IPF not for print but
 b. [...] kormlen byl [skupo, sderžanno]_F [...]
 fed.IPF was sparingly reservedly
 c. Pisano èto bylo [Dostoevskim [v 1871 godu]]_F [...]
 written.IPF that was Dostoevskij.INSTR in 1871 year

- Future task: Check the contexts in which IPF PPPs appear to ensure that the presupposed events are indeed bound (ana-/cataphorically to a PF) or justifiable by the input context; e.g. (28).

(28) a. Èto – ne ja **sdelal**, èto – **vedeno** bylo moeju rukoj!
 this not I did.PF this led.IPF was my.INSTR hand.INSTR
 b. **Pis'ma** ego **pisany** byli černo i kruglo [...]
 letters his written.IPF were black and round
 c. Čto kasaetjsa **platy** deneg, to **plačeny** byli naličnymi šest'
 what concerns payment.GEN money.GEN then paid.IPF were in cash six
 tysjač rublej [...]
 thousand roubles
 'As for the payment, six thousand roubles were paid in cash ...'

5.4 Other uses of IPF participles in passives

- Negated events, negation more generally, (29);
- Repeated events: e.g. plural event participants, (30), pluractional markers, (31), habitual contexts, (32), markers of repeatability/iterativity, (33)

(29) a. [...] i ja uže **ne** byl **zvan** v gosti [...]
 and I already not was called.IPF in guests

- ‘And I was not invited anymore.’
- b. Ja prosil, čtoby dlja menja **ne delano** bylo nikakix ceremonij.
I asked.PF that.MOD for me not made.IPF were any ceremonies
‘I asked that no ceremonies would be held for me.’
- c. Mojka byla perepolnena nemytoj posudoj. **Ne myto** bylo
sink was overflown.PF unwashed.INSTR dishes.INSTR not washed.IPF was
davno.
long-time
‘The sink was overflowing with unwashed dishes. The dishes had not been done
in a long time.’ [lit. impersonal]
- (30) [...] dolgo putešestvoval, **kusan** byl **jadovitymi zmejami i**
long travelled.IPF bitten.IPF was poisonous.INSTR snakes.INSTR and
krokodilami [...] [
crocodiles.INSTR
‘He travelled for a long time, he was bitten by poisonous snakes and crocodiles.’
- (31) Vsego nagljadelsja – i golodal, i syt **byval** po gorlo, i **bit**
all.GEN saw.IPF and starved.IPF and full was.FREQ until throat and beaten.IPF
byl, i sam bil [...] [
was and self beat.PST.IPF
‘[I] experienced it all – I starved, and I was full to the top, I was beaten, and I did the
beating myself.’
- (32) **Kormlen** byl skupo, sderžanno [...] [
fed.IPF was sparingly reservedly
‘He was fed very little.’
- (33) a. **Ne raz** ja byl **učen**, molču i znaju [...] [
not once I was educated.IPF am-silent and know.1 SG
‘Not just once was I lectured, I remain silent and know ...’
- b. Za čto **neodnokratno** byla **bita** [...] [
for what not-once was beaten.IPF
‘For that she was beaten more than once.’
- c. **Skol’ko raz govoreno** bylo, čtoby svozit’!
how many times said.IPF was that.MOD in-bring.IPF
‘How many times were [you] told to bring people in!’

→ We suggest that those cases that do not involve presuppositional factive IPF could be cases of existential factive IPF:

- There was/were (no) (an) event(s) of that type (cf. Mehlig 2001, 2013; Mueller-Reichau 2013, 2015; Mueller-Reichau and Gehrke 2015).
- Existential factive IPF more generally requires repeatability (*kratnost*) and non-uniqueness.
- Furthermore: different information structure compared to the presuppositional IPF PPPs

6 Further open issues

6.1 Why no SIs (if that empirical claim is correct, beyond the corpus data)?

- Grønn (2004):

- No morphological or lexical restrictions on factual IPFs [other than telicity, since his definition of factual IPFs requires resultativity] → Both simple IPF and SI are possible.

- Impressionistic view in the literature (and see also discussion in Grønn 2004, ch. 4):
 - “The use of the Imperfective as a general-factual is particularly common with non-prefixed verbs, and rather less common with Imperfective verbs that owe their imperfectivity to a suffix that derives them from a Perfective.” (Comrie 1976, 118)
 - Most of his examples seem to involve presuppositional factive IPFs.
 - Czech, which arguably only has presuppositional factive IPFs, judging from examples discussed in the literature (e.g. Eckert 1984; Dickey 2000), seems to rely on simple IPFs for this meaning (cf. Gehrke 2002).
- Some wild speculations:
 - Presuppositional factive IPFs are most common with simple IPFs because these verb forms are morphologically the least marked for grammatical or lexical aspect, and presuppositional factive IPFs quite generally do not focus on any one aspectual meaning in particular?
 - Presuppositional factive IPFs historically first arose with a core group of IPF verbs (which are all simple) and then spread to others?
 - Since IPF PPPs are already quite restricted, maybe only the core verbs are affected?
- Why archaic examples with SIs?
 - SIs were also used to mark pluractional contexts (plural subjects/objects, frequency adverbs, etc.), maybe up until the 19th century even.
 - Afterwards: The pure ‘multiplicational’ meaning of SI disappears?
 - Or: Morphological restriction on SI PPP formation in Modern Russian?

6.2 Why don’t we find more cases of IPF PPPs, and why only with a handful of verbs?

- If the event itself has to be presupposed this already limits the contexts in which such a form can even be used.
- Many verbs of creation/consumption: We can infer the event already from the objects. (These are also nouns that lend themselves quite easily to event coercion; cf. Pustejovsky 1995; Egg 2003; Asher 2011.)
- Passives are generally not particularly widely used in Russian.
 - In languages with a fixed word order, such as English, passives take on particular information structural functions that languages with a freer word order, such as Russian, can express in active sentences with different word orders.
 - More restricted use of the passive? (e.g. only aspectual/event structural functions in Russian?; cf. Abraham 2006)

Appendix

A More on the general-factual (OF) meaning

- Glovinskaja (1981, 1989):
 - Resultative and non-resultative subtypes (Glovinskaja 1981)
 - Most common with finite past tense forms.

(Grønn 2004, ch. 5 & 6: Factual IPFs are confined to finite past tense forms.)
- (Padučeva 1996, 32-52): Three subtypes

– Existential & concrete OF (34-a) & (34-b):

- * resultative, temporally indefinite, isolated from utterance time, retrospective
- * factive: accent is always on the verb
- * only for the existential one: repeatable (*kratnost'*; the opposite of uniqueness)

- (34) a. Moj djadja voschodil na Èverest.
my uncle climbed.IPF on Everest
b. Ty otkryval↑ okno?
you opened.IPF window

– Actional (35-a) & (35-b)):

- * Accent is never on the verb
- * Focus is on some other aspect of the event
- * Requires agentive, controllable event

- (35) a. Ja ↑ubiral komnatu včera↓. [Kto segodnja dolžen ubirat' – ne
I cleaned.IPF room.ACC yesterday who today must clean.IPF not
znaju.]
know.1SG
b. Gde apel'siny pokupali?
where oranges.ACC bought.IPF.PL

B Cross-Slavic variation in the expression of and eventivity in passives

- Russian:

- Common assumption: Short form (SF) PPPs can be both verbal and adjectival (see, e.g., Schoorlemmer 1995).
- Babby (1975, 1999, 2009): SF PPPs (as well as SF adjectives) are verbal.
- Paslawska and von Stechow (2003):
 - * SF PPPs are stative (for them: 'adjectival') and express target states (in the sense of Kratzer 2000), even though they can appear with all kinds of event modifiers, e.g., a temporal modifier in (36-b) (from Borik 2014), locating the underlying event.
 - Russian SF PPP are like Greek 'adjectival' participles, which, unlike, e.g., German PPPs, have been argued to contain Voice (cf. Anagnostopoulou 2003).⁴
- Borik (2013, 2014) sides with Schoorlemmer etc.: Having event-related modifiers licensed by Voice does not make sense in what is usually called an adjectival passive, (36).

- (36) a. Dom byl покрашен за 2 časa / bystro / special'no.
house.NOM was painted.PF in 2 hours quickly on purpose
'The house was painted in two hours/quickly/on purpose.'
b. Vorota (byli) otkryty storožem rovno v 6 utra na 2 časa.
gates (were) opened.PF watchmen.INSTR exactly in 6 morning.GEN for 2 hours
'The gates were opened by the watchman at exactly 6 in the morning for 2 hours.'

⁴However, see McIntyre (2013); Bruening (2014); Alexiadou et al. (2014, 2015) for arguments that also English and German PPPs can contain Voice. This still will not explain why these languages, unlike Greek, have restrictions on event-related modification with adjectival participles, but see Gehrke (2015) for an account. Moreover, this raises the general question whether Greek participles are indeed always adjectival, as the literature on Greek claims (e.g. Anagnostopoulou 2003; Alexiadou and Anagnostopoulou 2008).

- Czech:

- PPPs can be derived from both IPF and PF verbs, across the board.
- Such PPPs express verbal/eventive or adjectival/verbal passive, including passive ‘events in process’ (IPF ones) (Radek Šimík, p.c.).
- Unlike Russian, Czech reflexive passives are not full-fledged verbal passives (cf. Schäfer 2016): *By*-phrases are only possible in Russian (recall (1-b) etc.), vs. Czech, (37) (from Fehrmann et al. 2010).⁵

(37) Šaty se právě šijí (*babičkou).
 dress.NOM.PL RFL right-now sew.3PL grandmother.INSTR
 ‘The dress is being made right now.’ (*by*-phrase impossible)

- Back to Russian and cross-Slavic variation:

Judging from the literature and the data, it does not seem to be possible in Russian (unlike what we find in Czech) to have a passive event-in-process reading with periphrastic passives; this can only be expressed by the reflexive passive.

Possibilities:

- Languages with ‘productive’ IPF/PF PPPs (e.g. Czech) form regular periphrastic verbal passives with all IPF/PF meanings.
 (unclear: status of *se*-passive, but see Fehrmann et al. 2010; Schäfer 2016, for suggestions)
- The others, option 1: BE+PPP are adjectival, only reflexive passives are verbal.
- The others, (our preferred) option 2:
 - * BE+PPP are either verbal or adjectival, but can only express result states (Kratzer’s 2000 ‘target states’).
 - * Reflexive passives (which are verbal) fill the gap (for verbs that do not have ‘target states’, as well as for passive event-in-process readings).

- Still unclear though: Why can the (Russian) periphrastic passive not have a process meaning, not even with the IPF?

Not clear whether this restriction is due to ...

- The wide-held assumption that Russian IPF PPPs do not form passives (in that case this is a chicken-and-egg problem), or
- An actual ban on process readings of periphrastic passives.

More speculations:

- There might be a split in ‘imperfective meanings’ conveyed by different passives.
- Process meaning: (only) reflexive passives
- Other (sometimes called ‘peripheral’) IPF meanings, specifically, habitual/iterative and (all types of) general-factual: periphrastic passives (usually with PF PPPs)

General impression though: It seems that both passives can be habitual.

- There might be a finer distinction: habitual, as a ‘typical’ IPF, is conveyed by reflexive passives, iteration/multiple occurrences by periphrastic passives (usually with PF PPPs).
- This would sort of mimic the ‘aspectual’ division of labor in active sentences, where, normally, habituality requires the IPF but iterative events can be described by either aspect.

⁵Fehrmann et al. (2010) show that *by*-phrases with reflexive passives are possible in East Slavic (Russian, Belorussian, Ukrainian), Bulgarian and Upper Sorbian, but not in the other Slavic languages.

References

- Abraham, Werner. 2006. Introduction: Passivization and typology. Form vs. function – a confined survey into the research status quo. In *Passivization and Typology: Form and Function*, ed. Werner Abraham and Larisa Leisiö, 1–27. Amsterdam: John Benjamins.
- Alexiadou, Artemis, and Elena Anagnostopoulou. 2008. Structuring participles. In *Proceedings of the 26th West Coast Conference on Formal Linguistics*, ed. Charles B. Chang and Hannah J. Haynie, 33–41. Somerville, MA: Cascadilla Proceedings Project.
- Alexiadou, Artemis, Elena Anagnostopoulou, and Florian Schäfer. 2015. *External Arguments in Transitivity Alternations: A Layering Approach*. Oxford: Oxford University Press.
- Alexiadou, Artemis, Berit Gehrke, and Florian Schäfer. 2014. The argument structure of adjectival participles revisited. *Lingua* 149B:118–138.
- Anagnostopoulou, Elena. 2003. Participles and Voice. In *Perfect Explorations*, ed. Artemis Alexiadou, Monika Rathert, and Arnim von Stechow, Interface Explorations 2, 1–36. Berlin: de Gruyter.
- Asher, Nicholas. 2011. *Lexical Meaning in Context*. Cambridge: Cambridge University Press.
- Babby, Leonard H. 1975. *A Transformational Grammar of Russian Adjectives*. The Hague: Mouton.
- Babby, Leonard H. 1999. Adjectives in Russian: Primary vs. secondary predication. In *Formal Approaches to Slavic Linguistics (FASL-7). The Seattle Meeting 1998*, ed. Katarzyna Dziwirek, Cynthia Vakareliyska, and Herbert Coates, 1–30. Ann Arbor: Michigan Slavic Materials.
- Babby, Leonard H. 2009. *The Syntax of Argument Structure*. Cambridge: Cambridge University Press.
- Babby, Leonard H., and Richard Brecht. 1975. The syntax of voice in Russian. *Language* 51.2:342–367.
- Borik, Olga. 2013. Past participles and the eventive/adjectival passive in Russian. In *Proceedings of Sinn und Bedeutung 17*, ed. Emmanuel Chemla, Vincent Homer, and Grégoire Winterstein, 115–132. semanticsarchive.net.
- Borik, Olga. 2014. The argument structure of long and short form adjectives and participles in Russian. *Lingua* 149B:139–165.
- Bruening, Benjamin. 2014. Word formation is syntactic: Adjectival passives in English. *Natural Language and Linguistic Theory* 32.2:363–422.
- Bulaxovskij, Leonid A. 1954. *Russkij literaturnyj jazyk pervoj poloviny XIX veka. Fonetika, morfologija, udarenie, sintaksis*. Moscow: Gosudarstvennoe učebno-pedagogičeskoe izdatel'stvo.
- Comrie, Bernard. 1976. *Aspect: An Introduction to the Study of Verbal Aspect and Related Problems*. Cambridge: Cambridge University Press.
- Dickey, Stephen M. 2000. *Parameters of Slavic Aspect: A Cognitive Approach*. Stanford: CSLI Press.
- Eckert, Eva. 1984. *A Contrastive Study of Czech and Russian Aspect*. Doctoral Dissertation, University of California, Berkeley.
- Egg, Markus. 2003. Beginning novels and finishing hamburgers. *Journal of Semantics* 20.2:163–191.
- Fehrmann, Dorothee, Uwe Junghanns, and Denisa Lenertová. 2010. Two reflexive markers in Slavic. *Russian Linguistics* 34:203–238.
- Forsyth, James. 1970. *A Grammar of Aspect*. Cambridge: Cambridge University Press.
- Gawron, Jean Mark. 2009. The lexical semantics of extent verbs. Ms. San Diego State University.
- Gehrke, Berit. 2002. Systemhafte Unterschiede im Aspektgebrauch zwischen dem Russischen und dem Tschechischen. Unpublished MA thesis, Humboldt University Berlin.
- Gehrke, Berit. 2011. Stative passives and event kinds. In *Proceedings of Sinn und Bedeutung 15*, ed. Ingo Reich, Eva Horch, and Dennis Pauly, 241–257. Universaar - Saarland University Press: Saarbrücken.
- Gehrke, Berit. 2015. Adjectival participles, event kind modification and pseudo-incorporation. *Natural Language and Linguistic Theory* 33.3:897–938.
- Gehrke, Berit, and Cristina Marco. 2014. Different *by*-phrases with adjectival passives: Evidence from Spanish corpus data. *Lingua* 149B:188–214.

- Gerritsen, Nelleke. 1988. How passive is 'passive' -*sja*? In *Studies in Slavic and General Linguistics 11: Dutch Contributions to the Tenth International Congress of Slavists. Linguistics*, 97–179. Amsterdam: Rodopi.
- Glovinskaja, Marina Ja. 1981. Obščefaktičeskoe značenje nesoveršenno go vida (formy prošedšego vremeni). In *Problemy strukturnoj lingvistiki 1978*, 108–125. Moscow: Nauka.
- Glovinskaja, Marina Ja. 1989. Semantika, pragmatika i stilistika vido-vremennyx form. In *Grammatičeskie issledovanija: Funkcional'no-stilističeskij aspekt*, ed. Dmitrij N. Šmelev, 174–245. Moscow: Nauka.
- Grønn, Atle. 2004. The Semantics and Pragmatics of the Russian Factual Imperfective. Doctoral Dissertation, Oslo University.
- Janko-Trinickaja, Nadija A. 1962. *Vozvratnye glagoly v sovremennom russkom jazyke*. Moscow: Nauka.
- Kamp, Hans, and Uwe Reyle. 1993. *From Discourse to Logic: Introduction to Modeltheoretic Semantics of Natural Language, Formal Logic and Discourse Representation Theory*. Dordrecht: Kluwer.
- Klein, Wolfgang. 1995. A time-relational analysis of Russian aspect. *Language* 71:669–695.
- Knjazev, Jurij P. 2007. *Grammatičeskaja Semantika: Russkij jazyk v tipologičeskoj perspektive*. Moscow: Jazyki slavjanskix kul'tur.
- Kratzer, Angelika. 2000. Building statives. Ms. University of Massachusetts at Amherst.
- Maienborn, Claudia. 2007. Das Zustandspassiv: Grammatische Einordnung - Bildungsbeschränkung - Interpretationsspielraum. *Zeitschrift für germanistische Linguistik* 35:83–144.
- Maslov, Jurij S. 1959. Glagol'nyj vid v sovremennom bolgarskom literaturnom jazyke. In *Voprosy grammatiki bolgarskogo literaturnogo jazyka*, ed. Samuil B. Bernštejn, 157–312. Moscow: Nauka.
- McIntyre, Andrew. 2013. Adjectival passives and adjectival participles in English. In *Non-Canonical Passives*, ed. Artemis Alexiadou and Florian Schäfer, 21–42. Amsterdam: John Benjamins.
- Mehlig, Hans Robert. 2001. Verbal aspect and the referential status of verbal predicates: On aspect usage in Russian who-questions. *Journal of Slavic Linguistics* 9:99–125.
- Mehlig, Hans Robert. 2008. "Modus" i "diktum" u Š. Balli. In *Jazyk Kul'tura Čelovek: Sbornik naučnyx statej k jubileju zaslužennogo professora MGU imeni M.V. Lomonosova M.V. Vsevolodovoj*, ed. M.L. Remneva et al., 240–255. Moscow: MAKSS Press.
- Mehlig, Hans Robert. 2013. Obščefaktičeskoe i edinično-faktičeskoe značeniya nesoveršenno go vida v russkom jazyke. *Vestnik Moskovskogo Universiteta Serija 9, Filologija* 4:19–47.
- Mehlig, Hans Robert. 2016. Negation und Verbalaspekt im Russischen. *Wiener Slawistischer Almanach* 77:229–265.
- Mueller-Reichau, Olav. 2013. On Russian factual imperfectives. In *Formal Description of Slavic Languages: The Ninth Conference. Proceedings of FDSL 9, Göttingen 2011*, ed. Uwe Jung-hanns, Dorothee Fehrmann, Denisa Lenertová, and Hagen Pitsch, *Linguistik International* 28, 191–210. Frankfurt/M.: Peter Lang.
- Mueller-Reichau, Olav. 2015. Pseudo-incorporation in Russian? Aspectual competition and bare singular interpretation. In *The Syntax and Semantics of Pseudo-Incorporation*, ed. Olga Borik and Berit Gehrke, *Syntax and Semantics* 40, 262–295. Leiden: Brill.
- Mueller-Reichau, Olav, and Berit Gehrke. 2015. Event kind formation within the VP: Comparing Russian factual imperfectives and German adjectival passives. In *Formal Description of Slavic Languages: Proceedings of FDSL 10, Leipzig 2013*, ed. Gerhild Zybatow, Petr Biskup, Marcel Guhl, Claudia Hurtig, Olav Mueller-Reichau, and Maria Yastrebowa, *Linguistik International*, 367–382. Frankfurt/M.: Peter Lang.
- Padučeva, Elena V. 1996. *Semantičeskie Issledovanija*. Moscow: Škola 'Jazyki russkoj kul'tury'.
- Padučeva, Elena V. 2003. Is there an "anticausative" component in the semantics of decausatives? *Journal of Slavic Linguistics* 11.1:173–198.
- Paslawska, Alla, and Arnim von Stechow. 2003. Perfect readings in Russian. In *Perfect Explorations*, ed. Artemis Alexiadou, Monika Rathert, and Arnim von Stechow. Berlin: Mouton de Gruyter.

- Pustejovsky, James. 1995. *The Generative Lexicon*. Cambridge: MIT Press.
- Rapp, Irene. 1997. *Partizipien und semantische Struktur: Zu passivischen Konstruktionen mit dem 3. Status*. Tübingen: Stauffenburg.
- van der Sandt, Rob. 1992. Presupposition projection as anaphora resolution. *Journal of Semantics* 9:33–77.
- Schäfer, Florian. 2016. Two types of argument expletives: Evidence from *by*-phrases and object-drop. Paper presented at the *Workshop on Impersonality and Correlated Phenomena – Diachronic and Synchronic Perspectives*, Salzburg, November 2016.
- Schoorlemmer, Maaike. 1995. *Participial Passive and Aspect in Russian*. Doctoral Dissertation, Utrecht University.
- Švedova, Natalija Ju. 1980. *Russkaja Grammatika*. Moscow: Nauka.

Crosslinguistic variation in the processing cost of aspectual coercion:

Reading time evidence from non-culminating accomplishments in German and English

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Structure of the Talk

- 1 Incrementality, aspectual coercion and non-culminating accomplishments
- 2 Pretest: Assessing the (German) readings
- 3 Experiment 1: Non-culminating accomplishments in German
- 4 Experiment 2: More on German accomplishments
- 5 Experiment 3: Non-culminating accomplishments in English
- 6 Two kinds of defeasible inferences with different processing costs

Incrementality and (Non-)Monotonicity

(1) Peter baute das Haus... niemals fertig
Peter build-past the house... without ever completing it

- (1) gives rise to the inference of a complete house
- Culmination 'gets lost' in the continuation of the sentence
- However, (1) does not feel contradictory at all

Non-Monotonicity

Incremental interpretation seems to involve non-monotonic updates of the semantic representation

Monotonicity: If $\Gamma \vdash \phi$ and $\Gamma \subseteq \Delta$ then $\Delta \vdash \phi$

(1) $[[\text{Peter baute das Haus}]_{\Gamma} \text{ niemals fertig}]_{\Delta}$
 $\Gamma \vdash$ **a finished house**
 $\Delta \not\vdash$ **a finished house**

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Non-Monotonic Updates in Syntactic Processing

(2) Put the frog on the napkin Γ ... into the box Δ

Γ : **VP attachment** of *on the napkin*

Δ : **Revise VP to NP attachment** of *on the napkin*

- Revision of the syntactic representation does not proceed smoothly
- Garden-path effect while processing *on the napkin*
- Stressing the analogy: Does stripping off the culmination induce measurable difficulty due to semantic revision?

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Baggio et al. (2007 & 2008)

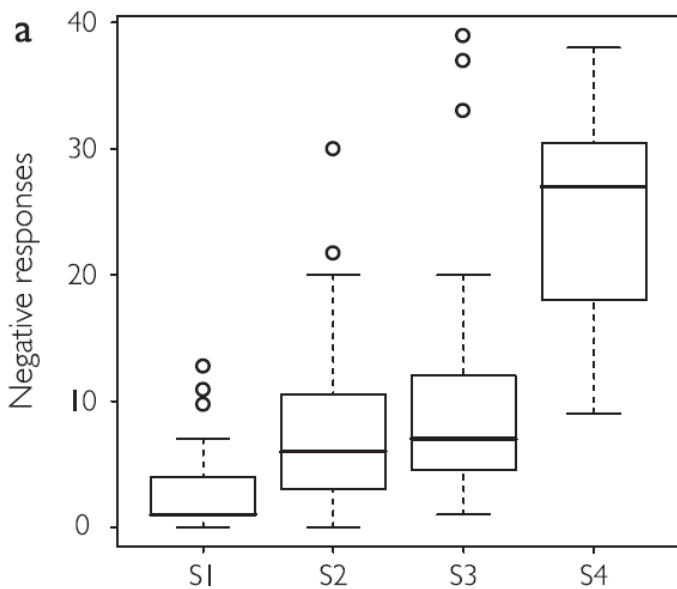
Processing consequences of the imperfective paradox (lit. from Dutch)

- S1) The girl was writing **letters** when her girlfriend coffee on the tablecloth **spilled**.
- S2) The girl was writing **letters** when her girlfriend coffee on the paper **spilled**.
- S3) The girl was writing **a letter** when her girlfriend coffee on the tablecloth **spilled**.
- S4) The girl was writing **a letter** when her girlfriend coffee on the paper **spilled**.

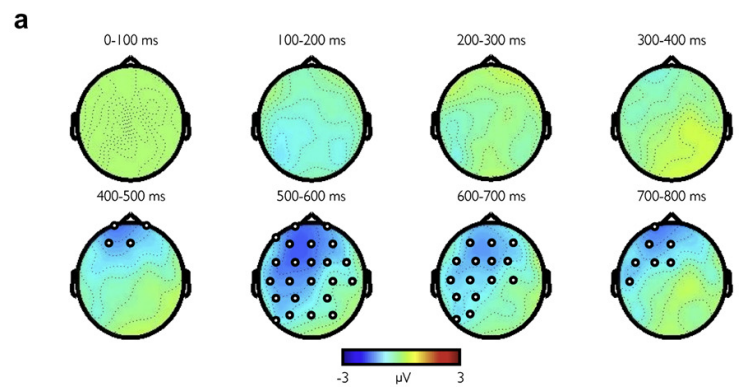
- Baggio et al. (2007): Probe selection task
 - ▶ Positive: *The girl has written a (S1/2: several) letter(s)*
 - ▶ Negative: *The girl has written no letter*
- Baggio et al. (2008): ERP study with probe selection task

Baggio et al. (2007 & 2008)

Probe selection task:



ERPs: S3 vs. S4 on *spilled* (no difference between S1 and S2)

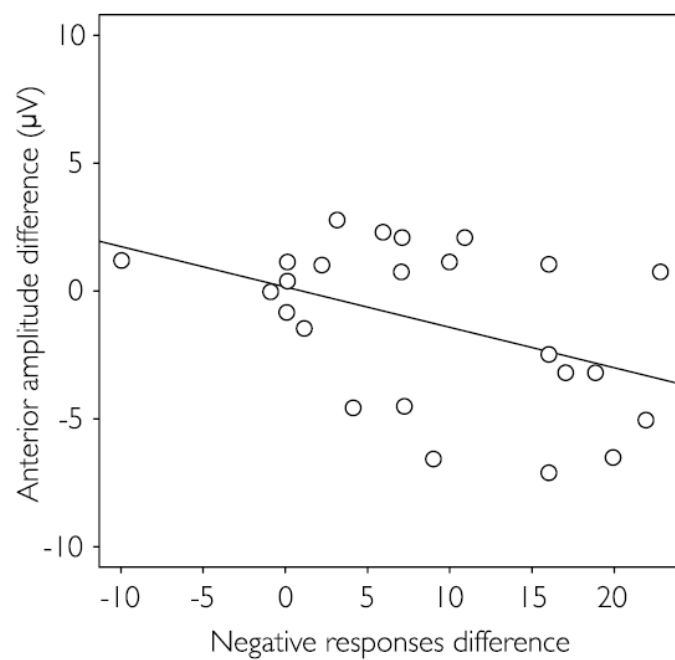


● Sustained anterior negativity

● Two hypotheses:

- ▶ Monotonic extension of the discourse model in all four conditions
- ▶ Recomputation in S4 but not in S1–S3

Baggio et al. (2008): Strength of the inference modulates the observed negativity



- Negativity (S4 vs. S3) correlated with how often participants chose negative probes for S4 relative to S3

Open Questions

- Baggio et al. (2007 & 2008) employed a discourse manipulation, do we also find evidence for recomputation costs within the sentence domain?
- What is the role of the aspectual system of a language for how costly these operations are?
- Are coercion operations the same cross-linguistically?

Lexical Aspect and Adverbial Modification – From Discourses to Sentences

- (3-a) [Der Architekt errichtete das Haus]_Γ **in zwei Jahren**
[The architect built the house]_Γ **in two years**
- (3-b) [Der Architekt errichtete das Haus]_Γ **zwei Jahre lang**
[The architect built the house]_Γ **for two years**

Subtractive Coercion

- Γ) Accomplishment: Preparation – culmination – result state
- in) Accomplishment ▷ Accomplishment with a preparatory process that went on for two years
- for) Accomplishment ▷ **Process** ▷ Process that went on for two years

The Interaction of Lexical and Grammatical Aspect

- (4-a) The architect built the monument **for two years** after the city council finally had provided the money for it.
- (4-b) The architect was building the monument **for two years** ...
- (4-c) The architect built the monument **within two years** ...

- Superficially similar contrast between (4-a) and (4-c) in English to the one in the German examples (3-a) and (3-b)
- However, the English example in (4-a) ‘feels’ more contradictory than the German example (3-a)
- In English, (4-b) is the preferred way to express the meaning of (4-a), whereas German has no grammaticalized progressive
- Strengthening of simple form, weakening of progressive form

Hypothesizing about Cross-Linguistic Variation

- **English:** Due to pragmatic competition with the progressive form, an accomplishment in the simple past will be strengthened to a perfective interpretation. Defeating this inference – if possible at all – should lead to processing cost.
- **German:** Underspecified with respect to grammatical aspect. Therefore, if the linguistic context requires, an accomplishment is immediately interpreted imperfectively.
- ▷ **Cross-linguistic variation in processing cost of non-culminating (simple form) accomplishments:** Hard in English, easier in German

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Pretest: Assessing the (German) readings

Did the culmination happen? A rating experiment

- Three conditions (+ iterative coercion, cf. Exp. 2)

- ▶ Baseline, unmodified

- (1) Der Athlet lief den Marathon
The athlete ran the marathon

- ▶ Control, *in*-modification

- (2) Der Athlet lief den Marathon **in drei Stunden**, dann wurde er von der Bahn getragen.
The athlete ran the marathon **in three hours**, then he had to be carried off the running track.

- ▶ Non-culminating, *for*-modification

- (3) Der Athlet lief den Marathon **drei Stunden lang**, dann wurde er von der Bahn getragen.
The athlete ran the marathon **for three hours**, then he had to be carried off the running track.

Did the culmination happen? A rating experiment

- 44 German participants judged whether it follows from the sentence that the culmination happened:
Does the sentence say that the athlete completed the marathon?
- 40 items from Exp. 2, plus 40 fillers
- Internet questionnaire

	<i>Yes, the culminating event happened</i>
<i>Baseline</i>	89.4%
<i>In-modification</i>	76.6%
<i>For-modification</i>	16.4%

- Unmodified accomplishments received perfective interpretation
- *For*-modification shifts towards imperfective interpretation
- Culmination inference can be canceled

Did the culmination happen? A rating experiment

- 44 German participants judged whether it follows from the sentence that the culmination happened:
Does the sentence say that the athlete completed the marathon?
- 40 items from Exp. 2, plus 40 fillers
- Internet questionnaire

	<i>Yes, the culminating event happened</i>
<i>Baseline</i>	89.4%
<i>In-modification</i>	76.6%
<i>For-modification</i>	16.4%

- Unmodified accomplishments received perfective interpretation
- *For*-modification shifts towards imperfective interpretation
- Culmination inference can be canceled

Experiment 1: Non-culminating accomplishments in German

Design

(1) Johann | errichtete | **das Haus** | **zwei Jahre lang** | trotz | finanzieller Probleme.

John | build-past | the house | for two years | in spite of | financial problems.

(2) Johann | errichtete | **das Haus** | **in zwei Jahren** | trotz | finanzieller Probleme.

(3) Johann | errichtete | **zwei Jahre lang** | trotz | finanzieller Probleme | **das Haus** | ...

(4) Johann | errichtete | **in zwei Jahren** | trotz | finanzieller Probleme | **das Haus** | ...

- 2 × 2 within design: Factors **ADVERBIAL** and **OBJECT POSITION**
- Incremental recomputation predicts interaction in reading times of the adverbial phrase: $RT(1) > RT(2)$, but $RT(3) = RT(4)$

Method

- 20 items in four conditions
- Accomplishments* with agentive subjects and quantized objects
- 64 fillers
- Latin Square design
- Self-paced reading with moving window presentation
- Judgment after each sentence:
 - ▶ 12 items: *Did the culmination happen?*
 - ▶ 8 items: *Was this an acceptable sentence?*
- 32 native German participants

* VPs: Haus errichten, Roman verfassen, Menü verspeisen, Futter verschlingen, Code entschlüsseln, LKW entladen, Dieb überführen, Lauf absolvieren, Plan erstellen, Stadt zerstören, Fluss durchqueren, Gipfel besteigen, Falle postieren, Nuss öffnen, Fehler beheben, Protokoll verfertigen, Maschine fertigen, Schwein zerlegen, Skulptur erschaffen, Duft kreieren

Results – Offline Judgments

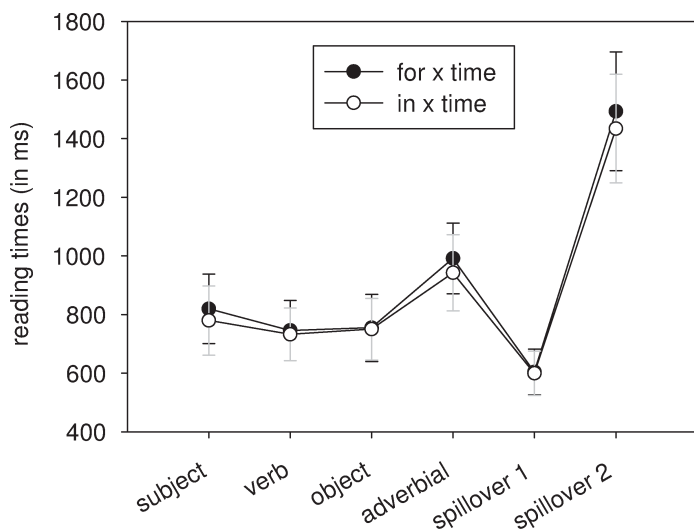
- Less culmination inferences for *for-* than *in-*conditions (GLMER: $z = 2.3$)
- *For-* and *in-*conditions equally acceptable

Does the sentence say that the culmination happened?

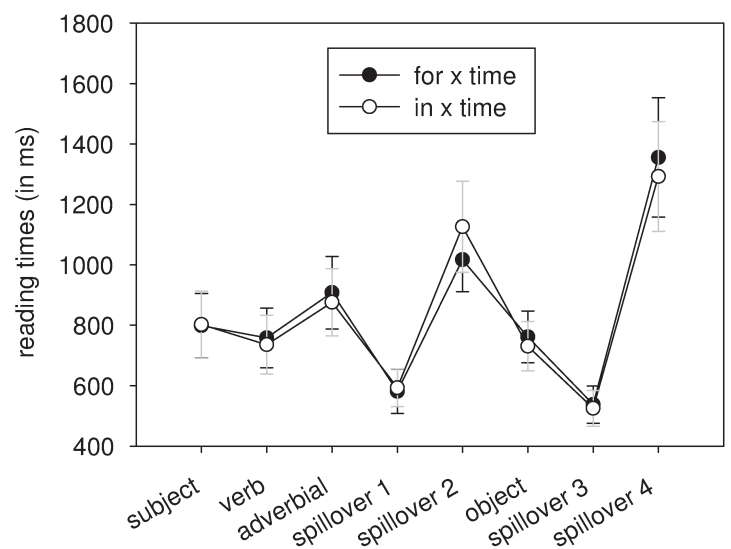
	Yes
<i>In</i> conditions	86%
<i>For</i> conditions	57%

Results – Reading Times

SVO–Adverbial order



SV–Adverbial–O order



- No main effect of ADVERBIAL ($F_{1/2} < 1$)
- No interaction between ADVERBIAL and OBJECT POSITION ($F_{1/2} < 1$)
- ▷ Non-culminating accomplishments as easy as culminating ones

Open Questions

- Conclusion crucially depends on interpreting a null effect
- Rather few items
- Only 160 data points per condition
- Danger of a type II error

Experiment 2: More on German accomplishments

Design

- (1) Der Arbeiter | belud | die Schubkarre | **fünf Minuten lang** | ...
*The worker | load-past | the wheelbarrow | **for five minutes** | ...*
- (2) Der Arbeiter | belud | die Schubkarre | **in fünf Minuten** | ...
- (3) Der Arbeiter | belud | die Schubkarre | **fünf Jahre lang** | ...
- (4) Der Arbeiter | belud | die Schubkarre | **in fünf Jahren** | ...

- 2×2 within design: Factors ADVERBIAL and DURATION (e.g., *five minutes* in (1/2) vs. *five years* in (3/4))
- Design includes an iterative coercion condition (3), and an implausible condition (4)
- The latter two conditions were expected to incur clear processing costs

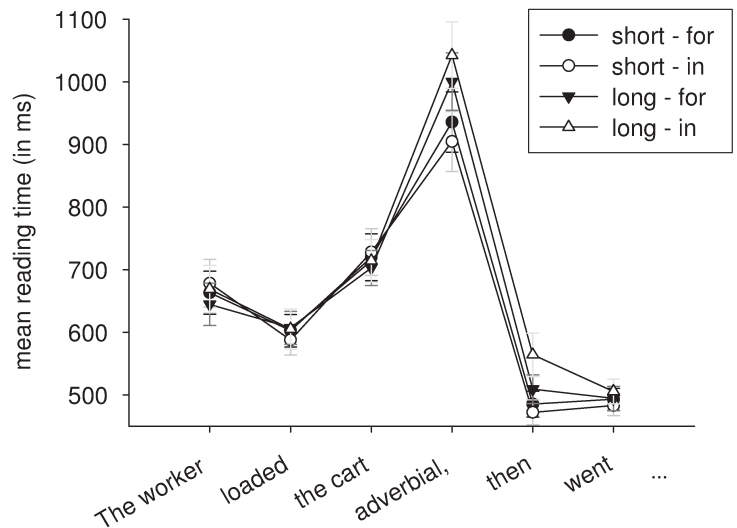
Method

- 40 items in four conditions
- Accomplishments with agentive subjects and quantized objects
- 80 fillers (40 nonsensical)
- Latin Square design
- Self-paced reading with moving window presentation
- Acceptability judgment after each sentence
- 40 native German participants

Results – Reading Times

Adverbial:

- Short-*for* = short-*in* ($p_{1/2} \geq .20$)
- ▷ Non-culminating accomplishments as easy as culminating ones
- long-*for* = mismatch
- ▷ Iteration is difficult



Following region:

- Only mismatch is slow
- ▷ **Defeating culmination inferences is not taxing in German**

Experiment 3: Non-culminating accomplishments in English

Design

- (1) The architect | built | **the monument** | **within two years** | after | the city | had finally provided | the money for it.
- (2) The architect | was building | **the monument** | **for two years** | after | ...
- (3) The architect | built | **the monument** | **for two years** | after | ...
- (4) The architect | built | **within two years** | **the biggest monument** | in recent | history.
- (5) The architect | was building | **for two years** | **the** ...
- (6) The architect | built | **for two years** | **the** ...

- 3×2 within design: Factors **ASPECT** and **OBJECT POSITION**

- Expected interaction wrt. RT of the adverbials:

$$RT(1) \approx RT(2) < RT(3), \text{ but } RT(4) \approx RT(5) \approx RT(6)$$



Method

- 48 items in six conditions
- Accomplishments with agentive subjects and quantized objects
- 110 fillers (40 nonsensical)
- Latin Square design
- Self-paced reading with moving window presentation
- Acceptability judgment after each sentence
- 30 native American English participants

Results – Acceptability Ratings

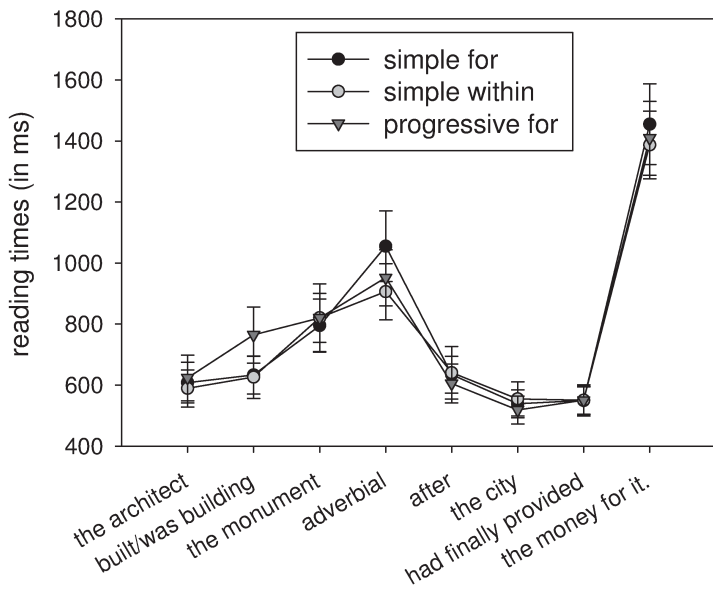
- Acceptance ratings for all three ASPECT conditions indicate that they were all acceptable

Is the sentence acceptable?

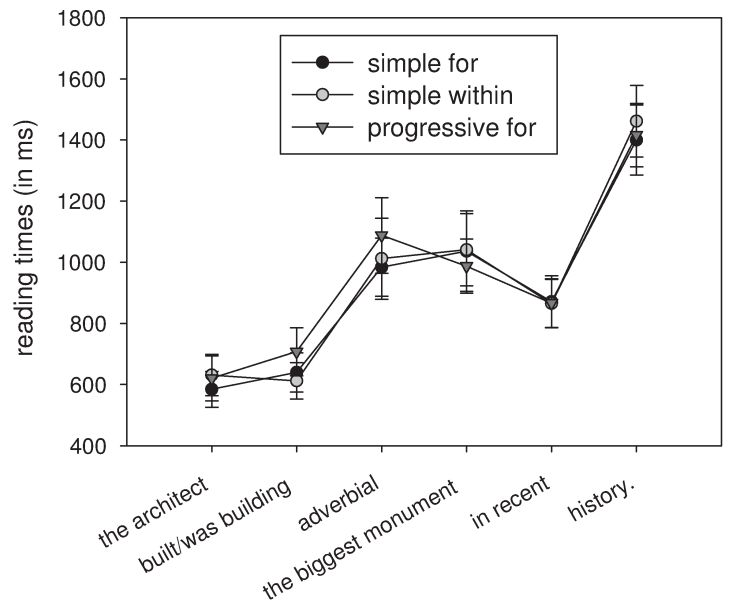
	Yes
Simple <i>within</i> conditions	78%
Progressive <i>for</i> conditions	71%
Simple <i>for</i> conditions	70%

Results – Reading Times

SVO–Adv conditions



SV–Adv–O conditions



- ASPECT × OBJECT POSITION interaction of the predicted form ($F_1(2, 58) = 7.7, p < .01$; $F_2(2, 94) = 3.2, p < .05$)

▷ **Non-culminating English accomplishments in the simple past are difficult**

Two kinds of defeasible inferences differing in cost

What we have to account for ...

- ① Baggio et al's (2007 & 2008) findings for Dutch progressive accomplishments
 - ▶ **Processing difficulty** when disabling condition is introduced in **subsequent discourse unit**
- ② German accomplishments (Exp. 1/2), and English progressive accomplishments (Exp. 3)
 - ▶ **No difficulty** when *for*-adverbial is part of **the same discourse unit**
- ③ English simple past accomplishments (Exp. 3)
 - ▶ **Difficulty** when *for*-adverbial is part of **the same discourse unit**

Sketch of an Explanation

Two different ways to derive non-culminating accomplishments:

Imperfective:

- Hamm & van Lambalgen's (2005) analysis of progressive accomplishments in terms of minimal models:
 - ▶ In the absence of disabling conditions: culmination
 - ▶ In the presence of disabling condition (e.g., *stop* event due to *for*): no culmination
- In both cases, smooth model update
- Model update: always before moving to a new discourse unit

Perfective:

- Perfective accomplishments along the lines of Hamm & van Lambalgen (2005)
- Preparation and culmination are both constitutive parts
- Incompatible with *for*: Model update results in a contradiction (▷ **difficulty**)
- Way out, reanalysis of perfective accomplishments as a perfective activities

Baggio et al's (2007 & 2008) Critical Condition

(1) [The girl was writing a letter] $_{\Gamma}$ [when her friend spilled coffee on the paper] $_{\Delta}$

- Start with the empty model.
- Γ : There is a time t before now at which the girl is engaged in a letter-writing process. Closed world reasoning: This process is finished at some time t' after t by a finish event. After t' there is a complete letter.
- Δ is interpreted in the minimal model for Γ by adding a spill-coffee-on-paper event at t . World knowledge tells the processor that *spilling* terminates *writing*. This is in conflict with the model computed for Γ (for times t'' with $t \leq t'' \leq t'$ we get $HoldsAt(write, t'') \wedge \neg HoldsAt(write, t'')$, a **contradiction**). This in turn triggers recomputation for $[\Gamma + \Delta]$.

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German Accomplishments Modified by *For* and English Progressive *For*

(2) [The architect was build-imperfective the monument for two years]_Γ

- Start with the empty model
- Γ : There is a time t before now at which the architect is engaged in a building activity. This activity started at some time t' before t and holds on until stopped at some later time $t'' = t' + 2 \text{ years}$. Thus, the activity is stopped before the culmination is reached.

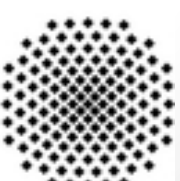
English Simple *For*

(2) [The architect built the monument for two years]_Γ

- Start with the empty model
- Γ : There is a time t before now at which the complex accomplishment event – including the preparation and the culmination– happened. Therefore, a finish event happened at the right boundary t' of interval t . Due to the *for*-adverbial, there is also a stop event at t' ending building and we therefore derive $Happens(\textit{finish}, t') \wedge \neg Happens(\textit{finish}, t')$, a **contradiction**. Reanalyze the perfective accomplishment as a perfective activity and recompute the discourse model.

Questions for Future Research

- Do accomplishments in the progressive really trigger a default inference to a culmination (see, e.g., the discussion in e.g. Bar-el et al. 2005)?
- Do German non-culminating accomplishments become difficult if *for*-adverbials are made part of a separate discourse unit?
- What are the linguistic constraints governing non-culminating construals of accomplishments?



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Licensing Non-Culminating accomplishments in Mandarin. Experimental & theoretical evidence.

TELIC 2017, Universität Stuttgart, 12-14/01/2017

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Fabienne Martin (U. Stuttgart)

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Introduction

Mandarin Chinese is reported to be a language where transitive change of state (Cos) verbs license non-culminating (NC) readings. (Tai 1984, Chief 2007, Koenig & Chief 2008, Demirdache & Martin 2015)

- Little work on licensing of NC readings in Mandarin
 - “Zero-COS reading” (Tatevosov & Ivanov’s 2009 failed-attempt)
 - “Partial-COS reading” (Tatevosov & Ivanov’s 2009 partial result)
- Contributions of this study:
 - Relevant verb classes
 - Experimental evidence (Liu in prep.) on the role of iterative adverbs in licensing NC readings
 - Contribution of the aspectual marker /e

Introduction: Mandarin accomplishments

- 2 types of accomplishments in Mandarin:
 - Monomorphemic verbs (MMVs)
 - Resultative verb compounds (RVCS):
- Most Mandarin accomplishments are RVCS:
 - activity (V1)+resultative complement (V2).
 - (Li & Thompson 1981, Tai 1984, Sybesma 1999, 2013, Lin 2004)
 - ex. *cā-diào* ‘wipe-drop’: wipe/erase, *dǎ-suì* ‘hit-break’: break
- This study focuses on MMVs
 - Verbs in limited number (Lin 2004: 53);
 - MMVs allow non-culminating readings;
 - Overt resultative complements trigger event culmination.

Non-culminating CoS verbs in Mandarin

Road map

Part 1. **Experimental evidence**

Mandarin follow up on the experiment just presented by Angeliek with iterative adverbs → robust evidence for NC CoS construals & the ACH

Part 2. **Theoretical discussion**

Distinguish 2 classes of MM verbs: depending on whether they require or not 1 require an adverbial to license zero-CoS

- What is the source of the non-culminating readings?
 - Not activities, Not coerced into activity predicates on zero-CoS reading
 - Do not involve a covert *try*-head
 - The source of the non-culminating readings: verbal *le*
- Altschuler 2014: Hindi simple verb-perfective as a partitive operator
- Deriving Zero CoS construals
- Further evidence: Boundedness requirement

Iterative Adverbs Increase Zero—COS
Reading of MMV

Experimental Evidence

[5]

1st Experiment:

Testing the Agent Control Hypothesis with non-culminating events in Mandarin
(2016 DGF workshop, Angeliek van Hout's Telic 2017 talk for crosslinguistic comparison)

◆ Participants

- ◆ 30 Mandarin native speakers

◆ Full vs. Zero Change of State

- ◆ *Truth Value Judgment Task*

◆ Agents vs. Causers

- ◆ 8 MM CoS:

suì(break)

kāi(open)

zhé(cut)

jiě(untie)

guān(close)

mái(bury)

shā(kill)

xī(blow out)



Testing Probes: Yes or No

Agent-Subject

Cause-Subject

(MMV-PERF)

1. Hǎidào

Pirate

close-PERF

that

CLF

door Int?

‘Did the pirate close that door?’

guān-le

nà

shàn

mén

ma?

2. Nà-zhèn fēng

That-CLF wind

close-PERF

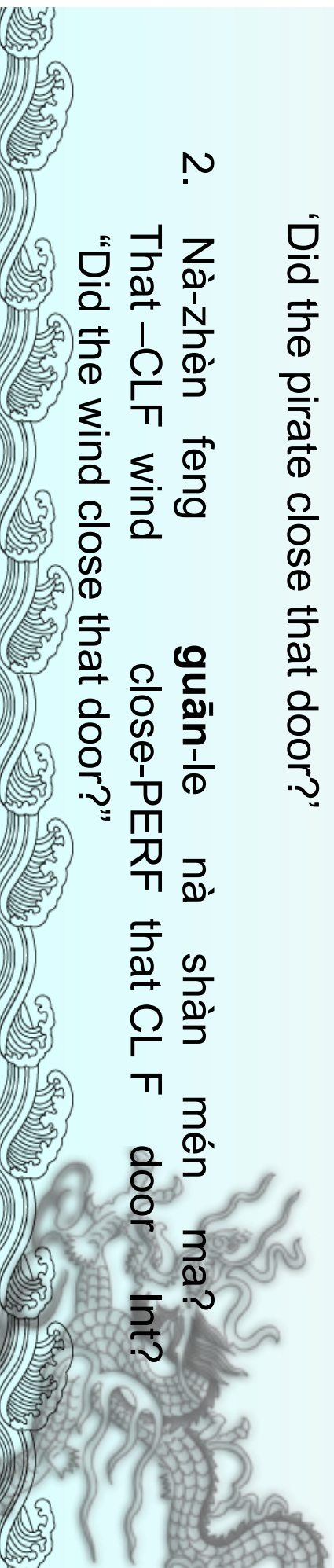
that

CLF

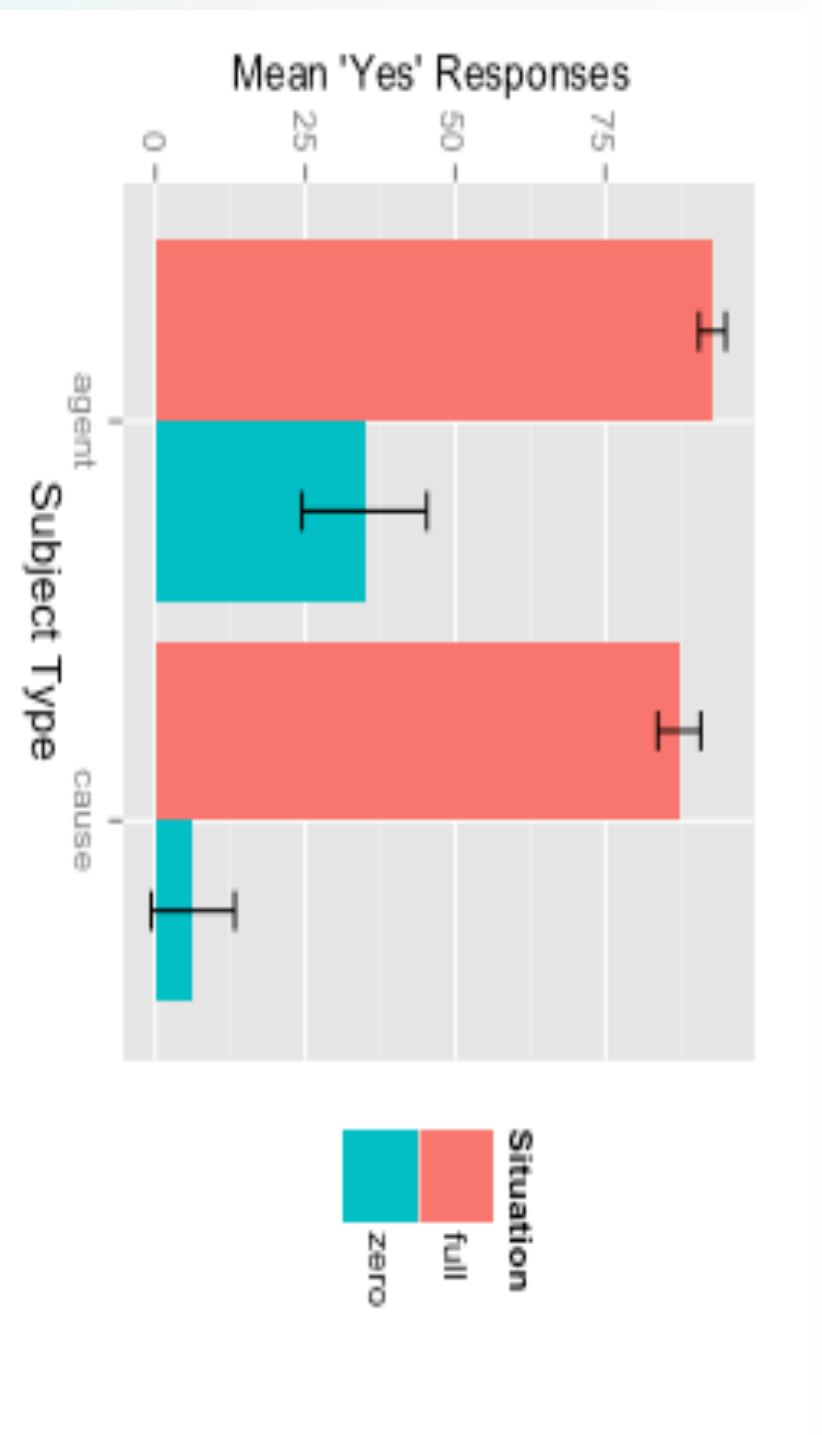
door Int?

“Did the wind close that door?”

guān-le nà shàn mén ma?



Results: MMV



	Df	Sum Sq	Mean Sq	F value	Pr(>F)
SubjectType	1	8687	8687	27.73	6.51e-07 ***
Situation	1	144838	144838	462.26	< 2e-16 ***
Subject type:situation	1	3979	3979	12.70	0.000532 ***



Results: Mandarin MMV

- Mandarin simple verbs:
Participants accepted zero-COS significantly more often for Agent than for Causer subjects ($F=27.73$, $p<.001$).
- Confirms the role of agenthood, as predicted by the ACH, with culmination behaving as a cancellable implicature with Agents, but as an entailment with Causers.



Questions

- Why is there only **38** % of acceptance for the nonculminating reading in Agent-Zero CoS condition?
- Sun's observation: ZeroCoS reading with certain verbs is in fact acceptable **only when** the verb is modified by an **adverbial**, like *haoji-ci* 'several times'.
- Can adding an **iterative adverbial** increase the acceptance of nonculminating readings in Agent-Zero CoS condition? (2nd experiment)



2nd Experiment:

MMV + *hǎojiǎcì* “several times”

- ◆ **Participants**

- ◆ 20 Mandarin native speakers

- ◆ **Zero Change of State**

Short movie clips showing events with **no** such CoS at all (as encoded by the predicate

- ◆ *Truth Value Judgment Task*

- ◆ **Agents vs. Causers**

Subject argument either an **Agent** (clown, pirate) or a **Causer** (wind, explosion)



DESIGN

- ◆ 2 x 1 design varying Subject type

Zero Cos	
Agent	8
Pure Causer	8

- ◆ **16** testing probes (8*2)
- ◆ 2 types of pure causers: wind, explosion
- ◆ 8 MMV:

suì(break)

kāi(open)

zhé(cut)

jiě(untie)

guān(close)

mái(bury)

shā(kill)

xī(blow out)



TWJ Task

1

Watching short Movie Clip (No Cos)

2

Testing Probe: Yes or No

Agent-Subject

Cause-Subject

MMV-PERF+iterative adverb

3. Nà-gè hǎidào

guān-le

hǎojǐcì

That-CLF pirate close-PERF several times

“Did the pirate close that door several times?”

nà-shàn mén ma?
that CLF door Int?

4. Nà-zhèn fēng

guān-le

hǎojǐcì

That-CLF wind close-PERF several times

“Did the wind close that door several times?”

nà-shàn mén ma?
that CLF door Int?



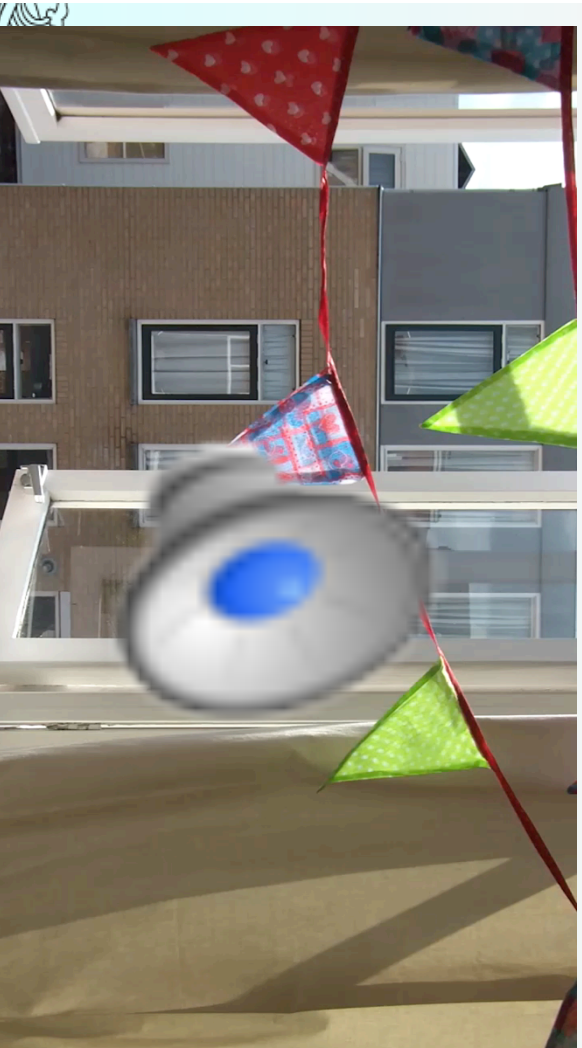
Materials & Design

- ◆ Agent-Zero Cos(close)



“Did the pirate close that door several times?”

- ◆ Cause-Zero Cos(close)



“Did the wind close that window several times?”



Results

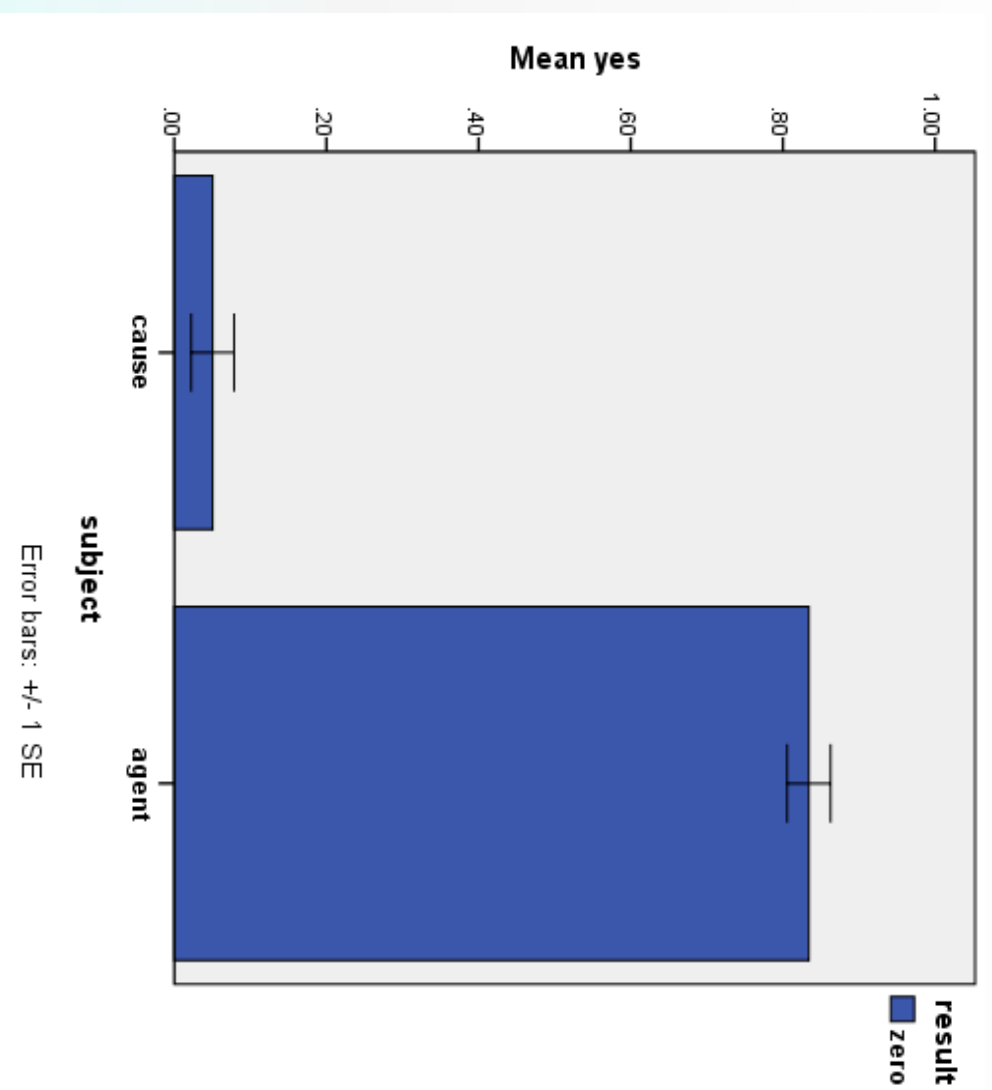
MMV + Iterative Adverb

Table 1. Descriptive Statistics

Condition	Mean percentage of “yes” responses	Number of “yes” responses	Std. Deviation
Agent-Zero CoS	0.82	121 (147)	0.12750
Cause- Zero CoS	0.05	8 (150)	0.12752



Results: MMV+Iterative Adverb



Tests of Between-Subjects Effects

Dependent Variable: yes

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
subject	6.139	1	6.139	382.930	.000



Result 1: Agenthood

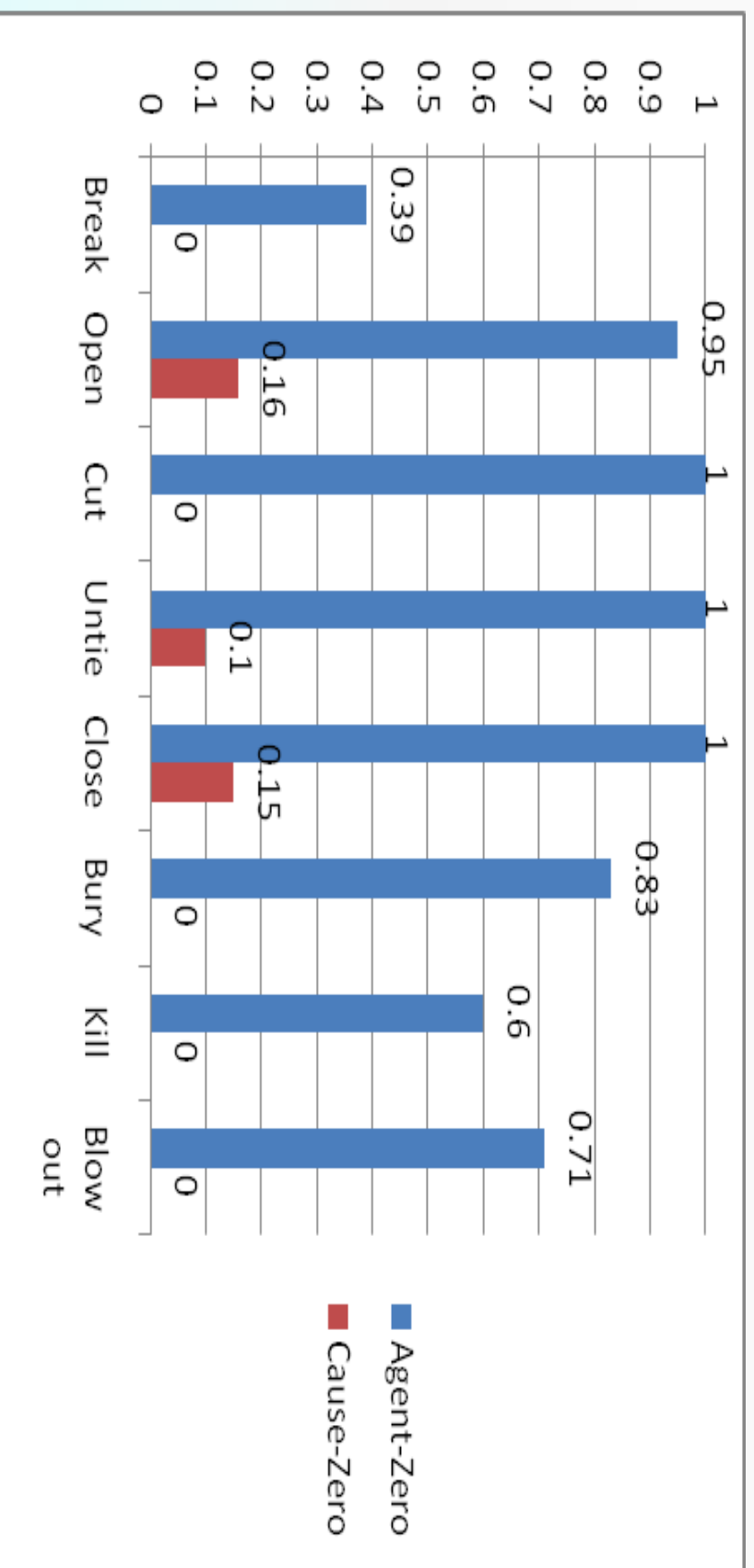
Participants accepted zero-COs significantly more often for Agent than for Causer subjects ($F=382.932$, $p<.001$).

✓ (Re)confirms the role of **agenthood**, with culmination behaving as a cancellable implicature with Agents, but as an entailment with Causers.



Agent Zero Vs. Cause-Zero

- ◆ Figure 3: Adultyes responses across verb types



Agent Zero Vs. Cause Zero

- ◆ 20 adults : **82%** Yes for agent-zero
- ◆ 2 types of Causers
- ◆ Explosion (4 items): break, cut, bury, kill
- ◆ Wind (4 items): open, close, untie, blow out
- ◆ Only 3 adults: say “yes” on the cause-zero condition
- ◆ **8/9 yes responses for 3/4 items: open, untie, close where the causer is the **wind**.**
- ◆ Personification of the wind?
- ◆ No yes with ‘blow out? Accident or something to explain?

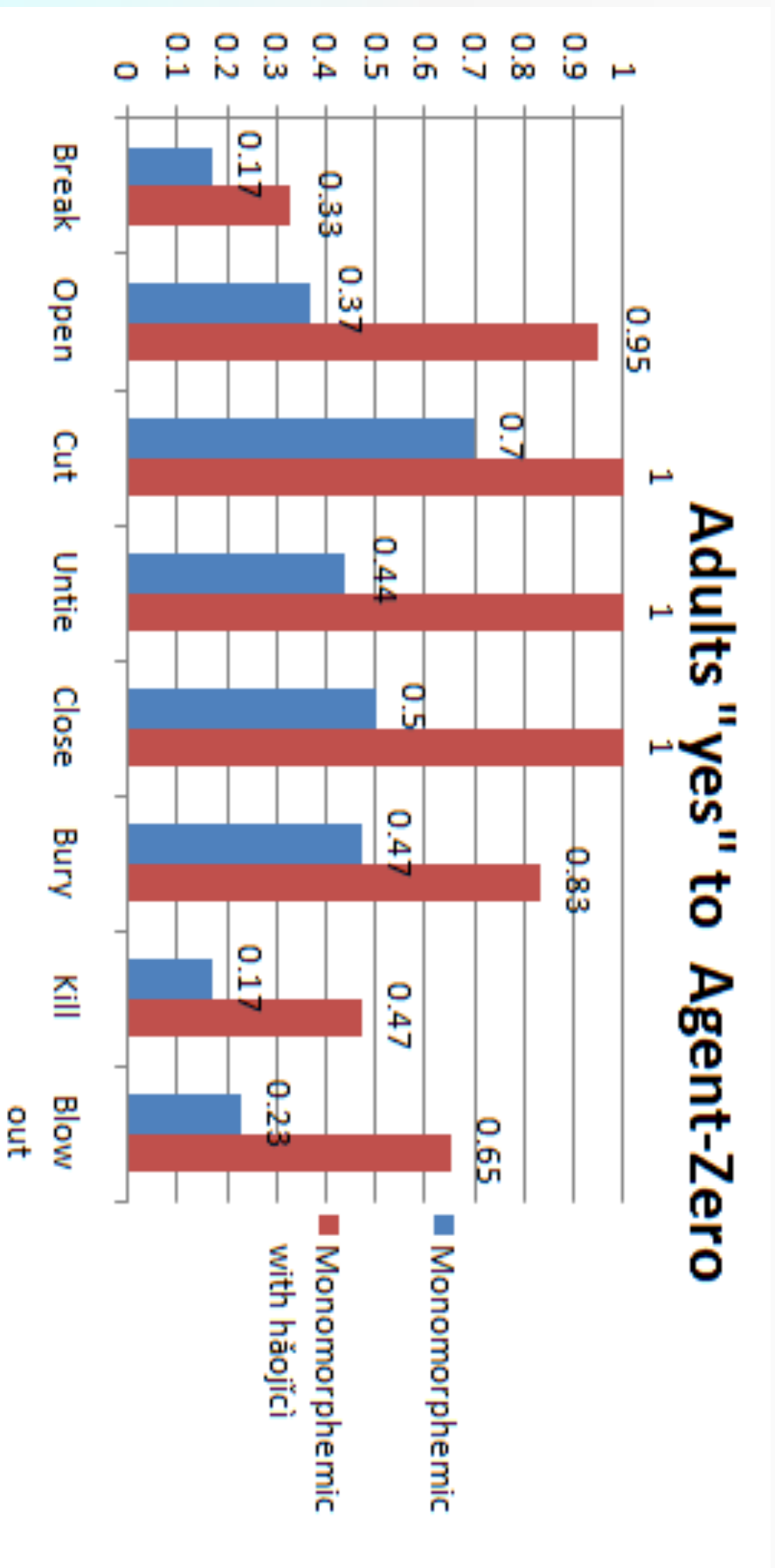


Comparing Results across experiments

- ◆ Exp 1 Agent zero (without adverb): **38%** “Yes” Responses
- ◆ Exp 2 Agent zero (with adverb): **82%** “Yes” Responses
- ◆ Exp 1 Cause zero (without adverb): **7%** “Yes” Responses
- ◆ Exp 2 Causet zero (with adverb): **5%** “Yes” Responses



- ◆ Figure 4: % of “yes” across verb classes in 1st vs. 2nd experiments



Result 2 Iterative Adverbs

- ◆ Chinese adults (and children) accept more easily Agent zero Cos with an adverb such as *several times*.
- ◆ Confirms the role of **iterative adverbs** in facilitating zero Cos construals.



Theoretical discussion

2 subclasses of MM verbs

Robust experimental evidence confirming D&M's (2015) claim that the zero-CoS reading is possible with an agentive subject, but not with a **non-agentive subject**, and this even when the verb is modified by an *iterative adverb*.

→ Distinguish 2 subclasses of verbs:

With an agentive subject

- Class 1: zero-CoS OK without an iterative adverbial
- Class 2: zero-CoS out without an iterative adverbial

Why is the zero-CoS reading acceptable *without* an adverbial with class 1 verbs but *only with* an adverbial with class 2 verbs ?

COS MMVs : 2 subclasses

Class 1 (larger): *shāo* ‘burn’, *rǎn* ‘dye’, *sī* ‘tear’ (cf. table 1)

- Partial COS reading: → OK

The COS does not occur to any positive degree

- Zero COS reading: → OK

A proper part of the lexicalized COS occurs only

(1) Yuēhàn shāo le tā-de shū, dàn méi shāo-zháo/shāo-huǐ

Yuehan burn PERF 3SG-DE book but NEG burn-touch/burn-destroy

‘Yuehan burned his book, but it didn’t get burned at all/completely.’

(2) Tā sī le nèi-ge běnzi, kěshì (běnzi

3SG tear PERF that-CL notebook but notebook

tài hòu) méi (wánquán) sī-huài

too thick NEG (completely) tear-damage

‘She tore that notebook, but didn’t (completely) tear it up (the notebook being too thick).’

COS MMVs: 2 subclasses

Class 2 (smaller): *shā* 'kill', *chú* 'get rid of (a tyrant)', *zhāi* 'pick (a flower)'.

- Partial COS reading → No
- Zero COS reading → No

(3) # *Tā shā le Yuēhàn*, *Yuēhàn hái huó zhe.*

3SG kill PERF Yuehan Yuehan still alive DUR

Intended: 'He killed Yuehan, but Yuehan is still alive.'

(4) # *Qùnián, cūnmínmen chú le cūnzi lǐ nàige*
 last.year villagers get.rid.of PERF village inside that-CL

èbà, èbà hái zài.

tyrant, tyrant still exist

Intended: 'Last year, the villagers got rid of the local tyrant, but the tyrant is still there.'

[except in a situation where the tyrant came back after being expelled.]

Notes: Judgement variation: *shā* 'kill' allows zero-Cos reading (Talmy 2000)

Monomorphemic CoS: 2 subclasses

Table 1

	Class 1 shāo 'burn', sī 'tear', rān 'dye' mái 'burry' fā 'leaven', zhé 'cut', jié 'unknot (a tie)',	Class 2 shā 'kill', chú 'get rid of (the tyrant)' zhāi 'pick (a flower)' xī 'blow out' suì 'break'
Partial CoS reading	V	#
Zero CoS reading	V	#
Zero CoS reading with once/ several time(s)	V	V
Zero CoS reading with causer subject (+once/several times)	#	#
for-adverbial	V	V
in-adverbial	V	V

Adverbs that license NC readings

Iterative adverbs

The zero-COS reading of verbs of class 2 is acceptable only when the verb is modified by an iterative adverbial (Demirdache & Sun 2014), like *hǎojiǐ-cì* ‘several times’(5), see also Tai (1984:291).

(5) Tā shā le Yuēhàn hǎojiǐ, Yuēhàn hái huó zhe

3SG kill PERF Yuehan several.times Yuehan still live DUR

Literally: ‘He killed Yuehan several times, but Yuehan is still alive.’

Liu (in prep.) observes that (5) is also salvaged with *yí-cì* ‘once’ (6).

(6) Tā shā le Yuēhàn yíci, Yuēhàn hái huó zhe

3SG kill PERF Yuehan once Yuehan still live DUR

Literally: ‘He killed Yuehan once, but Yuehan is still alive.’

De Swart (1991): adv. like *once/several times* are associated with a **plurality condition on quantifying domains** (that forbids quantifying on a set whose cardinality is known to be less than two).

(5) and (6) normally do not trigger the odd inference that death is reversible: the adv. quantifies over *unsuccessful* attempts.

Adverbs that license NC readings: Durative adverbs

Durative adverbials like *shí fēngzhōng* ‘for ten minutes’ (7) or *liǎng-nián* ‘for two years’ (8) also license zero-CoS readings of verbs of class 2.

- (7) Nóngfū shā nèi-tóu niú shā le shí fēngzhōng
 farmer kill that-CL ox kill PERF ten minute
 niú dou méi sǐ
 ox DOU NEG die

‘The farmer killed the ox for ten minutes, but the ox didn’t die.’

- (8) Cūnmínmen chū nèi-ge èbà chū le liǎng-nián,
 villagers get.rid.of that-CL tyrant get.rid.of PERF two-year
 èbà hái zài.
 tyrant still exist

Literally: ‘The villagers got rid of the tyrant for two years, the tyrant is still there.’

Event structure and lexical semantics of CoS MMVs

Not activity verbs

Mandarin CoS MMVs are **activity verbs conventionally associated to a result** of a certain type (Talmy 2000, Chen 2016) (e.g. *wash*-verbs in English).

→ The result is **implied** (by the context), rather than entailed/encoded by the verb. Cancellation is expected.

Counter argument: Verbs of class 1/2 accept both the so-called counterfactual and scalar readings of *chàdiǎn* ‘almost’, see (9).

(9) a. Lùlu chàdiǎn shāo le yì-běn shū

Lulu almost burn PERF one-CL book

‘Lulu almost burned a book.’

[Lulu didn’t put it into fire.] OR [Lulu burned the book, but not the whole book.]

b. Nóngfū chàdiǎn shā le nèi-tóu niú

farmer almost kill PERF that-CL ox

‘The farmer almost killed the ox.’

[The farmer chose another ox after hesitation.] OR [The ox survived from an event that could lead to its death.]

Conclusion: **verbs of class 1/2 are causative accomplishments.**

Event structure and lexical semantics of CoS MMVs

Not coerced into an activity verb

Verb + adverbial > coerced into an activity ?

‘Subtractive coercion’ hypothesis: CoS MMVs allow the zero-CoS reading iff they are reinterpreted (through coercion) into activity predicates.

→ The coerced verb does not entail a CoS anymore (in Bott’s 2010 terms, they are ‘subtracted’ of their culmination point).

Counter Argument:

Accomplishments modified by *once* are still accomplishments

Pinon (2005): denying culmination is possible only with telic predicates.

→ “(not) completely” (adv. of completion) is odd with atelic predicates

(10) He ate his cereals, but not completely.

(11) He ate cereals, #but not completely.

Accomplishment verb keeps its accomplishmenthood, even when modified by ‘possibly coercing’ adverbials, such as “for ten minutes” (12).

(12) He ate his cereals for ten minutes, although not completely.

Event structure and lexical semantics of CoS MIMVs

Not coerced into an activity verb

Mandarin accomplishment MIMVs keep their accomplishmenthood even when modified by adverbials like *yíci* ‘once’, see (13) below:

(13) Lùlu shāo guo nèi-xiē shùyè (yíci), suīrán méi quán shāo
 Lulu burn EXP that-Cl.PI leaf once although NEG complete burn
 ‘Lulu burned those leaves (once), although not completely.’

(14) Lùlu shāo guo (yíci) shùyè, #suīrán méi quán shāo
 Lulu burn EXP once leaf although NEG complete burn
 ‘Lulu burned leaves (once), #although not completely.’

Conclusion: **verbs of class 1/2 are not coerced into activities**

Event structure and lexical semantics of CoS MMVs

No covert *try*-head

Alternative account : **a (silent) voice head meaning ‘try’**

shā ‘kill’ = *chángshì* [try] *shā*

The zero-CoS reading comes from the fact that *try* V does not entail V.

- Perfective sentences with causative change of state verbs **entail** that the causation event started (i.e. a causing action of the relevant type must have started), *even under the zero-CoS reading*;
- The *try*-counterpart of these sentences does not carry this entailment; that is, it is compatible with a situation where the agent has **not** started to perform a causation event of the relevant type. (See Grano 2011)

Event structure and lexical semantics of CoS MMVs

No covert *try*-head

In a situation where Lulu is unknowingly paralysed in her bed and only *mentally* tried to kill a cockroach (without managing to do any movement), (15) below is false, but its overtly conative counterpart (16) is true.

- (15) Lùlu shā le yí-cì nèi-zhī zhāngláng
 Lulu kill PERF one-time that-CL cockroach
 ‘Lulu killed the cockroach once.’
- (16) Lùlu shì zhe shā le yí-cì nèi-zhī zhāngláng
 Lulu try DUR kill PERF one-time that-CL cockroach
 ‘Lulu tried to kill the cockroach once.’

Zero-CoS reading of accomplishments require *more than a try* (but less than a success), cf. Martin 2015

- no covert conative head involved in their semantics.
- The English *try* is a misleading translation of CoS MMVs under the zero-CoS reading.

The source of non-culminating readings: the aspectual marker *le*

Aspectual marker *le* in Mandarin is most commonly referred to as a perfective marker (Wang 1965; Chao 1968; Smith 1991, Sybesma 1999, Lin 2006, Sun 2014, a.o.),

Many authors distinguish

- verbal *le*: perfective
- sentence final *le*: inchoative --> “currently relevant state”
(Li & Thompson 1981:238, Paul 2015)

Concerned here only with verbal *-le*, which we take to be a perfective marker.

Drawing a parallel between MMV-*le* and the Hindi Simple Verb-perfective (SV-PFV_{HI}) on Altshuler’s 2014 account,

→ argue that the source of NC construals in Mandarin is MMV-*le*

→ *Advantage*: crosslinguistic difference between Mandarin & English does not lie in the lexical meaning of CoS verbs (e.g. of *burn* or *kill*) across languages.

Altshuler 2014:

Simple Verb-perfective in Hindi (SV-PFV_{HI})
as a partitive operator

SV-PFV_{HI} is a partitive operator, combining with a VP and requiring that there be an event e' in the world of evaluation w^* that is a stage of a VP-event e in a 'near enough' world w .

Differs from the Progressive in one core respect:

(17) Prog requires that e' be a proper subpart of e ($e' \subset e$)

(18) SV-PFV_{HI} merely requires that e' be a subpart of e ($e' \subseteq e$)

$e' = e \rightarrow$ culminating CoS reading

$e' \subset e \rightarrow$ nonculminating CoS reading

Applied to an accomplishment VP does not lead to a culmination entailment assuming that accomplishment events have at last two stages.

Deriving zero CoS construals

Assuming that verbal *le* is a partitive operator requiring that *e'* be a subpart of *e* ($e' \subseteq e$)

→ Zero CoS construal arises when *e'* is an *event part that excludes any change of state*.

→ Correctly predicts that perfective sentences with CoS verbs:

- i. require **more than a try**: entail that the causation event started (that a proper causing action of the relevant type must have started) even under the zero-CoS reading [See discussion of (15) vs (16) No covert *try*-head slide]

- ii. But even a very minimal initial proper event part suffices to make a telic *LE* sentence true: e.g. (19) will be true as soon as the hair dresser starts applying the dye on the hair.

(19) Fàxíngshī rǎn le tā de tóufa
 hair.dresser dye PERF 3SG DE hair
 'The hair-dresser dyed her hair.'

Further evidence:

The boundedness requirement

Although SV-PFV_{HI} allows NC construals (20), it is incompatible with the Prog (21):

(20) maīne aaj apnaa kek khaayaa, (aur baakii kal khaūṅga).

I.ERG today mine cake eat.PFV and remaining tomorrow eat.FUT

'I ate my cake today, (and I will eat the remaining part tomorrow).' (Singh 91)

(21) maayaa-ne biskuT-kokhaa-yaa # aur use ab tak khaa rahii hai

May-ERG cookie-ACC eat-PFV and it still eat PROG be PRS

Intended: 'Maya ate a cookie, and is still eating it' (Altschuler 2014:759)

→ Why? Because SV-PFV_{HI} imposes a *boundedness* requirement: *e'* must be a bounded event part (did not develop further in the world of evaluation, possibly because it was completed)

→ Same contrast attested with Mandarin LE:

(22) Lulu kāi-le nà-shàn mén, dànshì mén gēnběn méi kāi.

Lulu open-PERF that-CL door but door at all not open

'Lulu opened the door, but it didn't move at all.'

(23) Lulu kāi-le nà-shàn mén, # érgiě hái zài kai

Lulu open-PERF that-CL door and still PROG open

'Lulu opened that door, and she is still opening it.'

Conclusion

- Q. What is the source of non-culminating CoS readings in Mandarin?
The perfective marker : verbal LE

Welcome implication :

Mandarin Class 1/2 verbs are **standard causative verbs**

No differences in meaning between Mandarin CoS verbs such as *kill* or *burn* and their English counterparts

Proposal explains why Mandarin sentences with perfective CoS verbs require *more than a try*, but even a *very minimal initial event part* suffices to make them true

Remaining question:

Why do iterative/durative advs increase the acceptability of NC CoS ?

Rough illustration: by *e.g.* coercing atomic events ('pick') into events with stages/event parts. *To be continued.*

When does perfectivity result in telicity? - Aspectual composition in Polish

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1. Topic of the talk

The role of grammatical aspect and verbal prefixes in the aspectual composition of the Polish strictly incremental theme verbs *jeść* 'eat' and *pić* 'drink' (based on Fleischhauer & Czardybon 2016).

Central claims:

- Perfectivity does not entail telicity (not a novel claim but already defended by e.g. Borik 2006, Filip 2000, 2003);
- the (incremental) theme argument of a perfective verb is not always quantized (also not novel; e.g. Filip 2000);
- quantization and telicity depend on the semantic content of the verbal prefixes but not on grammatical aspect.

[Note: The analysis is restricted to strictly incremental theme verbs and does not easily extend to non-strictly incremental theme verbs (like *read*, *write*, *sing*)!]

2. Aspectual composition

Incremental theme verbs provide a homomorphic mapping between the event and the incremental theme argument such that the event ends if the referent of the incremental theme argument is totally affected.

→ *eat/drink* are strictly incremental as the same token can be consumed only once (but you can read the same book again and again).

The referential properties of the incremental theme argument affect the telicity of the predication.

(1) Aspectual composition of incremental theme predications:

An incremental theme verb combined with a quantized incremental theme argument yields a telic predication, whereas if it combines with a cumulative incremental theme argument it yields an atelic predication.

(based on Krifka 1986, 1998 and Filip 1993/1999, 2001)

(2) Referential properties (based on Krifka 1991):

(a) Quantization: A predicate P is quantized iff

$\forall x,y [P(x) \wedge P(y) \rightarrow \neg y < x]$

→ Singular count nouns e.g. *apple*

(b) Cumulativity: A predicate P is cumulative iff

$\forall x,y [P(x) \wedge P(y) \rightarrow P(x \oplus y)]$

→ mass nouns *water*, bare plurals *apples*

German *essen* ‘eat’ and *trinken* ‘drink’ can combine with quantized (3a, c) as well as cumulative incremental theme arguments (3b). A telic interpretation only arises if the incremental theme argument is inherently quantized (3a) or quantized by some type of nominal determination, e.g. the definite article (3c).

(3) German

- (a) *Der Mann hat den Apfel in zehn Minuten gegessen.*
the man has the apple in ten minutes eaten
‘The man ate the apple in ten minutes.’
- (b) *Der Mann hat Äpfel (*in zehn Minuten) gegessen.*
the man has apples in ten minutes eaten
‘The man ate apples (*in ten minutes).’
- (c) *Der Mann hat die Äpfel in zehn Minuten gegessen.*
the man has the apples in ten minutes eaten
‘The man ate the apples in ten minutes.’

Most Slavic languages lack articles but if the incremental theme verb is used in the imperfective aspect, the incremental theme predication is atelic (4a). A telic predication results, if the incremental theme verb is used in the perfective aspect (4b).

(4) Polish

- (a) *Jan pił_{IMPF} wod-ę (*w godzinę).*
Jan drank water-ACC in hour
‘Jan drank/was drinking water.’
- (b) *Jan wy-pił_{PF} wod-ę w godzinę.*
Jan WY-drunk water-ACC in hour
‘Jan drank (all) the water in an hour.’

Inherently quantized incremental theme arguments only result in a telic predication, if the incremental theme verb is used in the perfective aspect (5)

- (5) a. *Ona z-jadła_{PF} kanapk-ę. w godzinę.*
she Z-eat.PAST sandwich-ACC in hour
‘She ate a/the whole sandwich in an hour.’
- b. *Ona jadła_{IMPF} kanapk-ę. (* w godzinę).*
she eat.PAST sandwich-ACC in hour
‘She ate/was eating a sandwich.’

Two assumptions found in the literature (e.g. Abraham 1997, Kabakčiev 2000, Leiss 2000, Borer 2005):

(i) Instead of using nominal determination, Slavic languages make use of the perfective/imperfective distinction for aspectual composition.

(ii) Perfective aspect (in the Slavic languages) serves the same function than the definite article (in the Germanic languages).

→ See Czardybon & Fleischhauer (2014) for a rejection of the second claim.

Perfective verbs denote complete events ('total events' in the terminology of Filip 1993/1999, 2001, 2005).

→ an event is conceived as a single whole without distinction of the phases that made up the situation (Filip 2005 based on Comrie 1976).

Filip assumes that perfective incremental theme verbs always require a quantized incremental theme argument, "[g]iven that the perfective verb has total events in its denotation, the [homomorphic] mappings [between the event and the object] dictate that the Incremental Theme argument must refer to totalities of objects falling under its description" (Filip 2005: 135; also Filip 1997).

→ This leads to the quantization of the inherently cumulative noun *woda* 'water' in (4b).

→ The aim of the talk is to refine this view on the interaction of aspect, quantization and telicity in aspectual composition of strictly incremental theme verbs.

3. Grammatical aspect in Polish

There is no unique expression of perfectivity in the Slavic languages but perfective verbs can be derived from imperfective ones by – for example – prefixation.

→ Verbal prefixes are derivational rather than inflectional affixes (6). Thus, the prefixes are not inflectional markers of perfective aspect rather they are used for the derivation of (perfective) verbs (e.g. Filip 1993/1999).

(6) Polish

- (a) *pisać*_{IMPF} – *prze-pisać*_{PF}
'write' 'copy/rewrite'
(b) *dać*_{PF} – *po-dać*_{PF}
'give' 'pass'

The following Polish verbal prefixes combine with the (strictly) incremental theme verbs *jeść* 'eat' and *pić* 'drink'; the following do:

- (7) *po-*, *wy-*, *z-/s-*, *nad-*, *do-*, *na-*, *o-*, *od-*, *pod-*, *prze-*, *roz-*, *u-*, *za-*

The discussion is restricted to prefixed verbs which show the following characteristics:

- (i) the prefixed verb subcategorizes two arguments, which are an agent and an incremental theme argument;
- (ii) the incremental theme argument is realized as the direct object of the verb;
- (iii) the referent of the incremental theme argument is consumed in the event of eating/drinking

- (8) (a) *Piotr o-pił się (piw-em).*
Piotr O-drank REFL beer-INST
'Piotr got drunk (with beer).'
(b) *Jan prze-pił swój dom.*
Jan PRZE-drank his house
'Jan drank away his house.'

→ The undergoer argument (*piwo* 'beer') is optional and not the direct object in (a); in (b) the undergoer argument (*dom*) is neither an incremental theme argument nor gets its referent consumed during the event.

4. *wy-/z-* vs. *po-*

wy- is the most neutral prefix for *pić* ‘drink’ (9) and *z-* for *jeść* ‘eat’ (10); the prefixes indicate that the whole referent of the incremental theme argument is consumed. The incremental theme argument is interpreted as being quantized and the predication is telic.

(9) *Wy-pilem_{PF} wodę w minutę.*
WY-drank water in minute
‘I drank the (whole) water in a minute.’

(10) *Z-jadłem_{PF} gruszkę/ truskawki/ zupę w minutę.*
Z-ate pear strawberries soup in minute
‘I ate a/the pear/ (all) the strawberries/ the (whole) soup in a minute.’

→ A definite interpretation arises with plural and mass nouns; with singular count nouns a definite as well as indefinite interpretation is possible.

The prefixes specify that the whole QUANTITY of food/beverage has been consumed (11) and specify an endpoint for the process denoted by the verb.

(11) # *Ona z-jadła kanapk-ę, ale jak zwykle trochę zostawiła.*
she Z-ate sandwich-ACC but as usual a bit left
‘She ate a/the sandwich, but as usual she left a bit.’

The prefix *po-* derives a perfective verb and as an additional meaning component indicates that the event lasted just for a certain while/a short time (see Piñón 1993).¹

(12) a. *Po-pilem_{PF} herbat-y, ale dużo herbat-y.*
PO-drank tea-GEN but much tea-GEN
‘He drank tea for a while but much tea.’
b. #*Po-pilem_{PF} herbat-y, ale przez dłuższy czas.*
PO-drank tea-GEN but for long time
‘He drank tea [for a while] but for a long time.’

The incremental theme argument is not – necessarily – quantized (hence we neither get a specific quantity reading nor a definite interpretation of the theme argument). The resulting predication is atelic (13).²

(13) *Po-pilem_{PF} herbat-y (*w minutę).*
PO-drank tea-GEN in minute
‘I drank tea for a certain while.’

Interim summary:

- (i) Not all perfective incremental theme verbs require quantized incremental theme arguments.
- (ii) Not all perfective incremental theme verbs express telic predications.
- (iii) *wy-/z-* specify the QUANTITY of the referent of the incremental theme argument, *po-* – on the other hand – specifies the RUN TIME of the event.

¹ Piñón (1993: 349ff.) shows in detail that delimitative verbs – which he calls ‘pofective’ verbs – are perfective.

² See Tatevosov & Ivanov (2009) as well as Filip (2000) for the analysis of Russian delimitative *po-*, which either measures the run time of the event or the quantity of incremental theme argument.

5. A first step towards an analysis

I presuppose an event-degree homomorphism (e.g. Caudal & Nicholas 2005, Fleischhauer 2016, Kardos 2012, Piñón 2008) – instead of an event-object homomorphism (e.g. Krifka 1986, 1998).

Each relevant subevent is mapped onto a unique degree on a scale (see the appendix for a formalization of the mapping).

→ Incremental theme verbs provide a homomorphic mapping between events and quantity/volume scales, which measure the quantity/volume of the referent of the incremental theme argument (e.g. Beavers 2006, Rappaport Hovav 2008, Tenny 1994).

- (14) Telos as a maximum/minimum degree: A telos is the maximum/minimum degree on a scale and a predication is telic if the maximum/minimum degree has to be attained.
 [→ maximum telos in Fleischhauer (2013, 2016)]

→ A maximum degree presupposes an upper closed scale; a minimum presupposes a lower closed scale (see Kennedy & McNally 2005 for a discussion of scale structure).

- (15) $\llbracket \text{pic} \rrbracket = \lambda y \lambda x \lambda e [\text{drink}(e) \wedge \text{AGENT}(e) = x \wedge \text{INCTHEME}(e) = y \wedge (\text{QUANTITY}(y, \text{BEGIN}(e)) > \text{QUANTITY}(y, \text{END}(e)))]$

Based on Filip (2000, 2003) non-directional verbal prefixes can be analysed as extensive measure functions that map an entity (individual or eventuality) onto a measure/scale like VOLUME, QUANTITY or TIME.

z- and *wy-* specify the QUANTITY to which the incremental theme argument is affected.

- (16) a. $\llbracket \text{wy-}/\text{z-} \rrbracket = \lambda P \lambda y \lambda e [P(e) \wedge \text{QUANTITY}(y, \text{END}(e)) = d_{\min}]$
 b. $\llbracket \text{pic} \rrbracket = \lambda y \lambda x \lambda e [\text{drink}(e) \wedge \text{AGENT}(e) = x \wedge \text{INCTHEME}(e) = y \wedge (\text{QUANTITY}(y, \text{BEGIN}(e)) > \text{QUANTITY}(y, \text{END}(e)))]$ ($\llbracket \text{wy-} \rrbracket$)
 c. $\llbracket \text{wy-}[\text{pic}] \rrbracket = \lambda y \lambda x \lambda e [\text{drink}(e) \wedge \text{AGENT}(e) = x \wedge \text{INCTHEME}(e) = y \wedge (\text{QUANTITY}(y, \text{BEGIN}(e)) > \text{QUANTITY}(y, \text{END}(e))) \wedge \text{QUANTITY}(y, \text{END}(e)) = d_{\min}]$

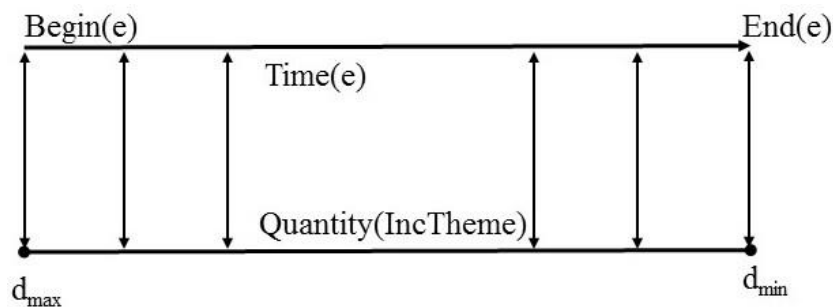


Figure 1: Homomorphic mapping between the run time of the event and the quantity of the incremental theme.

Delimitative *po-* measures the RUN TIME of the event but not the QUANTITY/VOLUME of the incremental theme argument.³

³ See Piñón (1993) for a similar analysis of *po-* as a (derived) measure function specifying the run time of an event.

- (17) a. $\llbracket \text{po-} \rrbracket = \lambda P \lambda e [P(e) \wedge \tau(e) \leq s_c]$
 b. $\llbracket \text{pić} \rrbracket = \lambda y \lambda x \lambda e [\text{drink}(e) \wedge \text{AGENT}(e) = x \wedge \text{INCTHEME}(e) = y \wedge (\text{QUANTITY}(y, \text{BEGIN}(e)) > \text{QUANTITY}(y, \text{END}(e)))] (\llbracket \text{po-} \rrbracket)$
 c. $\llbracket \text{po-}[\text{pić}] \rrbracket = \lambda y \lambda x \lambda e [\text{drink}(e) \wedge \text{AGENT}(e) = x \wedge \text{INCTHEME}(e) = y \wedge (\text{QUANTITY}(y, \text{BEGIN}(e)) > \text{QUANTITY}(y, \text{END}(e))) \wedge \tau(e) \leq s_c]$

→ s_c = context-dependent standard/expectation value

As a first generalization it can be said that a telic incremental theme predication only results if the prefix imposes a measure on the QUANTITY to which the referent of the incremental theme argument is affected.

6. *nad-*

nad- requires a quantized incremental theme argument and measures the quantity to which the incremental theme argument is affected. But, in contrast to *z-* and *wy-*, it does not express the total affection of the incremental theme argument. Rather it expresses that the referent of the incremental theme argument is affected slightly/only a bit.

- (18) (a) *Nad-pilem_{PF} wino (*w minutę).*
 NAD-drank wine in minute
 ‘I drank a bit from the wine.’
 (b) *Nad-jadłem_{PF} gruszkę/ truskawki (*w minutę).*
 NAD-ate pear strawberries in minute
 ‘I ate a bit from the strawberries/the pear.’

- (19) $\llbracket \text{nad-} \rrbracket = \lambda P \lambda y \lambda e [P(e) \wedge \text{QUANTITY}(y, \text{END}(e)) \leq d_s]$

Monotone decreasing measure functions like English *a bit*, *slightly* give rise to an atelic interpretation of degree achievements, whereas monotone decreasing measure functions like *significantly* result in telic degree achievement predications (Hay et al. 1999: 133).

- (20) (a) *The independent counsel is broadening the investigation significantly.*
does not entail
The independent counsel has broadened the investigation significantly.
 (b) *The independent counsel is broadening the investigation slightly.*
does entail
The independent counsel has broadened the investigation slightly.
 (Hay et al. 1999: 133f.)

nad-, like its English adverbial equivalent *a bit*, denotes a monotone decreasing measure function. Monotone decreasing measure functions do not induce a lower bound that has to be reached in the event and therefore fails to impose telicity. Rather, *nad-* as well as *a bit* induce an upper bound which must not be exceeded.

- (21) Telos as a lower bound: A telos is a degree specifying a lower bound on a scale.
 → A lower-bound does not require an upper closed/lower closed scale.
 [→ standard telos in Fleischhauer (2013, 2016)]

[A telos which is equated with a maximum/minimum degree can also be interpreted as inducing a lower bound since a bound is just the minimal degree which has to be reached to yield a true predication.]

Conditions for quantized incremental theme arguments (22a)⁴ and aspectual composition of strictly incremental theme verbs (22b) in Polish (First attempt).

- (22) (a) If the incremental theme verb is perfective and the verbal prefix imposes a measure on the quantity of the incremental theme argument, the incremental theme argument has to be quantized (if it is not inherently quantized, the noun is shifted towards a quantized interpretation [→ ‘universal packager’]).
- (b) In case of a perfective incremental theme verb with a quantized incremental theme argument and a lower bound on the quantity to which the referent of the incremental theme argument is consumed, the incremental theme predication is telic.

→ Perfectivity is not sufficient to yield a telic incremental theme predication; the semantic contribution of the prefix is relevant too as the discussion of *po-* and *nad-* revealed.

7. Grammatical aspect and aspectual composition

Question: Is perfective aspect necessary for a telic incremental theme predication or is it merely the semantic content of the prefix that leads to a telic reading?

The verb in (23) is a ‘secondary imperfective’ and results in a telic interpretation in contrast to the imperfective verb *jeść* (24). This shows that **the prefixes and not the perfective aspect are responsible for achieving a telic predication**.⁵

→ Simple imperfectives do not lead to a telic interpretation, even if the incremental theme argument is explicitly quantized (→ (5; 24b)).

(23) *Jan z-jada-ł zupę w godzinę.*
Jan Z-eat.IMPF-PST soup.ACC in hour
‘Jan used to eat the soup in an hour.’

(24) (a) *Jan jadł_{IMPF} codziennie zupę (*w godzinę).*
Jan eat.PST every day soup.ACC in hour
‘Jan ate soup every day.’

(b) *Jan jadł_{IMPF} codziennie talerz zupy (*w godzinę).*
Jan eat.PST every day plate soup.GEN in hour
‘Jan ate a plate of soup every day.’

Conditions for aspectual composition of strictly incremental theme verbs in Polish (Final version).

- (25) If a verbal prefixes imposes a lower bound on the quantity to which the referent of the incremental theme argument is consumed, the incremental theme predication is telic.

⁴ (24a) is only relevant for bare nominals. But it is also possible to quantize nouns by nominal determination (e.g. numerals, demonstrative pronouns), this does not require a perfective verb.

⁵ To be precise: the sentence describes the iteration of telic micro-events, thus each single event of eating soup within the event description is described as telic.

8. Conclusion

Telicity of incremental theme verbs in Polish is not dependent on perfective aspect but only on the semantic content of the verbal prefix.

→ This is in line with authors like e.g. Borik (2006) and Filip (2000, 2003), who argue for a clear distinction between telicity and perfectivity and show that both are independent from each other.

Polish verbal prefixes and English/German degree expressions lead under similar semantic conditions to a telic predication: the expression induces a lower bound on a scale measuring the event denoted by the verb.

But: the combination of degree expression (inducing a lower bound) and imperfective incremental theme verb does not result in a telic reading:

- (26) #*Maria jadła_{IMPF} dużo jabłek w godzinę.*
 Maria ate many apple.GEN.PL in hour
 intended: ‘Maria ate many/a lot of apples in one hour.’

The verb in (26) gets a habitual interpretation (see Filip 1993/1999 for stating the same fact for Czech), telicity requires an individuated event.

→ Event individuation – in the Slavic languages – is done by perfective aspect. Thus perfective aspect plays a role in aspectual composition, since it derives verbs that denote individuated events (which is perfectly in line with Filip’s 1993/1999 analysis of perfective aspect).

→ Distinguishing between event individuation and telicity allows to maintain the claim that perfectivity does not induce telicity, although it is a precondition for a telic predication.

9. Appendix

Event-degree homomorphism (Fleischhauer 2016: 307f.)

- (A) Mapping to degrees: $\forall e \forall e' \forall d [f(e)=d \wedge e' \subset e \rightarrow \exists d' [d' < d \wedge f(e')=d']]$
 Mapping to subevents: $\forall e \forall d \forall d' [f(e)=d \wedge d' < d \rightarrow \exists e' [e' \subset e \wedge f(e')=d']]$
 Uniqueness of degrees: $\forall e \forall e' \forall d [f(e)=d \wedge e' \subset e \rightarrow \exists! d' [d' \leq d \wedge f(e')=d']]$
 Uniqueness of events: $\forall e \forall d \forall d' [f(e)=d \wedge d' < d \rightarrow \exists! e' [e' \subseteq e \wedge f(e')=d']]$

→ f is an attribute which maps an event e onto a scale

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References

- Abraham, Werner. 1997. *The interdependence of case, aspect and referentiality in the history of German: the case of the verbal genitive*. In Ans van Kemenade & Nigel Vincent. (eds.). *Parameters of Morphosyntactic Change*, 29-61. Cambridge: Cambridge University Press.
- Beavers, John. 2006. *Argument/Oblique Alternations and the Structure of Lexical Meaning*. Stanford: Stanford University dissertation.
- Borer, Hagit. 2005. *The normal course of events*. Oxford: Oxford University Press.
- Borik, Olga. 2006. *Aspect and Reference Time*. Oxford: Oxford University Press.
- Caudal, Patrick & David Nicolas. 2005. *Types of degrees and types of event structure*. In Claudia Maienborn & Angelika Wöllstein (eds.). *Event Arguments: Foundations and Applications*, 277-299. Tübingen: Niemeyer.
- Comrie, Bernard. 1976. *Aspect*. Cambridge: Cambridge University Press.
- Czardybon, Adrian & Jens Fleischhauer. 2014. *Definiteness & perfectivity in telic incremental theme predications*. In Doris Gerland, Christian Horn, Anja Latrouite & Albert Ortman (eds.). *Meaning and Grammar of Nouns and Verbs*, 373-400. Düsseldorf: Düsseldorf University Press.
- Filip, Hana. 1993/1999. *Aspect, Eventuality Types and Noun Phrase Semantics*. New York/London: Garland.
- Filip, Hana. 1997. Integrating Telicity, Aspect and NP Semantics: The Role of Thematic Structure. In Jindřich Toman (ed.). *Formal Approaches to Slavic Linguistics (FASL) III. The College Park Meeting 1994*, 61-96. Ann Arbor: Michigan Slavic Publications.
- Filip, Hana. 2000. *The Quantization Puzzle*. In Carol Tenny & James Pustejovsky. (eds.). *Events as Grammatical Objects*, 39-96. Stanford: CSLI Publications.
- Filip, Hana. 2001. Nominal and verbal semantic structure – analogies and interactions. *Language Sciences* 23: 453-501.
- Filip, Hana. 2003. Prefixes and the Delimitation of Events. *Journal of Slavic Linguistics* 11 (1): 55-101.
- Filip, Hana. 2005. *On Accumulating and Having it all*. In Henk Verkuyl, Henriette de Swart & Angeliëk van Hout. (eds.). *Perspectives on Aspect*, 125-148. Dordrecht: Springer.
- Fleischhauer, Jens. 2013. Interaction of telicity and degree gradation in change of state verbs. In Boban Arsenijević, Berit Gehrke & Rafael Marín (eds.), *Studies in the Composition and Decomposition of Event Predicates*, 125-152. Dordrecht: Springer.
- Fleischhauer, Jens. 2016. *Degree Gradation of Verbs*. Düsseldorf: Düsseldorf University Press.
- Fleischhauer, Jens & Adrian Czardybon. 2016. The role of verbal prefixes and particles in aspectual composition. *Studies in Language* 40 (1): 176-203.
- Hay, Jennifer; Christopher Kennedy & Beth Levin. 1999. *Scalar Structure Underlies Telicity in "degree achievements"*. In Tanya Mathews & Devon Strolovitch. (eds.). *SALT IX*, 127-144. Ithaca: CLC Publications.
- Kabakčiev, Krasimir J. 2000. *Aspect in English*. Dordrecht: Kluwer.
- Kardos, Éva. 2012. *Towards a scalar analysis of telicity in Hungarian*. Debrecen: University of Debrecen dissertation.
- Kennedy, Christopher & Louise McNally. 2005. Scale Structure, Degree Modification, and the Semantics of Gradable Predicates. *Language* 81(2). 345-381.
- Krifka, Manfred. 1986. *Nominalreferenz und Zeitkonstitution*. München: Fink.
- Krifka, Manfred. 1991. *Massennomina*. In Dieter Wunderlich & Arnim von Stechow. (eds.). *Semantik*, 399-417. Berlin: de Gruyter.
- Krifka, Manfred. 1998. *The origins of telicity*. In Susan Rothstein. (ed.). *Events and Grammar*, 197-235. Dordrecht/Boston/London: Kluwer Academic Publishers.

- Leiss, Elisabeth. 2000. *Artikel und Aspekt. Die grammatischen Muster von Definitheit*. Berlin: de Gruyter.
- Piñón, Christopher. 1993. *Aspectual composition and the 'pofective' in Polish*. In Sergey Avrutin, Steven Franks & Liljana Progovac (eds.). *Formal Approaches to Slavic Linguistics*, 341-373. Ann Arbor: Michigan Slavic Publications.
- Piñón, Christopher. 2008. *Aspectual composition with degrees*. In Louise McNally & Christopher Kennedy (eds.). *Adjectives and Adverbs*, 183-219. Oxford: Oxford University Press.
- Rappaport Hovav, Malka. 2008. *Lexicalized meaning and the internal temporal structure of events*. In Susan Rothstein (ed.). *Theoretical and Crosslinguistic Approaches to the Semantics of Aspect*, 13-42. Amsterdam/Philadelphia: John Benjamins.
- Tatevosov, Sergei & Mikhail Ivanov. 2009. *Event structure of non-culminating accomplishments*. In Lotte Hogeweg, Helen de Hoop & Andrej Malchukov (eds.). *Cross-linguistic Semantics of Tense, Aspect and Modality*, 83-129. Amsterdam/Philadelphia: John Benjamins.
- Tenny, Carol. 1994. *Aspectual Roles and the Syntax-Semantics Interface*. Dordrecht: Kluwer.

**On-line telic-perfectives
in a cross-linguistic
perspective**

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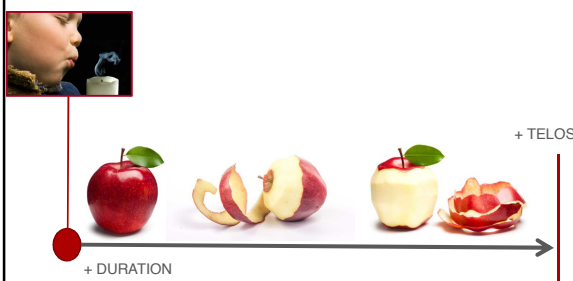
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Telic 2017 University of Stuttgart 13 Jan 2017

**Workshop on
Non-culminating, Irresultative
and Atelic Readings
of Telic Predicates**



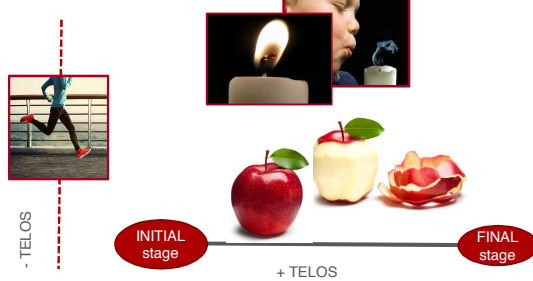
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+ DURATION

+ TELOS

What's in a verb



- TELOS

INITIAL stage

+ TELOS

FINAL stage

What's in a verb

+ DURATION

- TELOS

What's in a verb

- **Aktionsart (predicate (dur) + object)**
 - (1a) Mike peels **the apple** → TELIC
 - (1b) Mike peels **apples** → ATELIC
- **Aspect**
 - (1c) Mike **is peeling** the apple → ONGOING
 - (1d) Mike **has peeled** the apple → COMPLETED

What's in a verb

Mike *has* *peeled* the apple

Perfective Aspect **Durative + Definite DP**

Culmination inference:
The event has stopped


Telicity inference:
The event has a telos

Final interpretation:
The telos has been reached

- 1 Is the **culmination inference** derived incrementally?
- 2 If yes, when is it derived?

Experimental Questions

Tell where Valery has colored the...
Dimmi dove Valeria ha colorato la...




Same event
Different objects
Different degrees

Italian: Experiment 1

Foppolo, Greco, Panzeri, Carminati 2016

Tell where Valery has colored the...
Dimmi dove Valeria ha colorato la...



Same event
Same object
Different degrees

Italian: Experiment 2


Foppolo, Greco, Panzeri, Carminati 2016

Early controls (EC)

- Different event
- Same object

→ **Early Disambiguation** the Predicate is (lexically) compatible only with one of the events

Tell where Michael has lifted the...
Dimmi dove Michele ha sollevato la...



Late controls (LC)

- Same event
- Different objects

→ **Late Disambiguation** the Predicate is (lexically) compatible with both events

Tell where Michael has (in hand) the...
Dimmi dove Michele ha in mano un...



Tell me where Michael/Valery...

		ha colorato la stella	PF
		ha in mano un ipod	LC
		ha sollevato la cornetta	EC

COMPETITOR TARGET AUX + VERB COMPLEMENT

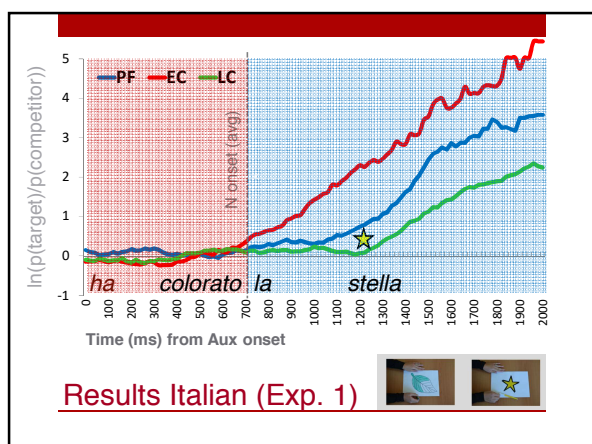
Our predictions

1 Is the **culmination inference** derived incrementally?

→ in Experiment 1 participants in the Critical Condition (PF) converged on the target EARLIER than Late Controls (LC) and crucially BEFORE the end of the complement.

YES

Experimental Questions

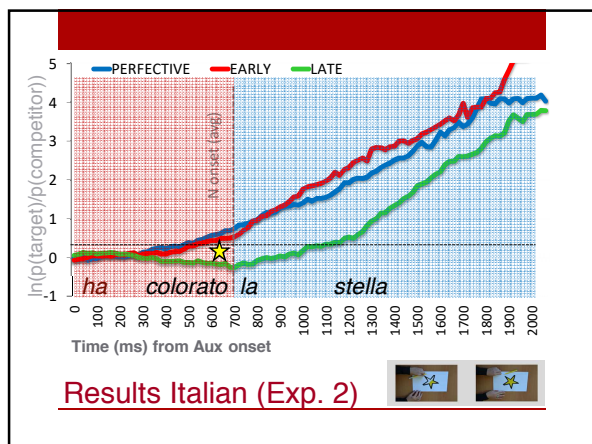


2 **When** do we start to compute the culmination inference? As soon as we process the **aspectual information on the verb**?

→ in Experiment 2 participants in the Critical Condition (PF) converged on the target AS EARLY AS Early Controls (EC) and crucially AT THE VERB region.

YES

Experimental Questions



Tell me where Valery...

ITALIAN	has colored the star
	ha colorato la stella
DUTCH	heeft de ster gekleurd
RUSSIAN	zakrasila zvezdu
SPANISH	ha coloreado la estrella

Language & Incrementality

heeft de ster gekleurd

- SOV (Italian Russian Spanish = SVO)
- Perfectivity: aux + verb (past participle)
- (optional) Prefix on the verb that marks completion (as in Russian)
- Auxiliary verb "heeft" is ambiguous, i.e. it can also work as main verb (as in Italian)

Perfectivity in Dutch

zakrasila zvezdu

- SOV (like Italian & Spanish)
- Perfectivity is marked on VERB (no aux) by a prefix: **Imperfective** forms are morphologically simple, so that **perfective** forms derive from it by *prefixation*, *infixation*, or even *stress shift*.
- **Perfectivity** is always marked morphologically, but there is no uniform morphological marker.

Perfectivity in Russian

ha coloreado la estrella

- SVO (like Italian & Russian)
- Perfectivity: aux + verb (past participle)
- Auxiliary verb “ha” is unambiguous, i.e. it cannot work as main verb (differently from Italian)

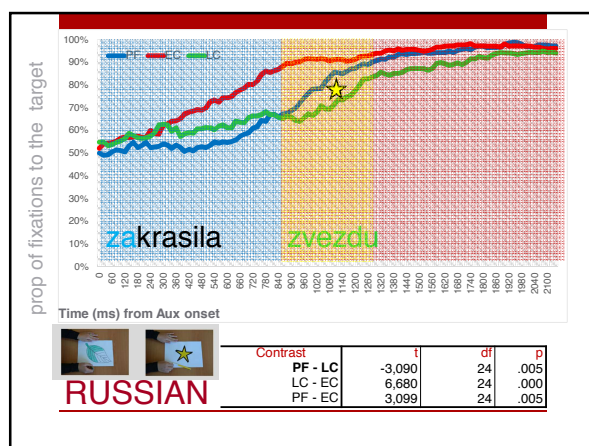
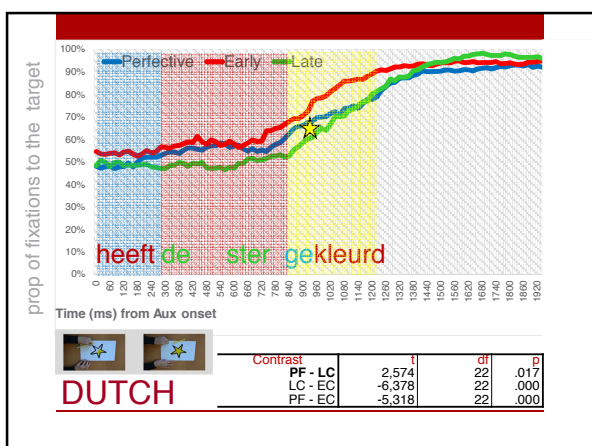
Perfectivity in Spanish

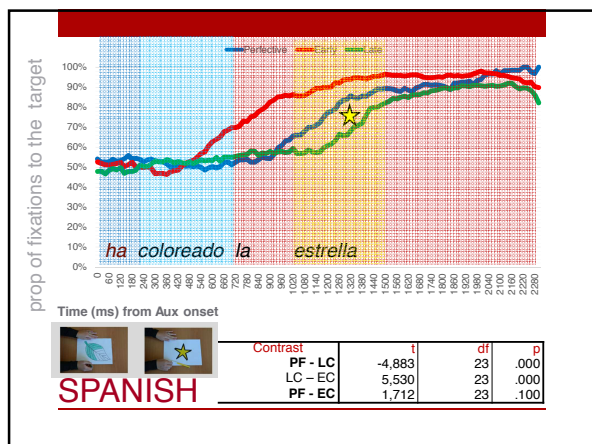
Participants

- 23 Dutch speakers
- 24 Spanish speakers
- 25 Russian speakers

Same task used for Italian
Adapted material depending on language

Methods





1 The **culmination inference** is derived incrementally
 → in all the languages tested, participants in the Critical Condition (PF) converged on the target EARLIER than Late Controls (LC) and (Spanish aside) BEFORE the end of the complement

Conclusions

2 The **point of incremental derivation** (also depends on the linguistic properties of the language and how aspect is realized in that language
BUT
 → *unambiguous* cues for perfective aspect (like Spanish “ha” or Russian prefix) seem NOT to trigger an earlier culmination inference.
 → AUX alone does not suffice for the culmination inference to be derived (as Dutch and Spanish results suggest)

Conclusions



Thank you!



On compositional (a)telicity in adult and child Hebrew

Aviya Hacohen & Lavi Wolf

Ben-Gurion University of the Negev

TELIC 2017

Workshop on Non-culminating, Irresultative
and Atelic Readings of Telic Predicates

12-14 January 2017

BACKGROUND

Properties of telic predicates

- **Endpoint:** point of culmination is an integral part of predicate (completion inference)
- **Non-homogeneous:** a part is not same as the whole (drawing part of a flower \neq drawing whole flower)

Telicity and the direct object

✓ The direct object plays a crucial role in the derivation of telicity

(e.g. Verkuyl, 1972; Dowty, 1991; Krifka, 1989; 1992; Tenny, 1994)

✓ Telicity value of predicate is determined by whether the direct object NP is quantized

(e.g. Verkuyl, 1985, Krifka, 1989, Tenny, 1994)

Quantization is taken to be motivated by the
nominal properties of the internal argument:
noun-type and/or **definiteness**



HYPOTHESES & PREDICTIONS

Adult Hebrew

Hypothesis (1)

Telic predicates (=incremental dynamic verb + quantized object) are only true as descriptions of completed events

Prediction (1)

Adults will reject telic predicates as descriptions of incomplete events

Hypothesis (2)

Atelic predicates (=incremental dynamic verb + non-quantized object) are true as descriptions of completed and incomplete events

Prediction (2)

Adults will accept atelic predicates as descriptions of incomplete events



METHODOLOGY

Knowledge of compositional telicity

(inspired by van Hout, 2003)

Yes/no Truth Value Judgment Task

(Crain & McKee, 1985; Crain & Thornton, 1998)

NP type			
	Singular count	Plural count	Mass
+	<i>litsboa et haribua</i> paint-inf 'et' the- square	<i>litsboa et haribuim</i> paint-inf 'et' the- squares	<i>litsboa et habad</i> paint-inf 'et' the- material
-	<i>litsboa ribua</i> paint-inf (a) square	<i>litsboa ribuim</i> paint-inf squares	<i>litsboa bad</i> paint-inf material

6 conditions, 5 items per condition

Procedure

- The participant is told that the experimenter was asked to videotape people doing various things; but
- Having shot the videos, experimenter is not sure whether friends did what they were told
- Participant is asked to judge whether the friend did what s/he was told
- Experimenter tells subject what friend was told to do
- Participant watches video and asked to judge

Definite singular-count condition

EXP: amarti letara litsboa et haribua
 told-1sg to-Tara paint-inf 'et' the-
 square
 'I told Tara to paint the square.'

Video clip

EXP : tara asta ma sheamarti la?
 Tara did-3sgf what that-told-1sg to-her
 'Did Tara do what I told her (to do)?'

Target response: lo
 no



Test-sentence is always non-tensed
(e.g. *litsboa ribua* 'paint-inf square')

Reason:

Native intuitions, early pilot study suggests Hebrew past tense may be ambiguous between perfective/imperfective reading → unwanted influence on telicity value of predicate

Example:

tsav'a ribua ('painted a square')

=painted a square (perfective)

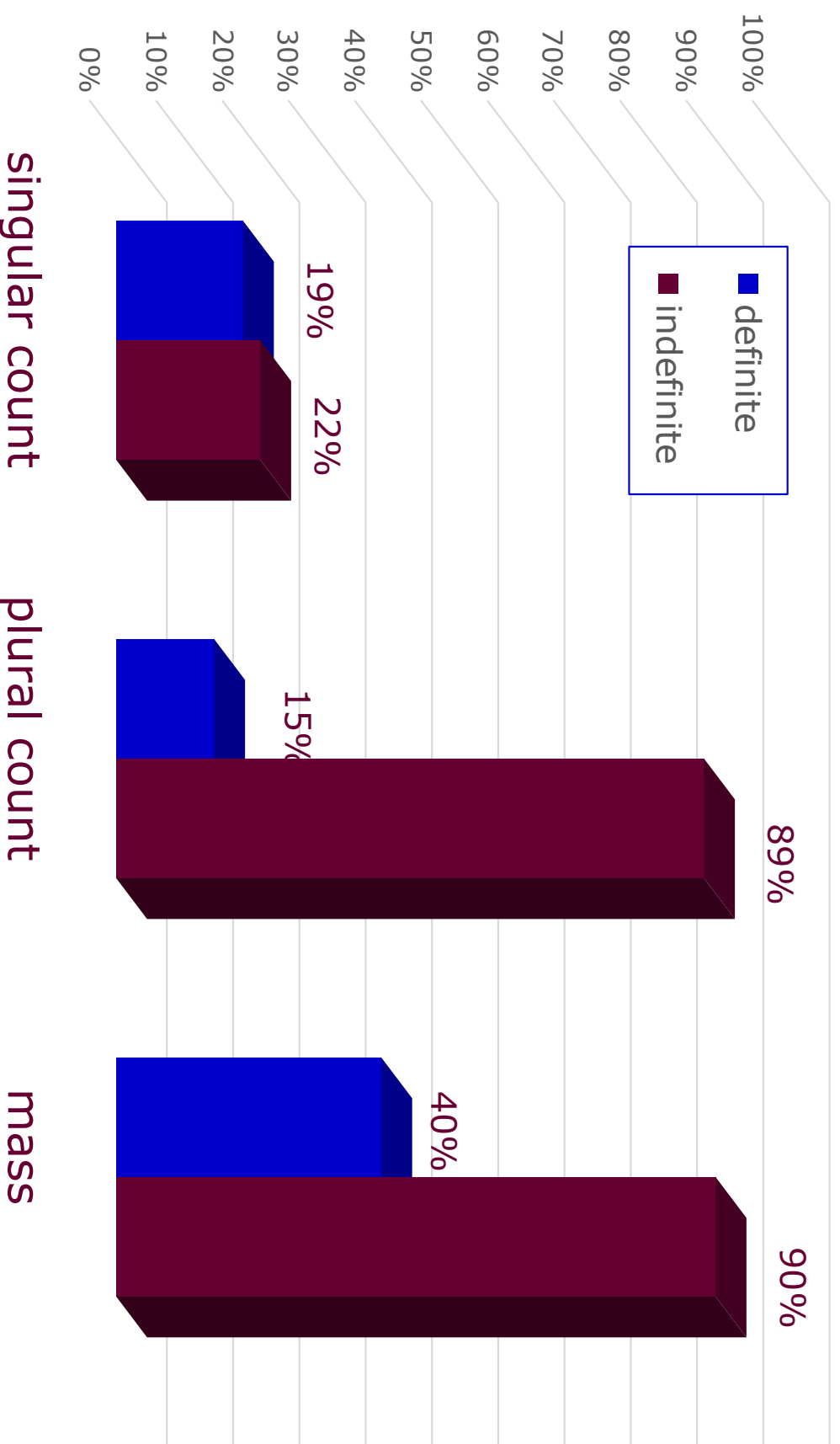
=was painting a square (imperfective)

Participants

23 Hebrew-speaking adults (aged 27-60)

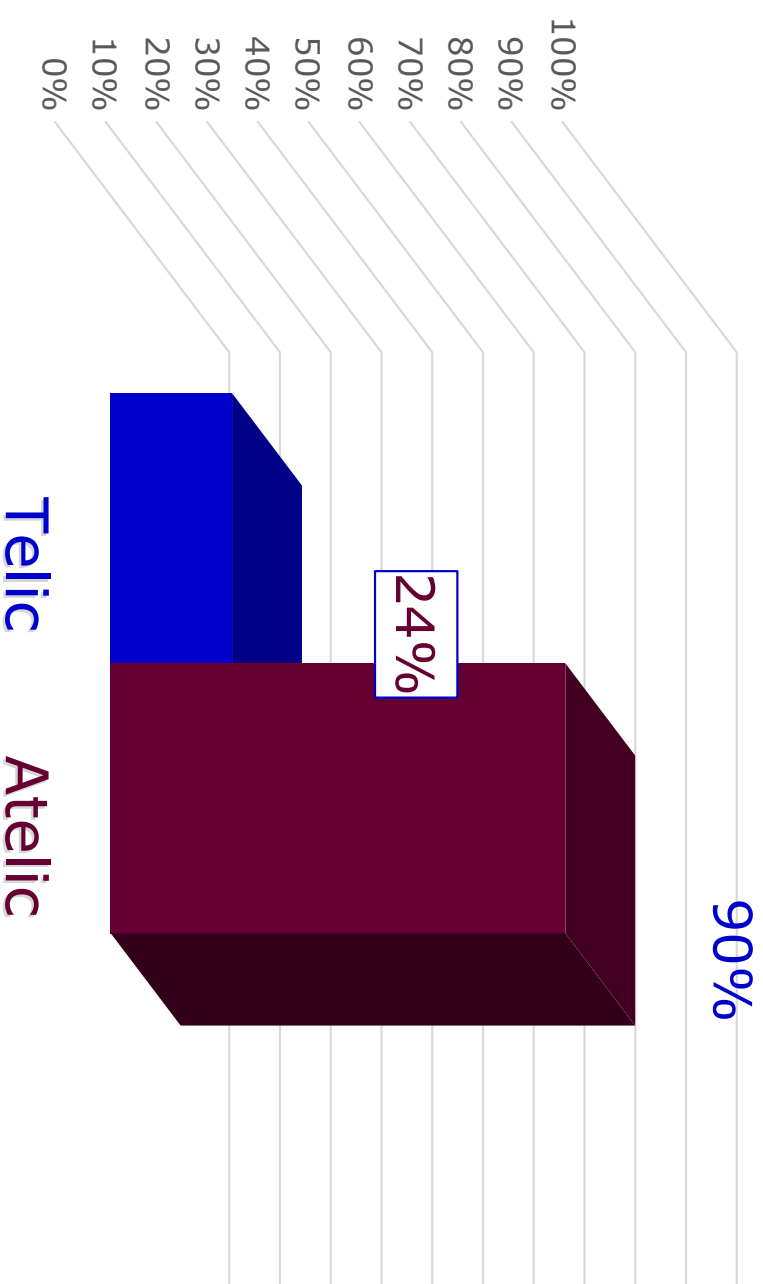
RESULTS

Acceptance rate of predicates as descriptions of incomplete events



NOUN TYPE

Predictions (1) and (2) were borne out:
 Telic predicates are rejected
 Atelic predicates are accepted
 as descriptions of incomplete events



■ (in)def singular, def plural/mass ■ indef plural/mass



BUT...

Quite a lot of individual (subject/item) differences in interpretation



Pragmatics plays a role in derivation of telicity...?

DISCUSSION



Some background

Pragmatic strategies (Grice 1975)

The cooperative principle

- ✓ Make your contribution as is required, when it is required, by the conversation in which you are engaged

Maxim of Quality

- ✓ Contribute only what you know to be true
- ✓ Do not say false things
- ✓ Do not say things for which you lack evidence

Maxim of Quantity

- ✓ Make your contribution as informative as is required
- ✓ Do not say more/less than is required



Our proposal (a sketch)

Example test item:

(1) *litsboa et haribua* ('paint the square')

- The noun *ribua* ('square') standardly denotes the whole
- However, the sentence in (1) is underspecified
- It does not provide finer details, such as part/whole
- The more specific/informative alternatives to (1) are (2) and (3):

(2) *litsboa et kol haribua* ('paint the whole square')

(3) *litsboa xelek me-haribua* ('paint part of the square')

(1) *litsboa et haribua* ('paint the square')

(2) *litsboa et kol haribua* ('paint the whole square')

(3) *litsboa xelek me-haribua* ('paint part of the square')

- The alternatives in (2),(3) are at least as relevant as (1)
- The availability of these alternatives in the computation makes (1) ambiguous:
 - i. When the alternative to (1) is (2), (1) is interpreted as the negation of 'the whole square'
 - ii. Conversely, when the alternative to (1) is (3), (1) is interpreted as the negation of 'part of the square'



Hence, this ambiguity leads to the following two competing pragmatic strategies

Implicature 1

Asserted proposition p:

litsboa et haribua ('paint the square')

Alternative q:

litsboa et kol haribua ('paint the whole square')

→ Implicature:

¬ *litsboa et kol haribua* (¬ 'paint the whole square' =
'paint part of the square')



The reasoning process for implicature 1

a. Contextual premise

It is mutual, public information that the speaker conveys an instruction that she wishes the addressee to follow

b. Assume the speaker is cooperative

c. Then she will assert what is maximally informative and true

d. The proposition q 'paint the whole square' is relevant as an instruction to the addressee

e. q is more informative than p because it provides more specific information than p

f. The speaker chose not to assert **q**



The speaker does not wish the addressee to perform **q**



The speaker does not wish the addressee to paint the whole square, and her assertion 'paint the square' has the meaning:
'paint part of the square'

Implicature 2

Asserted proposition p:

litsboa et haribua ('paint the square')

Alternative q:

litsboa xelek me-haribua ('paint part of the square')

→ Implicature:

¬ *litsboa xelek me-haribua* (¬ 'paint part of the square' =
paint the whole square)



The reasoning process for implicature 2

a. Contextual premise

It is mutual, public information that the speaker conveys an instruction that she wishes the addressee to follow

b. Assume the speaker is cooperative

c. Then she will assert what is maximally informative and true

d. The proposition q 'paint part of the square' is relevant as an instruction to the addressee

e. q is more informative than p because it provides more specific information than p

f. The speaker chose not to assert **q**



The speaker does not wish the addressee to perform **q**



The speaker does not wish the addressee to paint only part of the square, and her assertion 'paint the square' has the meaning:
'paint the whole square'

Crucially...

- The two implicatures are not equally salient
 - The salient implicature is the one that results in the telic reading (*paint the square = paint the whole square*)
 - Its saliency comes from the visual world
 - When a square is visually available, it is more natural to assume that the speaker is referring to it as a whole and not just to a part of it
- The visual presence of a square makes the maximal reading more salient



Empirical support for the saliency claim

Compare:

- i. (in)definite singular count: 'a/the square'
- ii. definite plural: 'the squares'
- iii. definite mass: 'the rice' 



Less clear what *the whole* is with a definite mass

→ With a telic predicate such as 'collect the rice', in which the direct object is a definite mass, this saliency effect does not arise

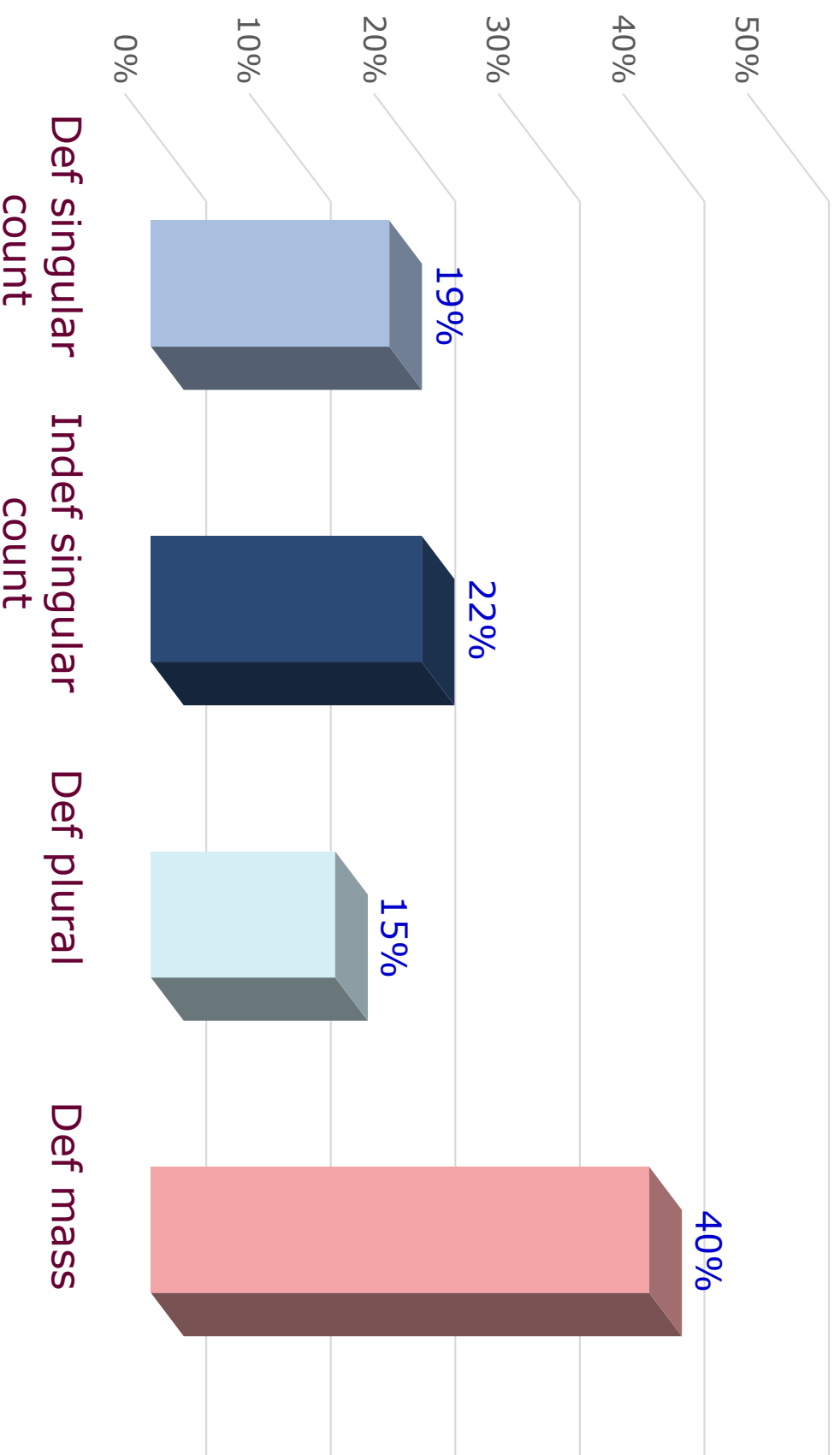
In other words, the salient interpretation is not necessarily 'collect **all the rice**'

→ Hence, the prediction is that non-culminating readings will be more freely licensed in the definite mass condition



This is indeed borne out by our data

Acceptance of telic predicates as descriptions of incomplete events





Interim summary



Telicity judgments are affected by two competing implicatures
This competition is responsible for the variation in adult language

What about child Hebrew?



Child Hebrew

Crosslinguistically, children's knowledge of the aspectual notion of telicity has been demonstrated to be present from early on

(Aspect First Hypothesis, e.g. Bronckart & Sinclair, 1973)

Hypothesis (3)

Hebrew speaking school-age children have adultlike knowledge of (a)telicity

Prediction (3)

Hebrew speaking children will reject telic predicates as descriptions of incomplete events

Prediction (4)

Hebrew speaking children will accept atelic predicates as descriptions of incomplete events

Participants

58 Hebrew speaking children aged 7;1-17;11

Group 1: 7-8 year olds (N=10)

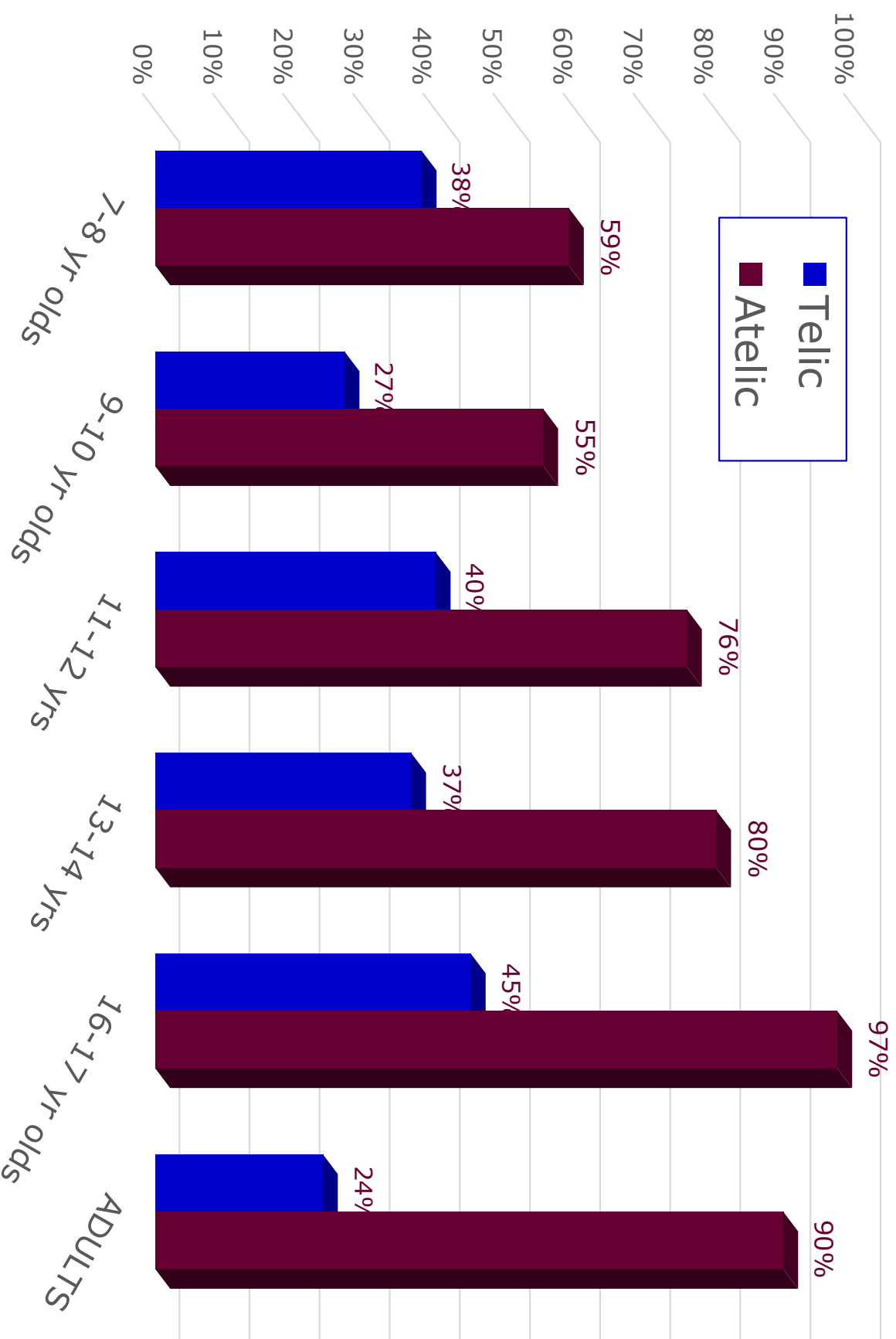
Group 2: 9-10 year olds (N=15)

Group 3: 11-12 year olds (N=12)

Group 4: 13-14 year olds (N=10)

Group 5: 16-17 year olds (N=11)

Acceptance rate of telic vs. atelic predicates by age group



What is going on...?

- Hebrew-speaking children do distinguish between telic and atelic predicates
- Although very differently than adult speakers
- In the younger groups
 - Non-culminating readings of telic predicates
 - But also culminating readings of atelic predicates!
- Development towards adultlike behavior for atelic predicates
- Steady, non-adultlike performance in telic conditions

Open questions (a categorically non exhaustive list!)

- The role of the mass/count distinction in telicity derivation?
- Is Hebrew changing into a Hindi-like language in terms of licensing non-culminating readings of telic predicates?
- Are telicity and atelicity two sides of the same coin?
- Are the derivations of telicity and atelicity qualitatively different?

THANK YOU!

EMERGENCE OF COUNTERFACTUAL REASONING AND LANGUAGE IN CHILD DEVELOPMENT

Nina Kazanina



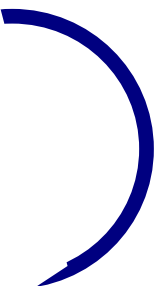
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What is this talk about

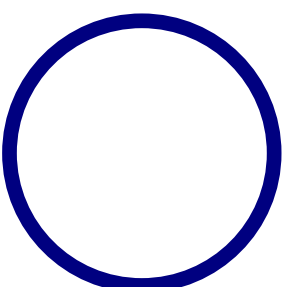
- Development of event semantics in children –
correspondence between a real-world event and a
predicate used to denote it
- **Counterfactual events** - conflict the state of affairs in
the actual world
 - exist in someone’s mind and can be described
linguistically
 - never took place in the actual world – ‘not real
events’

Mary drew a(n)

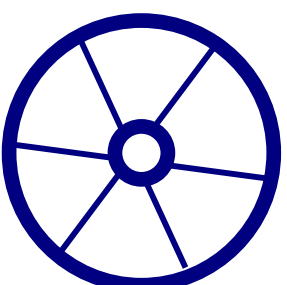
ARC



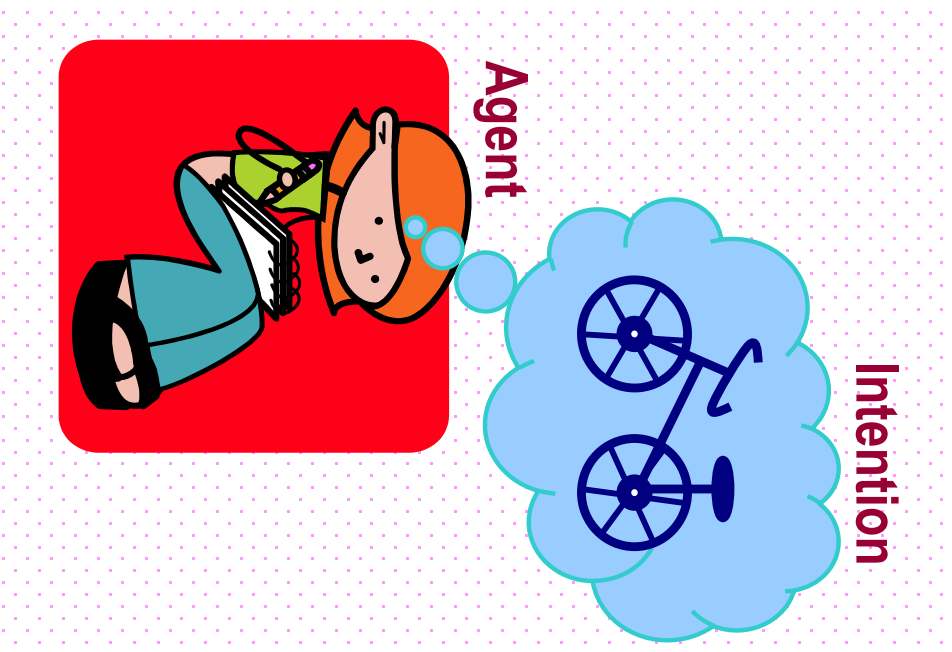
CIRCLE



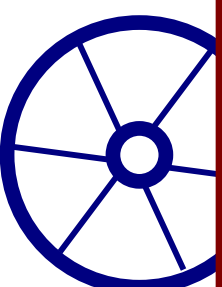
WHEEL



Mary was drawing a bike

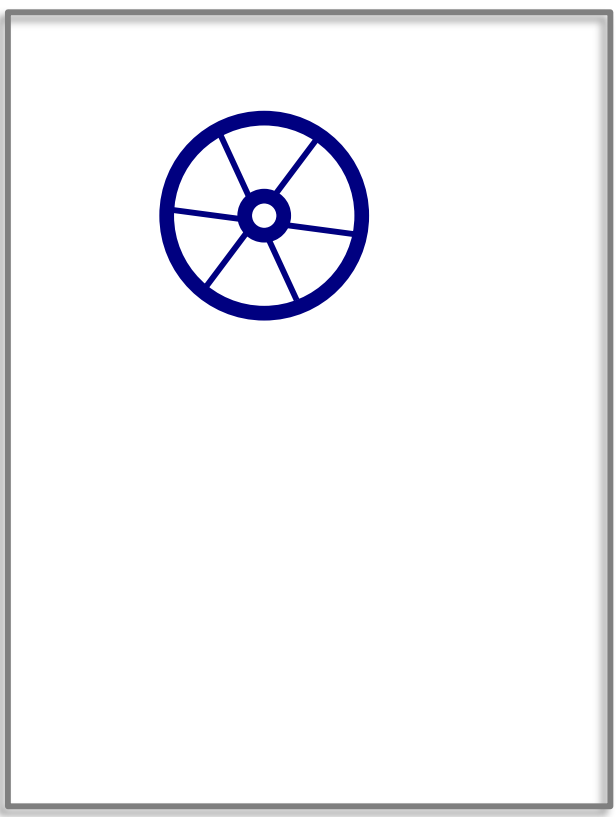
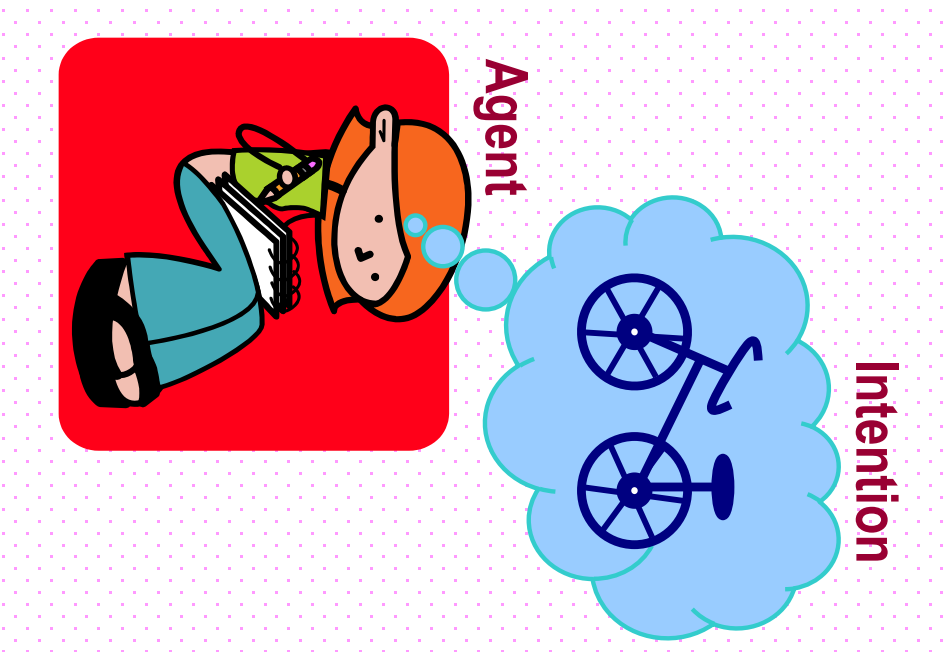


- The form *was drawing a bike* (but not *drew a bike*) can describe a counterfactual event, i.e. an event in which no bike gets drawn



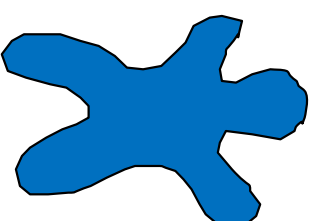
- Can young children represent counterfactual events?
- How do children discover that a linguistic form refers to a counterfactual event
 - Acquisition of Russian Imperfective
 - Acquisition of transfer verbs in English
 - Actuality Bias hypothesis

Mary was drawing a bike



Children understand others' unfulfilled intentions?

- 18-month olds discern unfulfilled intention/goal behind people's actions (Meltzoff 1995)
- 3-year-olds use intentions for deciding on the object's name (Gelman & Ebeling, 1998)
 - 'a guy' (if intentional)
 - 'paint' (if accidental)
- 3 yr olds use mental verbs like *want* to talk about their own or other people's fulfilled or unfulfilled desires, intentions or goals (Bartsch & Wellman, 1995).



Children able to entertain counterfactual worlds?

Robinson & Beck (2000)

- Future: What if next time he drives the other way, where will he be?
- Past: What if he had driven the other way, where would he be?



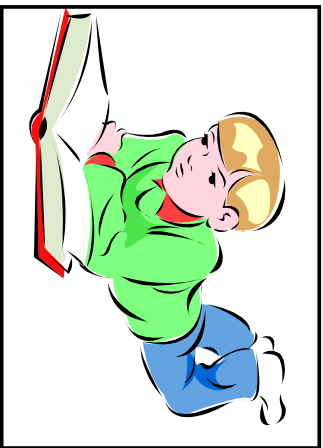
- 3- & 4- year olds find it more difficult to imagine alternatives to past than future events (see also Perner, Sprung & Steinkogler, 2004; Beck, Robinson, Carroll & Apperly, 2006)
 - NB: do children understand linguistic forms above properly?

- Can young children represent counterfactual events?
- How do children discover that a linguistic form refers to a counterfactual event
 - Acquisition of Russian Imperfective
 - Acquisition of transfer verbs in English
 - Actuality Bias hypothesis

Previous Research on Acquisition of Aspect

- Spontaneous Speech: Russian children produce both aspectual forms appropriately from a very young age (< 2 years) (Gvozdev, 1961; Bar-Shalom & Snyder 2000)
- Picture-matching task (Vinnitskaya & Wexler, 2001)

Ongoing



Mal'čik **čítal'** knihu.

The boy *was reading* the book.

Completed



Mal'čik **pročítal'** knihu.

The boy *read* all of the book.

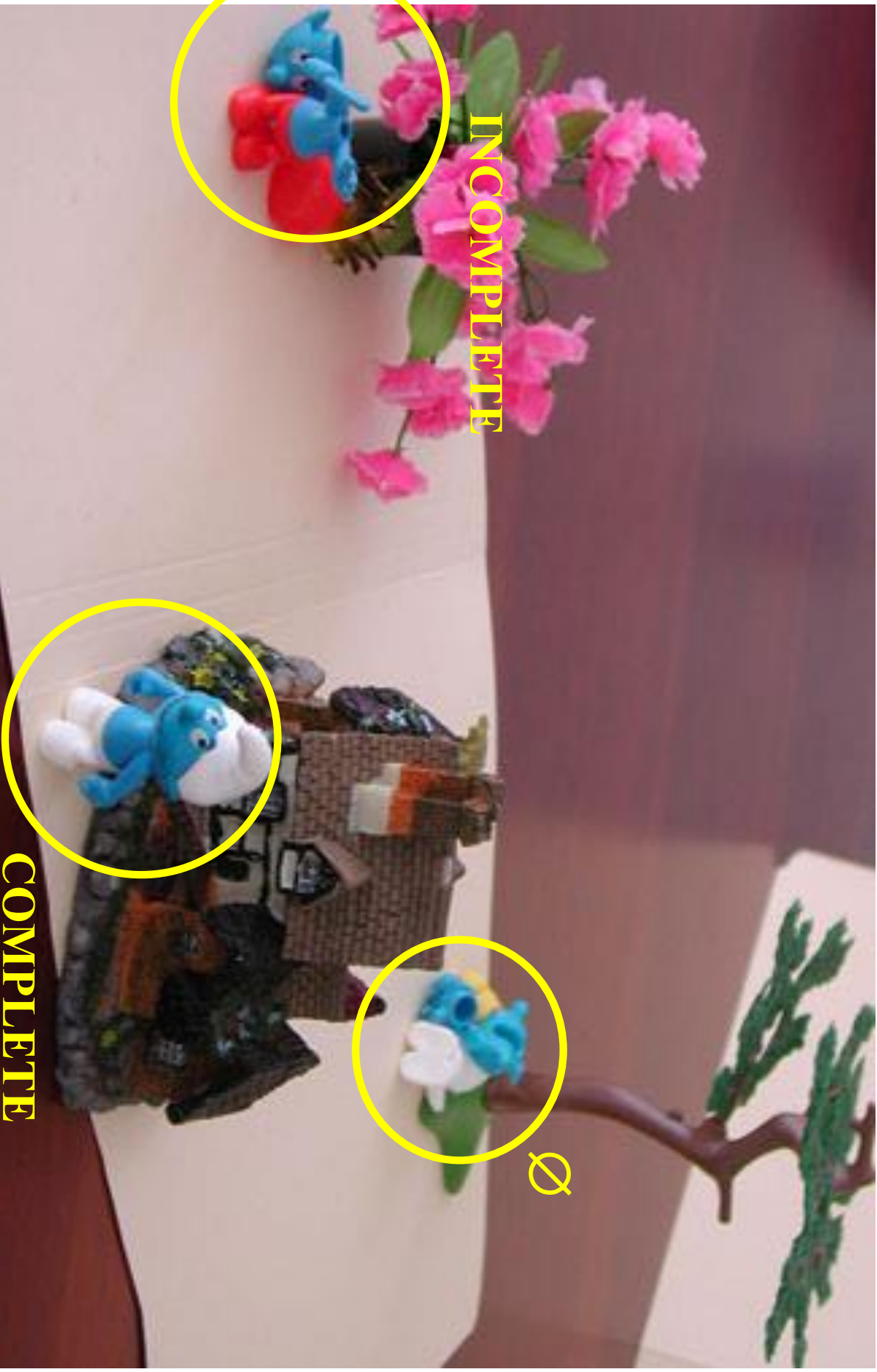
- What about **past incomplete** events?

Experiments 1 & 2: Design

- **Exp 1:** Creation predicates
 - sobirala' / sobrala' gnomika 'assemble a smurf'
 - stroil' / postroil' domik 'build a house'
 - sostavljala' / sostavljala' kartinku 'do a puzzle'
 - lepil' / vylepil' medvedja 'mould a bear'
- **Exp 2:** Change-of-state predicates
 - perevoračival' / perevernu' kartinku 'turn over a picture'
 - napolnjal' / napolnil' stakančik 'fill a glass'
 - razvoračival' / razvernul' podarok 'unwrap a gift'
 - zakrašival' / zakrasil' cvetok 'color in a flower'
- Russian monolingual children, aged 3-6 (Exp 1: n=25, Exp 2=41)
- 4 stories per child, within-subject design



A road with 3 landmarks: a flower-bed, a castle and a tree. There are parts of a smurf at each location. A monkey makes a journey down the road.



INCOMPLETE

COMPLETE

∅

Gde obez'yanka **sobrala/sobirala** gnomika?

assemblePERF/IMP .

Where has the monkey assembled/was the monkey assembling the smurf?

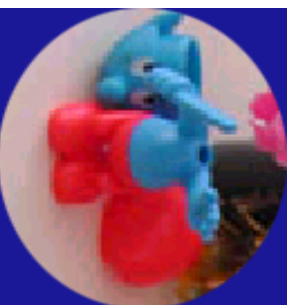
Experiment 1: Results

Adultlike group, N=8
83% (24/29)

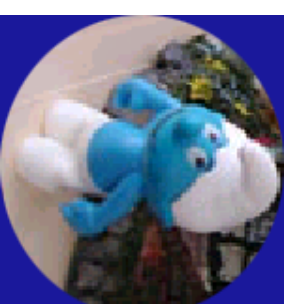
PERF



IMP



Non-adultlike group, N=15
92% (53/60)



Experiments 1 & 2: Results

Experiment 1 (creation)			
Group	# subjects	% correct	Mean age
Adultlike	8	83% (24/29)	5;2
Non-adultlike	15	8% (4/50)	4;8
Other	2		3;8

Experiment 2 (change-of-state)			
Group	# subjects	% correct	Mean age
Adultlike	16	89% (50/56)	5;3
Non-adultlike	20	6% (4/71)	4;2
Other	5		3;11

Adultlike Group: accepted PERF with complete events, IMP with both complete & incomplete events
Non-adultlike Group: accepted PERF with complete events, rejected IMP with incomplete events
in at least all but one trials

- similar results across creation & change-of-state predicates
- failure not due to the special status of the object of Creation verbs

Russian Imperfective: Children

- **Present Ongoing**

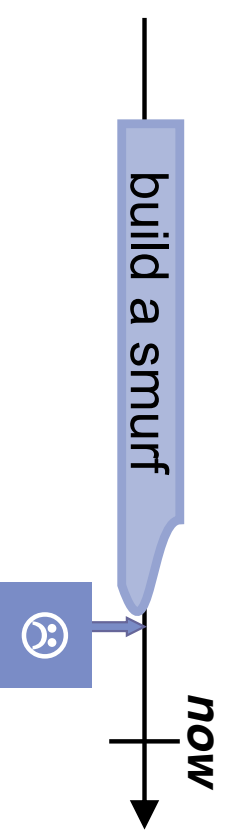
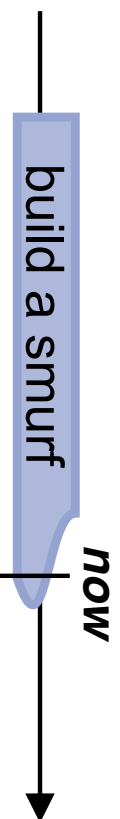


The monkey is building a smurf.

- **Past Incomplete (Exp. 1&2)**



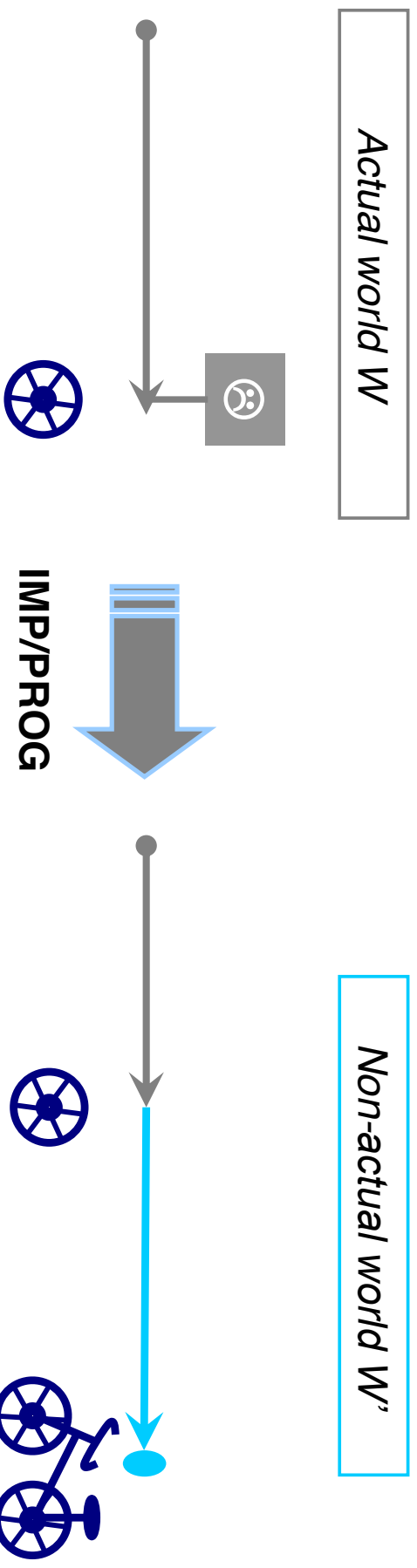
The monkey was building a smurf.



Delidakis & Varlokosta 2003; van der Feest & van Hout 2002

Semantics of the Imperfective

- A. **Insider perspective** on the event → IMP/PROG lacks completion entailments
 - IMP/PROG selects a Reference-frame *within* the Event interval (Comrie 1980, Smith 1993, Demirdache&Uribe-Etxebarria 2000, Fiorin&Delfitto 2014)
- B. Link to the closest relevant **possible world** → an incomplete event
 - relate an incomplete event in the actual world W to a **complete version of the same event** in a certain **non-actual world W'**



Russian Imperfective: Children

■ Present Ongoing

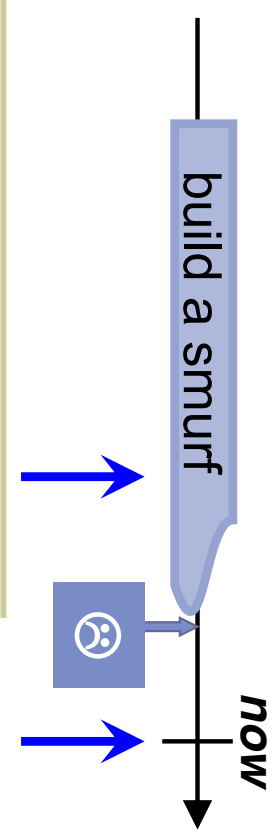
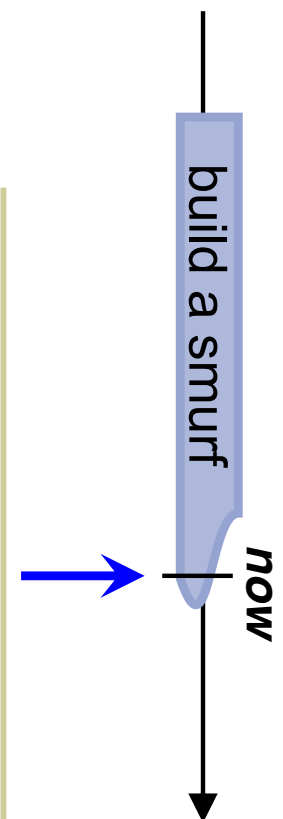


The monkey is building a smurf.

■ Past Incomplete (Exp. 1&2)



The monkey was building a smurf.



Perspective: take an insider perspective on the event

Do nothing

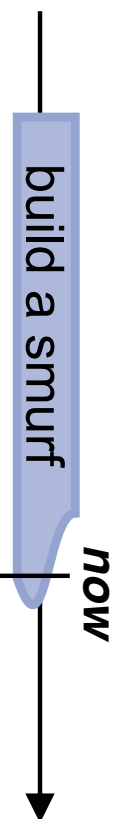
Shift the perspective
back into past

Russian Imperfective: Children

- Present Ongoing



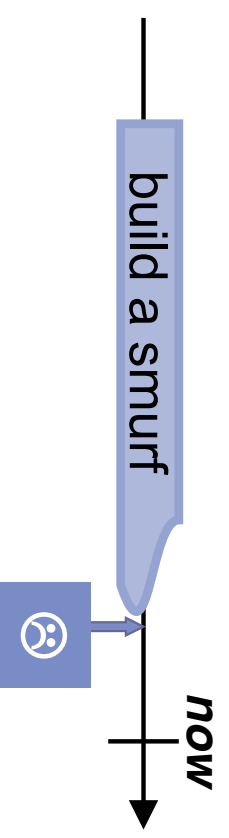
The monkey is building a smurf.



- Past Incomplete (Exp. 1&2)



The monkey was building a smurf.



Possible-world : find a complete event

- Non-counterfactual
- Stay in the real world and continue the event

- Counterfactual
- Must switch to a non-actual world

Russian Imperfective: Children

- Present Ongoing

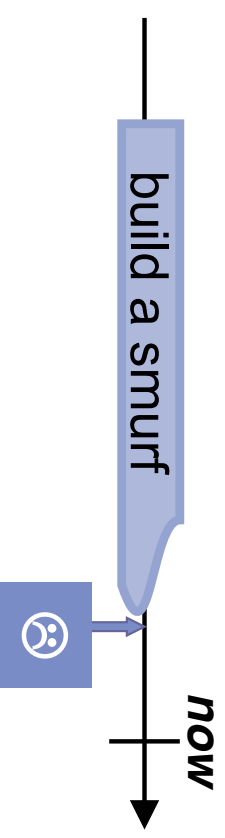
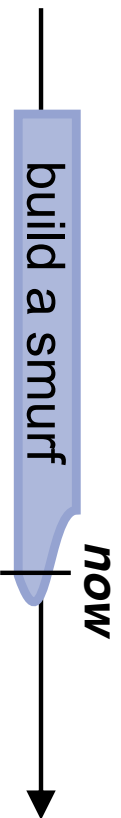


The monkey is building a smurf.

- Past Incomplete (Exp. 1&2)



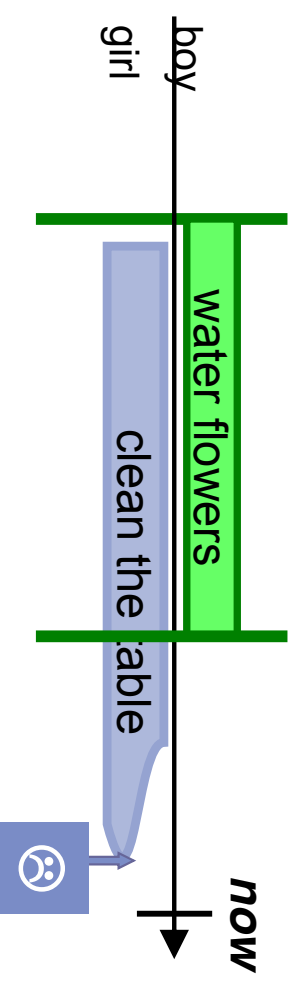
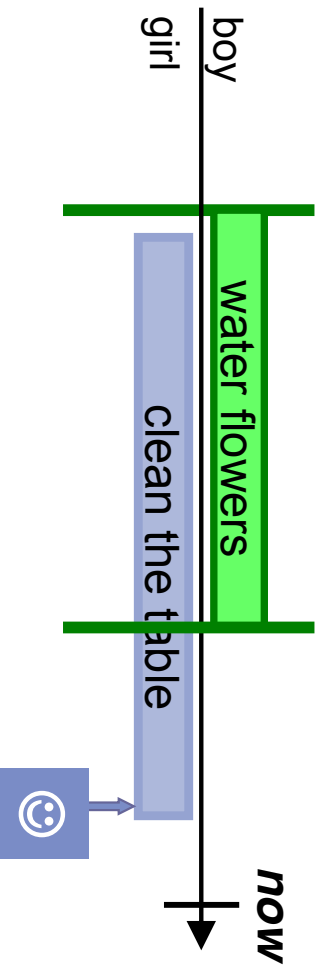
The monkey was building a smurf.



- Insider perspective, non-counterfactual (Exp. 3)

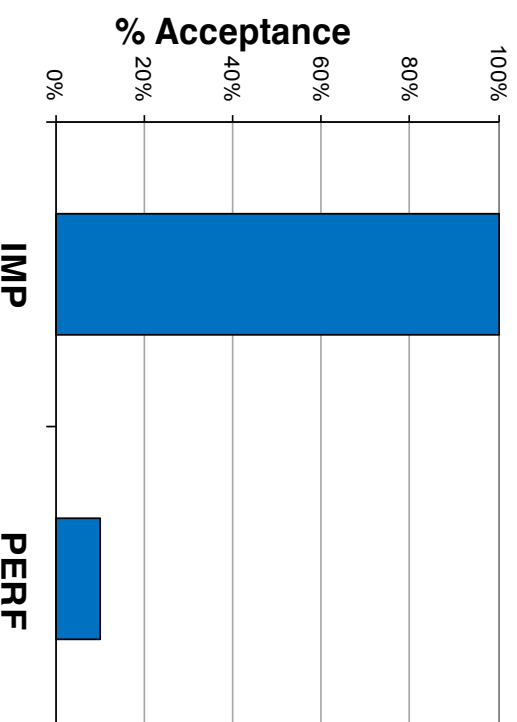
- Insider perspective, counterfactual (Exp. 4)

While the boy was watering flowers, the girl was cleaning the table.

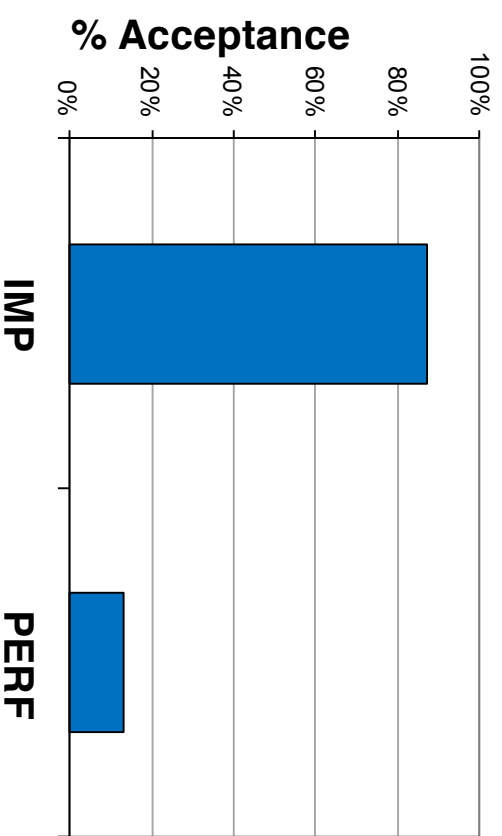


Experiments 3 & 4: Results

**Exp 3: Insider Perspective,
non-counterfactual**



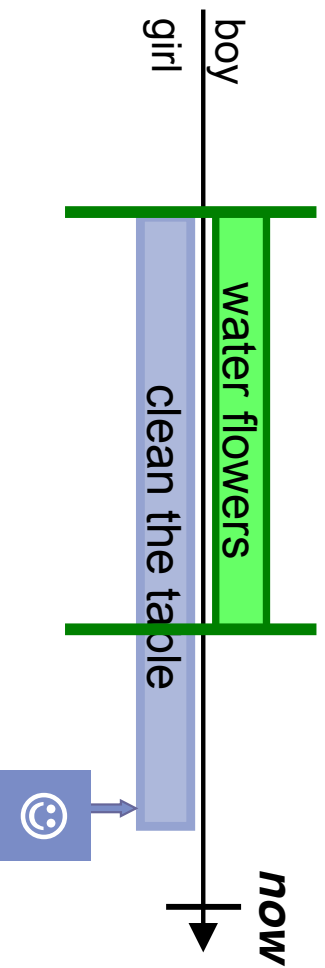
**Exp 4: Insider Perspective,
counterfactual**



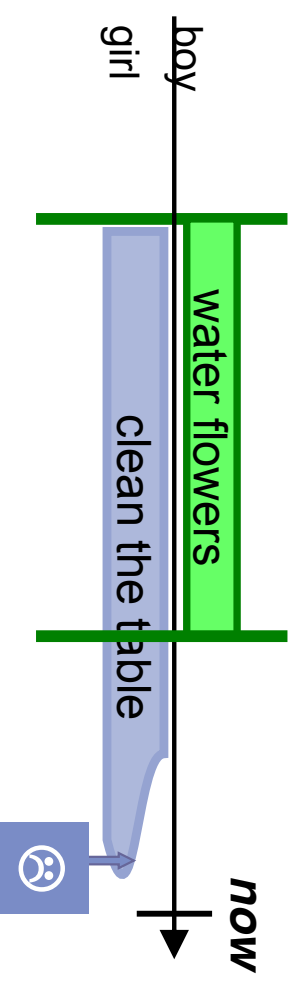
- The same children who rejected simple IMP sentences with incomplete events in Experiments 1 & 2, accepted IMP with subparts of events in Experiments 3 & 4

Experiments 3 & 4: Conclusions

- Children know that the IMP can refer to ...
- subparts of full events [children rejected the PERF sentence => they assessed the matrix verb at the evaluation interval => children know that **IMP is true of subparts of the whole event**]
- subparts of events that do not reach completion in the actual world (Exp.4) <=> accept IMP with **counterfactual** events when a narrow perspective is provided



Exp 3



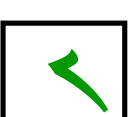
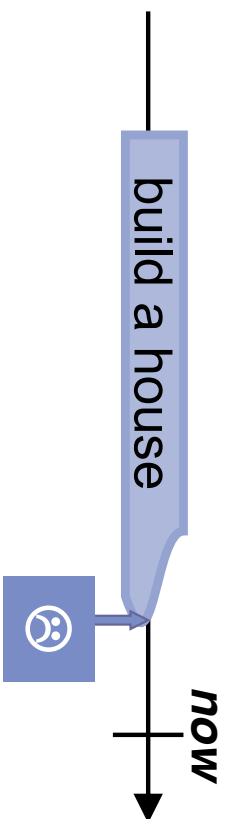
Exp 4

IMP/PERF: While the boy was watering flowers, the girl **was cleaning / cleaned up** the table.

Rus
adults

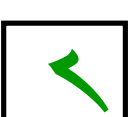
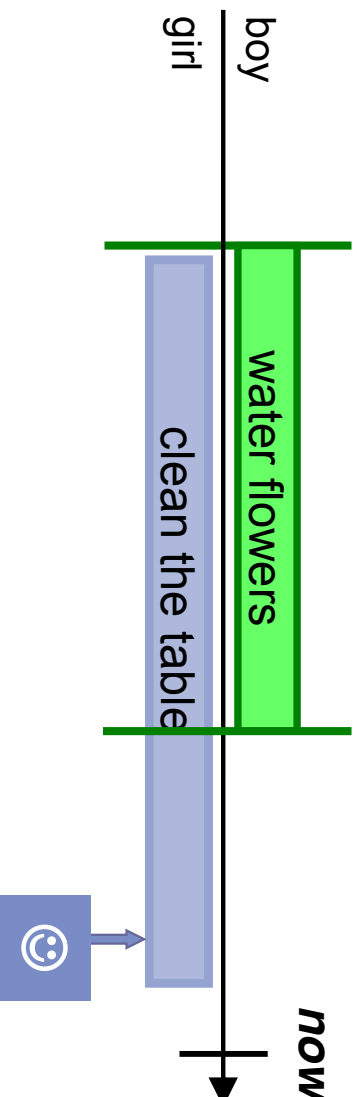
Rus
children

Exp. 1&2: Past Incomplete The monkey was building a smurf.



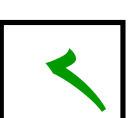
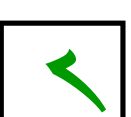
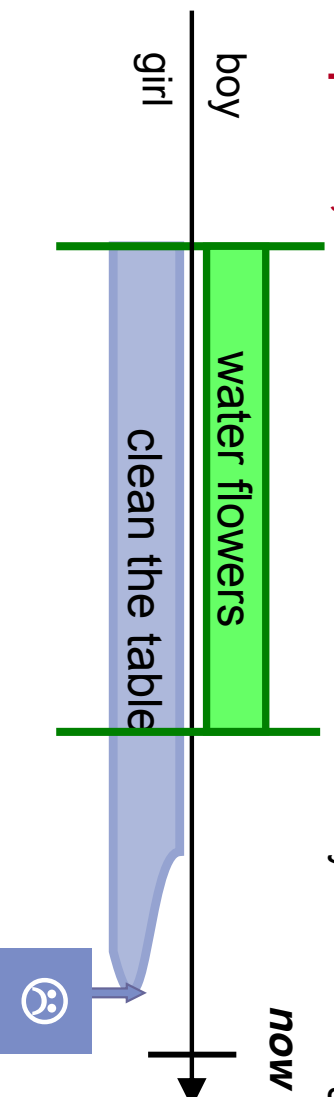
Exp. 3: Perspective, non-counterfactual

While the boy was watering the flowers the girl was cleaning the table.



Exp. 4: Perspective, counterfactual

While the boy was watering the flowers the girl was cleaning the table.



Russian Imperfective: conclusions

- 3+ year old Russian children know that the IMP can refer to counterfactual events, although their ability to take an insider perspective is not adultlike
- Important role of perspective in the semantics of the imperfective

- Can young children represent counterfactual events?
- How do children discover that a linguistic form refers to a counterfactual event
- Acquisition of Russian Imperfective
 - Acquisition of transfer verbs in English
 - Actuality Bias hypothesis

English ditransitive verbs of transfer

- **John threw a ball to Mary.**
... but Mary didn't catch it/ but Bill caught it.

- John – agent
- ball - transferred entity
- Mary – recipient

Oehrle, 1976

Jackendoff, 1990

Goldberg, 1995

Rappaport Hovav & Levin, 2008

Demirdache & Martin, 2015

Martin & Schäfer 2015

Ditransitive verbs are not all the same

Separated in
space/time

John threw/sent a book to Mary

... but she didn't catch/receive it. (✓)

Doesn't
entail
successful
transfer

Adjacent in
space/time

John gave/handed a book to Mary

... but she didn't get it. (✗)

Entails
successful
transfer

Separated in
space/time

John sold/passed a book to Mary

... but she didn't buy/get it. (✗)

Entails
successful
transfer

Sublexical modality (Koenig & Davis, 1995)

- Two components of verb meaning:
 - **situational core**: categorizes types of relations between participants in situations and the roles these participants play in them
 - **sublexical modality**: indicates whether these relations are to be held in the actual world *W* or some possible world *w'*
- *X give Y to Z:* **X CAUSE Z BE AT Y**
- *X throw Y to Z:* **X CAUSE Z GO TO Y**

Sublexical modality (Koenig & Davis, 1995)

- Two components of verb meaning:
 - **situational core**: categorizes types of relations between participants in situations and the roles these participants play in them
 - **sublexical modality**: indicates whether these relations are to be held in the actual world W or some possible world w'
- X give Y to Z : X CAUSE Z BE AT Y
- X throw Y to Z : X CAUSE [w'] Z GO TO Y]
 - w' : a plausible continuation of R in accordance with the Agent's intentions

Research question

- Are young children aware of sublexical modality of *throw/send*?

Experiment 1

- Truth Value Judgment task
 - 25 3 yr olds (mean: 43 months)
 - 28 4 yr-olds (mean: 52 months)
- Throwing/sending events that did not reach the intended recipient because of an external adversity
- The child is asked to judge
X threw/sent Y to Z



Woolly
Intended
Recipient (IR)



Jane



Tom

**Actual
Recipient (AR)**

IR-sentence

Jane threw a ball to **Woolly**

AR-sentence

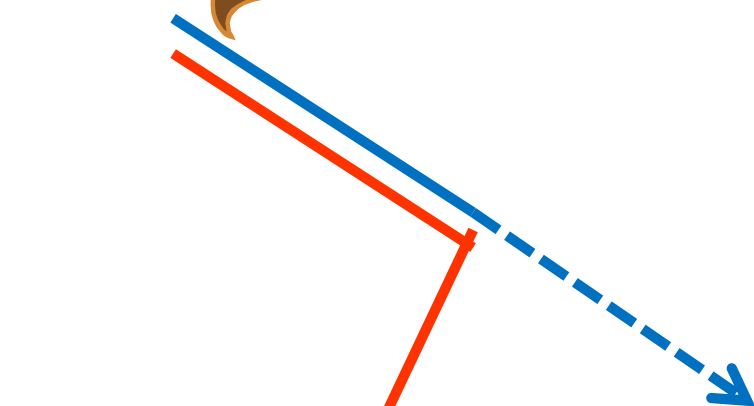
Jane threw a ball to **Tom**



Woolly
Intended
Recipient (IR)



Jane



Tom

**Actual
Recipient (AR)**

Want-to sentence:

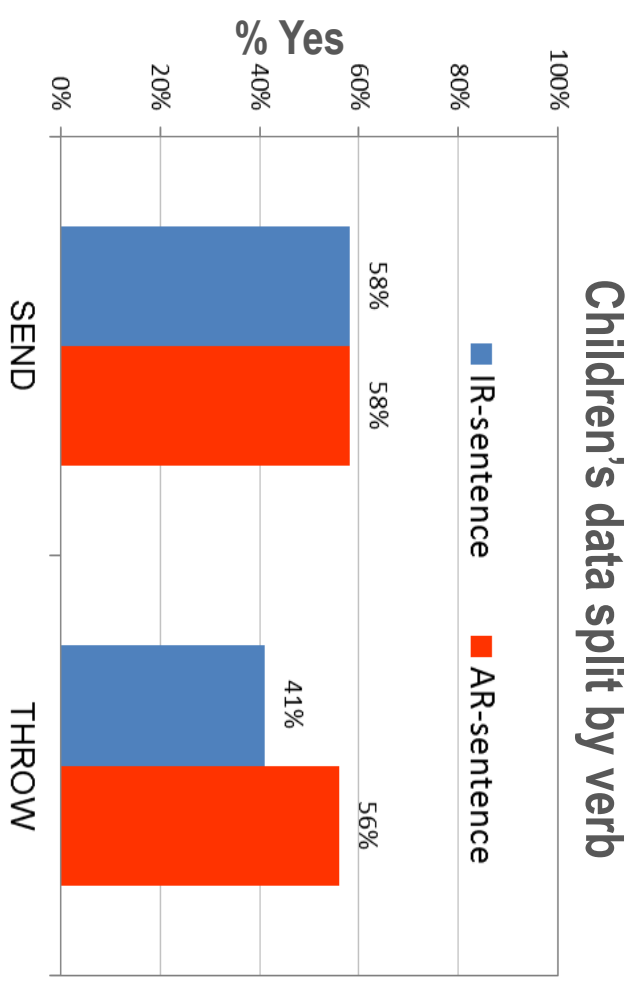
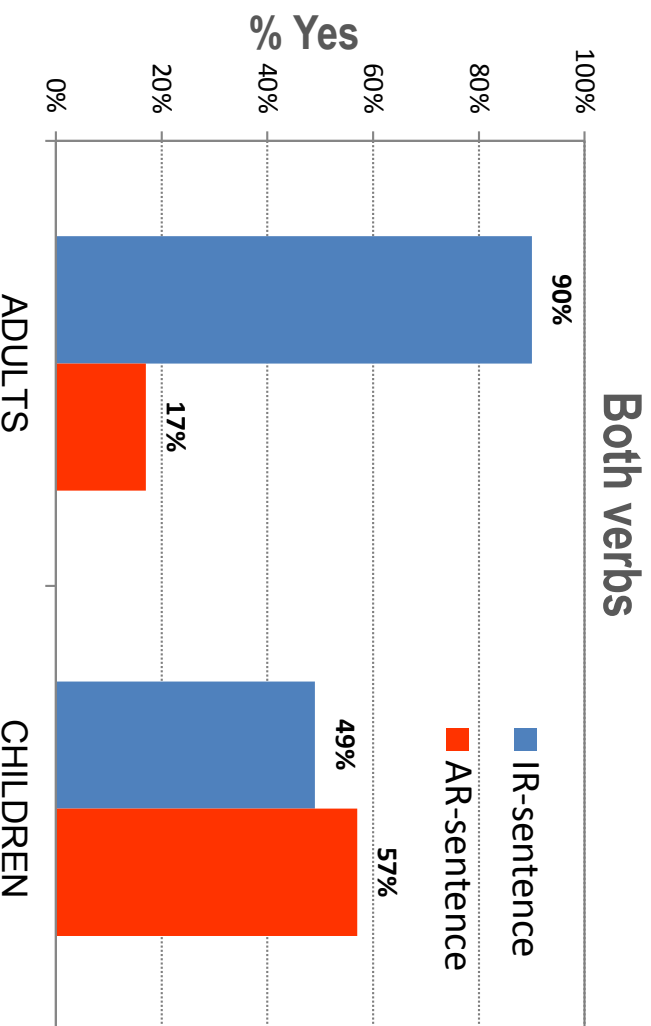
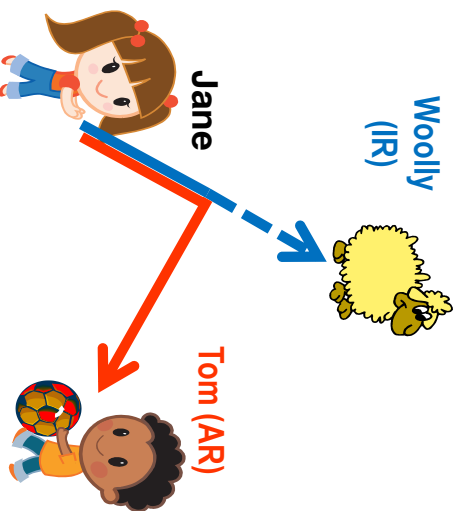
Who did Jane want to throw the ball to?

Correct response:

Woolly (IR)

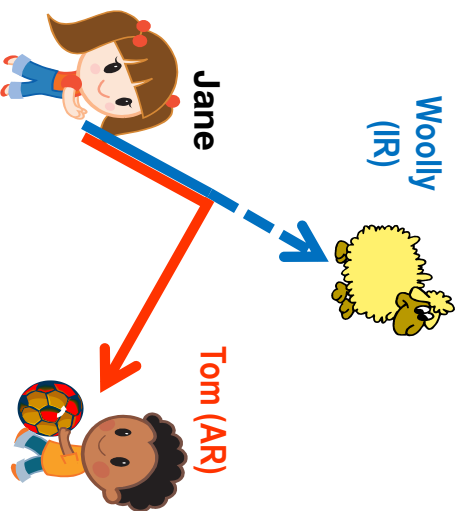
IR-sentence
AR-sentence

Jane threw a ball to **Woolly**
Jane threw a ball to **Tom**



'ACTUALITY ERRORS' – children over-accept IR sentences

They impose a successful transfer entailment on *throw* & *send*



IR-sentence

Jane threw a ball to **Woolly**

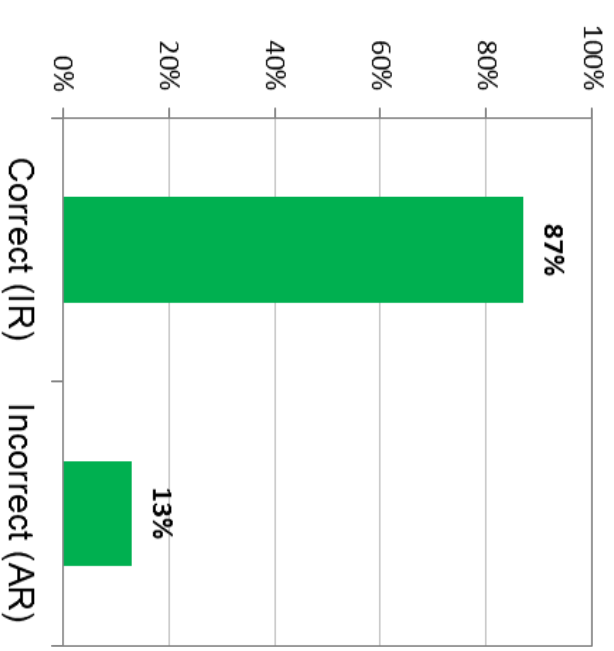
AR-sentence

Jane threw a ball to **Tom**

Want-to question

Who did Jane want to throw the ball to? (Correct: IR)

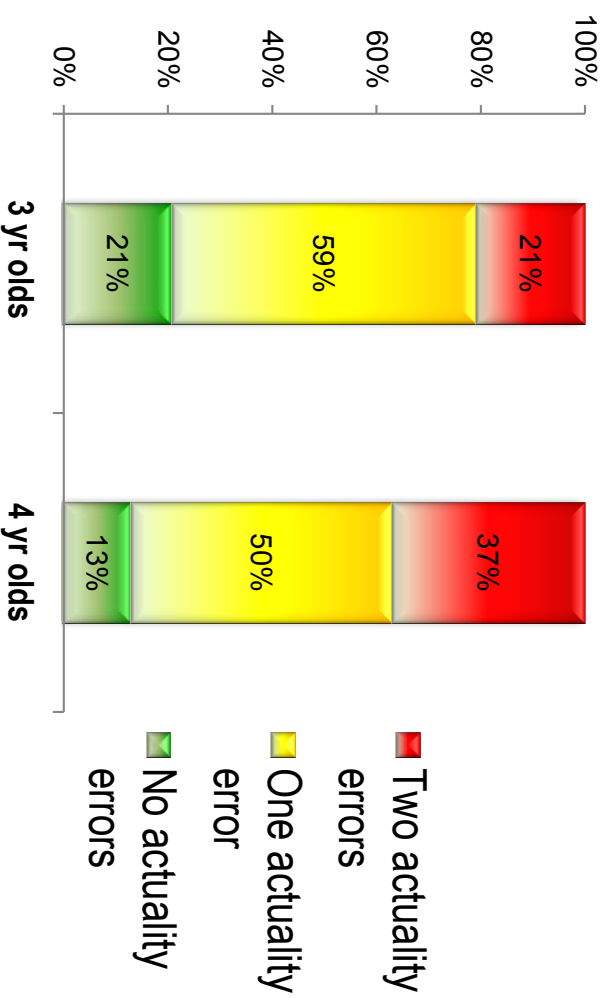
- Better performance on syntactically more complex *want-to* sentences
- Children can remember the unfulfilled Agent's intention



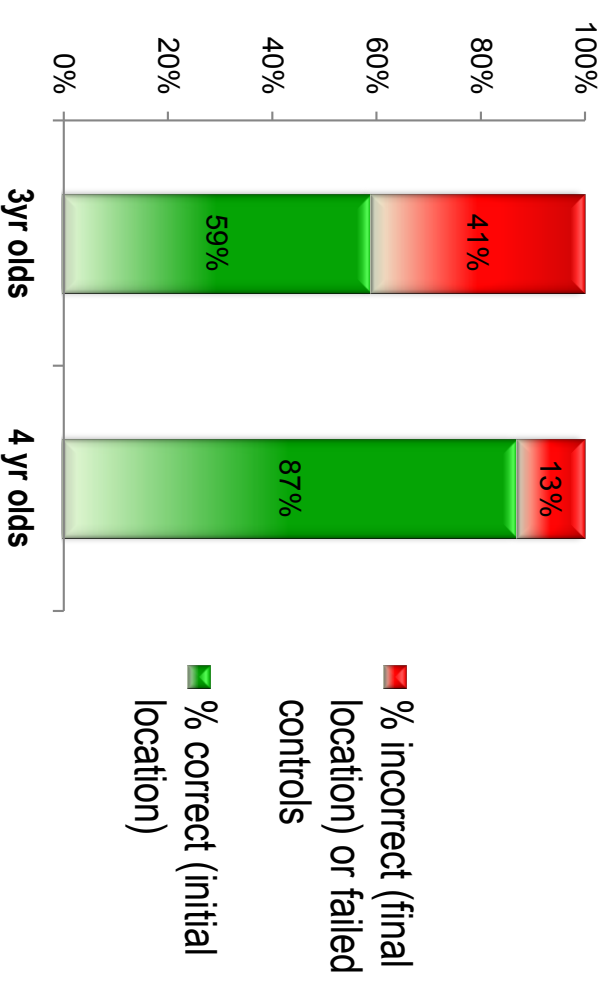
'ACTUALITY ERRORS' – children over-accept IR sentences

They impose a successful transfer entailment on *throw & send*

SEND/THROW



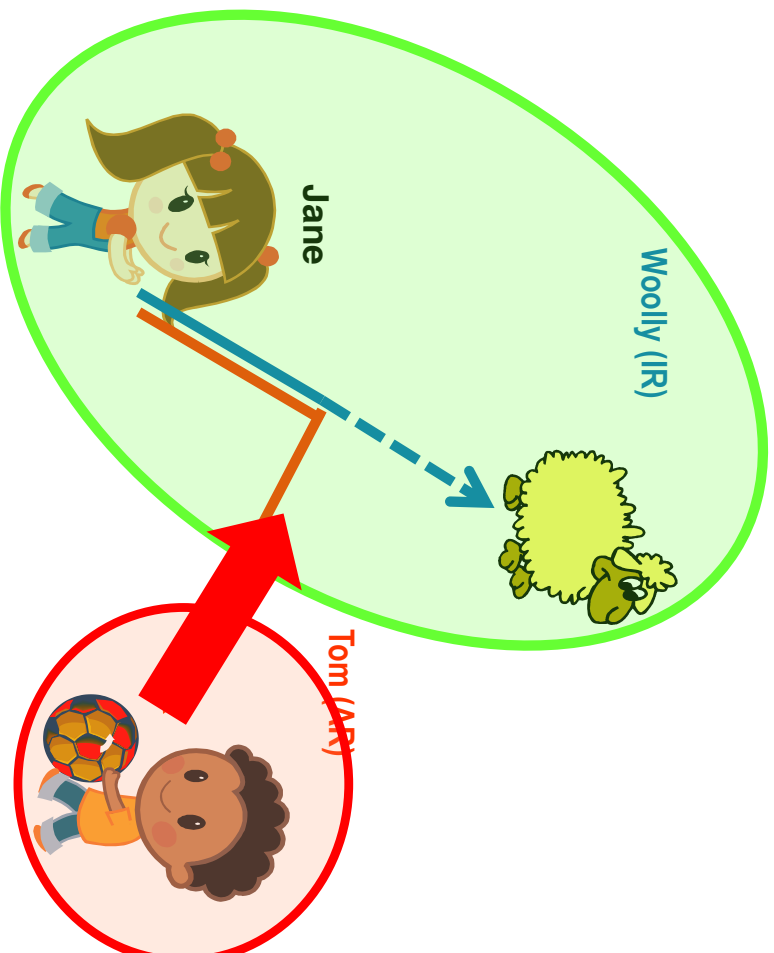
FALSE BELIEFS TASK



- No correlation between children's performance in the false beliefs task and on *throw/send*
- Actuality errors are not due to conceptual inability to entertain possible worlds (as also suggested by performance on *want-to* questions)
- Children's semantic representation of *throw/send* is non-adultlike

An alternative explanation

- Children possess an adultlike semantics for *throw* and *send* and able to entertain counterfactual possible worlds but succumb to **interferences from competing representations (inhibition deficit)**



Experiment 2: inanimate Actual Recipient

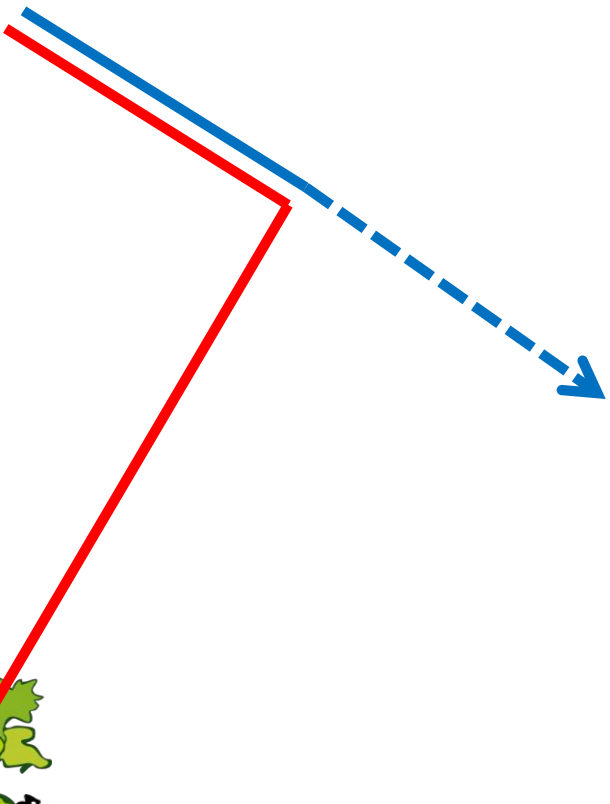
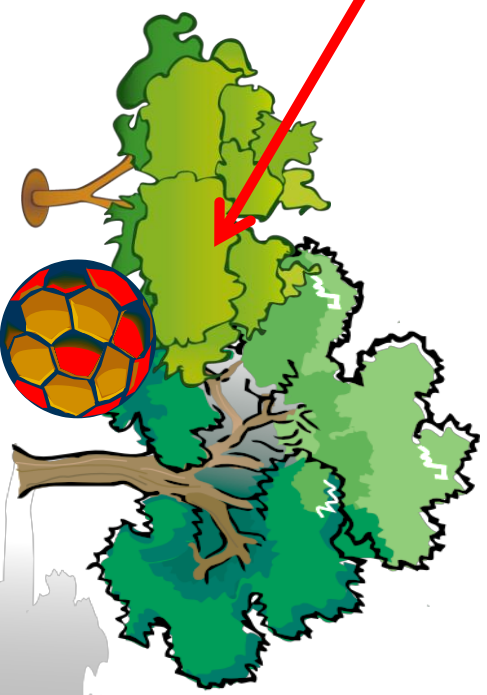
Woolly

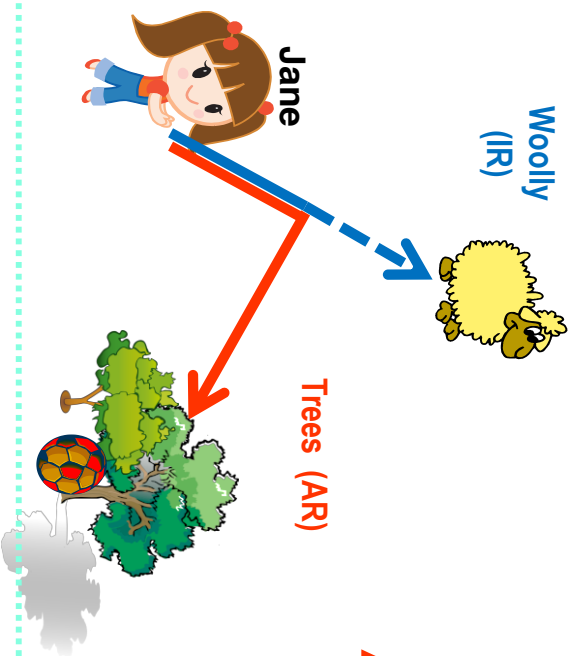


Jane



trees



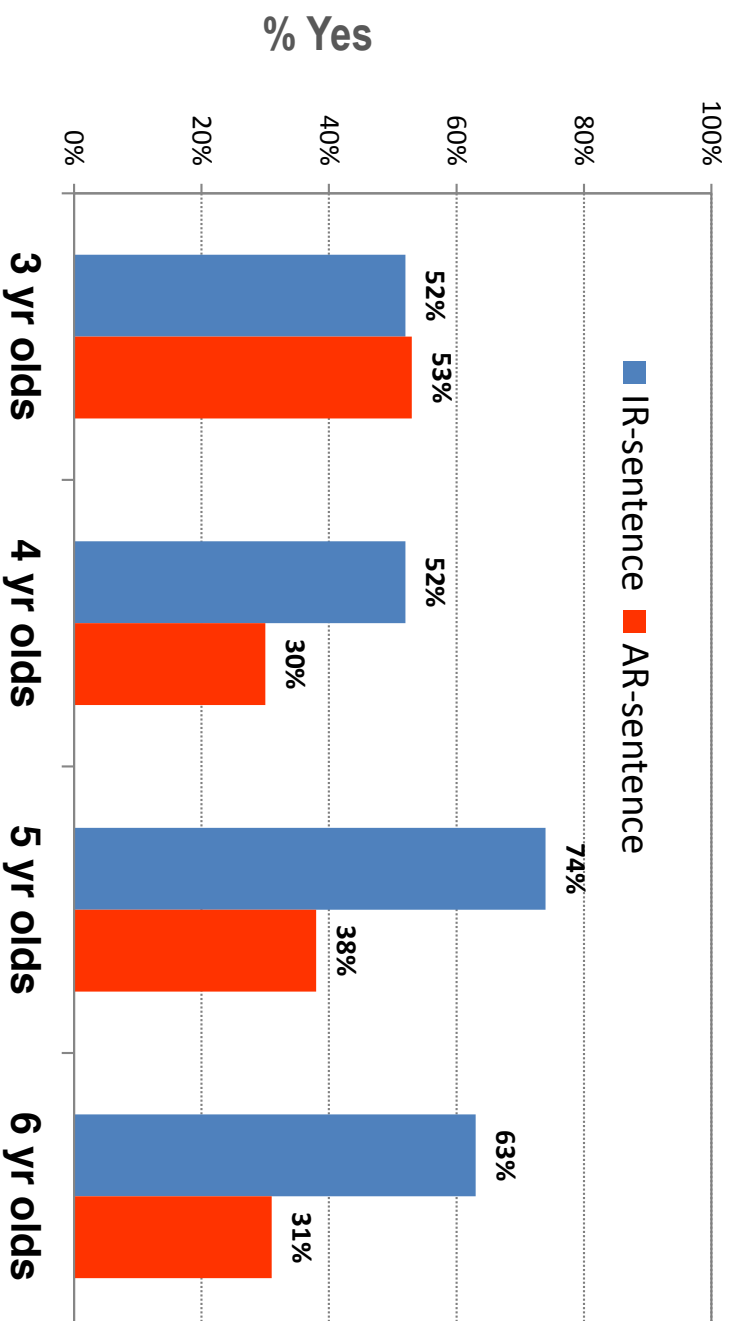


IR-sentence

Jane threw a ball to **Woolly**

AR-sentence

Jane threw a ball to **the trees**



'ACTUALITY ERRORS' – children over-accept IR sentences

Why mistakes with *throw/send*?

- *X throw Y to Z*: X CAUSE [_w Z GO TO Y]
- *X throw Y to Z*: X CAUSE Z GO TO Y
 - Children correctly represent the situational core for *throw/send*
(sub-events CAUSE and GO, event participants, mapping between participants and syntactic positions)
 - Problems with **sublexical modality component**: *w*'
absent from the children's representation

Roadmap

- Can young children represent counterfactual events?
- How do children discover that a linguistic form refers to a counterfactual event
 - Acquisition of Russian Imperfective
 - Acquisition of transfer verbs in English
 - Actuality Bias hypothesis

Actuality Bias

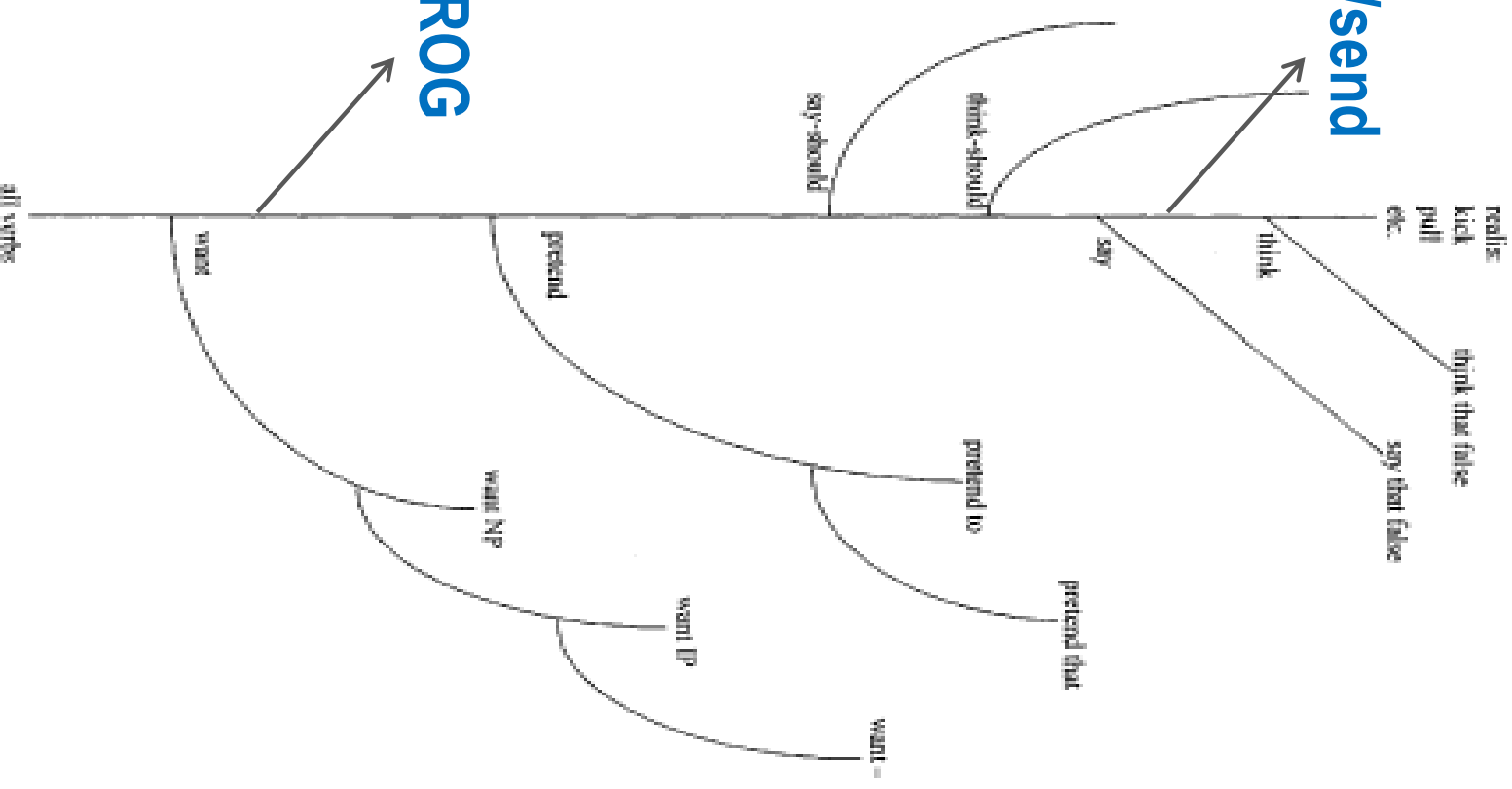
- **Actuality Bias:** children initially construct verb's semantics without appealing to non-actual worlds
- **Why such a linguistic bias?**
 - (given that even very young children are aware of the agent's mental states)
 - **Enables verb learning on the basis of positive evidence**

Actuality Bias

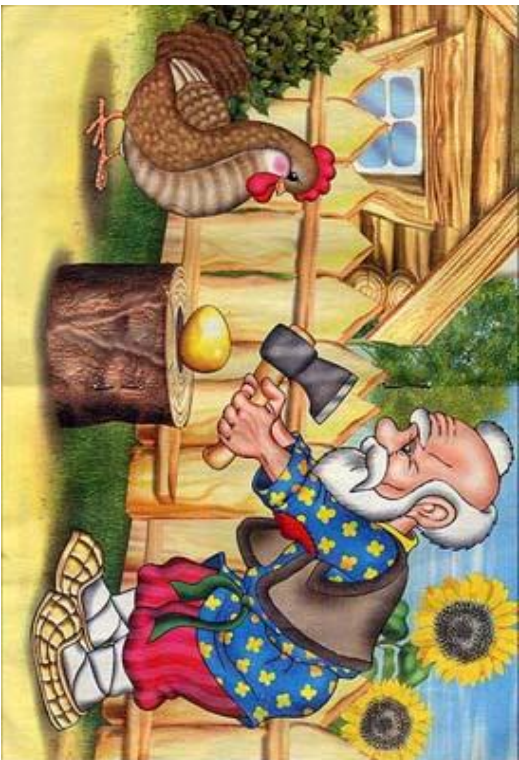
throw/send

- Jill de Villiers (2005):
“the child begins with all verbs having the same status, as realis, connected to ongoing events”
 - Verbs of desire (*want*), communication (*say*) and mental activity (*think*): the clausal argument must be assessed in a set of possible worlds
- We extend de Villiers’ claim to non clausal arguments, i.e. modal meanings that are categorical (Rus IMP) or sublexical (*throw/send*)

IMP/PROG



Do children encounter IMP with incomplete events?



KUROCHKA RYABA 'SPECKLED HEN'

Ded bilIMP-bilIMP – ne razbilPERF

'The old man was breaking it– did not break'

Do children encounter IMP with incomplete events?

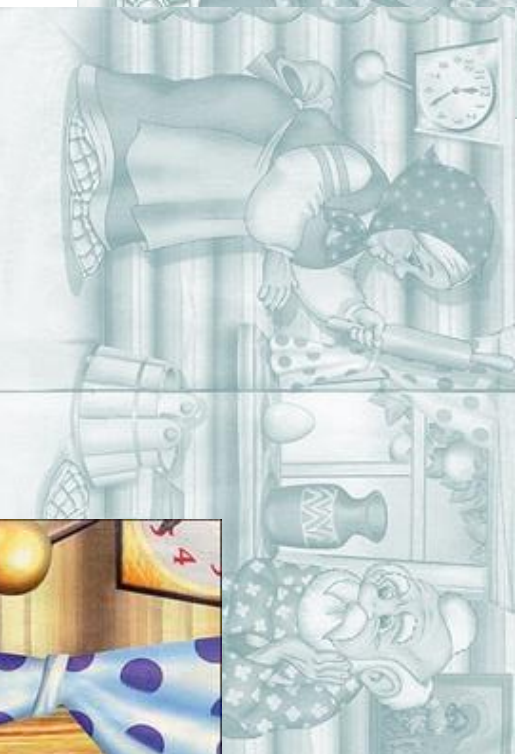


KUROCHKA RYABA 'SPECKLED HEN'

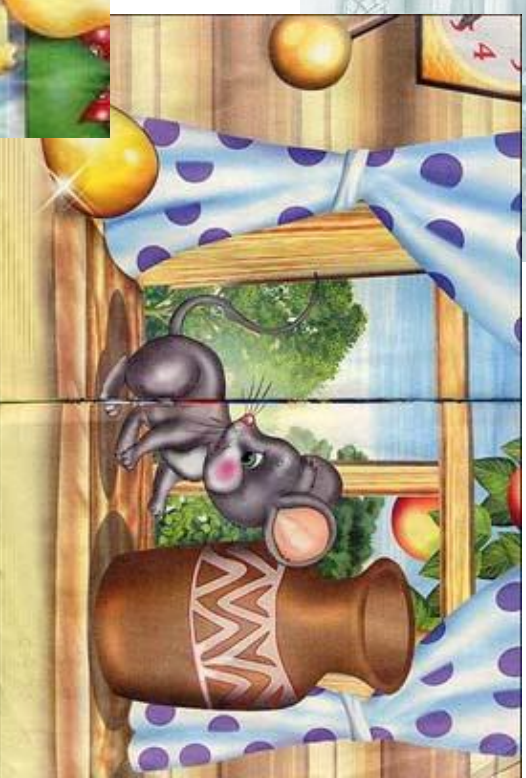
Baba bila^{IMP}-bila^{IMP} – ne razbila^{PERF}

'The old woman was breaking it – did not break'

Do children encounter IMP with incomplete events?



KUROCHKA RYABA 'SPECKLED HEN'



Myshka probezhala, xvostikom maxnula, yaichko upalo i razbilos 'PERF
'A mouse ran by, waved her tail, the egg fell and broke'

Roadmap

- Can young children represent counterfactual events?
- How do children discover that a linguistic form refers to a counterfactual event
 - Acquisition of Russian Imperfective
 - Acquisition of transfer verbs in English
 - Actuality Bias hypothesis

Acknowledgements

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- **Liina Pylkkänen (NYU)**
- **Alice Mills, Izzy Hearn**
- **Bristol Cognitive Development Centre**
- **Children who participated in our study, their parents and teachers**

+

Telicity and atelicity in European Portuguese: the case of verbs of inherently directed motion and prepositions

TELIC 2017
12-14.01.2017

Universitat Stuttgart

António Leal, Fátima Oliveira & Purificação Silvano
FLUP/CLUP

UNIPORTO
FUNDACAO CALOUSTE GULBENKIAN

+

0. Introduction

2

Main goals:

- To describe the interpretations that can arise from the combination of verbs of movement *ir* and *vir* and prepositional phrases headed by *para* ('to/towards') and *até* ('to')(when denoting events of movement).
- To highlight some aspectual characteristics of these constructions.
- To put forward a hypothesis of explanation of the data grounded on a 'scale semantics'.

This paper is based upon work supported by Fundação Calouste Gulbenkian.

+

1. The data

1.1. General description

1.1.1. Verb IR

(i) There are contexts where prepositions *para* and *até* **cannot replace** each other – in these cases, the events denoted **are not events of movement**.

(1) a pena pode **ir até** 15 dias de prisão. (* ir para (go to))
The penalty may go up to 15 days in prison.

(2) José Sá tinha acordo **para ir para** outro clube. (* ir até (go to))
José Sá had an agreement to go to another club.

3

+

1. The data

1.1. General description

1.1.1. Verb IR

(ii) There are contexts where prepositions *para* and *até* **can replace** each other (although with a slightly different meaning) – in these cases, the events denoted **are events of movement**.

(3) agora posso **ir para** o ginásio (# ir até)
now I can go to the gymnasium (go to)

4

+

1. The data

1.1. General description

1.1.2. Verb VIR

(i) Only the preposition *para* can occur in predications that do not denote events of movement.

(4) essa receita tem que **vir para** o orçamento de estado.
This income must come to the state budget.

(cf. * essa receita tem que **vir até** ao orçamento de estado.)
This income must come to the state budget

5

+

1. The data

1.1. General description

1.1.2. Verb VIR

(ii) There are contexts where prepositions *para* and *até* **can replace** each other (although with slightly different meaning) – in these cases, the events denoted **are events of movement**.

(5) muitas vezes os familiares não podem **vir para** Portugal
Many times relatives can not come to Portugal
(cf. **vir até** Portugal - come to Portugal)

6

+ 1. The data
1.1. General description

If both prepositions can occur, the predications are interpreted as *events of movement*.

- (6) {**ir para/vir para**} o ginásio
{to go to /to come to} the gymnasium
- (7) {**ir até a/vir até a**} o ginásio
{to go to / to come to the gymnasium

Question: what are the semantic differences between (6) and (7)?

+ 1. The data
1.2.1. Events of movement: some syntactic issues

- (i) When PP's headed by *para* and *até* combine with these verbs, they are **complements**.
- (8) * O João {foi/veio} para casa e a Maria fez o mesmo para a escola. (fazer o mesmo = {ir/vir})
* João {went/came} home and Maria did the same to school. (do the same = {come / go})
- (9) * O que é que o João fez até casa? {Foi/veio}.
* What did João do (up) to home? {come / go}

+ 1. The data
1.2.1. Events of movement: some syntactic issues

(ii) Due to their deictic component, these verbs can occur, in some contexts, without any complement.

- (10) O rapaz {* foi / veio}.
The boy {* went / came}.
- (11) O rapaz já {foi / veio}.
The boy has already gone / The boy has already come

+ 1. The data
1.2.2. Events of movement: some semantic issues

(i) Different readings are triggered:

a. With *para*, there is a reading that the entity that undergoes movement remains longer in destination.

(12a) Vou {**para / até a**} o café.
I am going to the café.

(12b) Vou **até ao** café e volto já.
I am going to the café and I'll be back soon.

(12c) Vou **para** o café * e volto já.
I am going to the café and I'll be back soon.

+ 1. The data
1.2.2. Events of movement: some semantic issues

(i) Different readings are triggered:

b. When world knowledge determines that the stay in destination is long, only *para* occurs (even with events of movement).

- (13) Antes de **ir para** Bruxelas e integrar a comissão europeia...
(* **ir até** Bruxelas)
Before going to Brussels and joining the European Commission...
(going to Brussels)

+ 1. The data
1.2.2. Events of movement: some semantic issues

(i) Different readings are triggered:

c. When world knowledge determines that the stay in destination is brief or temporary, only *até* occurs (even with events of movement).

- (14) No sábado o Sporting **vai até** Paços de Ferreira (* **ir para** Paços de Ferreira)
On Saturday Sporting goes to Paços de Ferreira (goes to Paços de Ferreira)

1. The data
1.2.2. Events of movement: some semantic issues

13

(i) Different readings are triggered:

d. Notice that only *para* can occur with the stative verb *estar* (to be) expressing a somehow vague location.

(15) João está para Lisboa (* está até Lisboa)

João is to Lisbon

João is in Lisbon

1. The data
1.2.2. Events of movement: some semantic issues

14

(ii) When *in x time* adverbial occurs:

☛ the event is measured (with *para*, examples are less acceptable).

(16a) O rapaz **foi até** à fac. em 5 m. (17a) ^{ok/?} O rapaz **foi para** a fac. em 5 m.

The boy went to college in 5 m.

The boy went to college in 5 m.

(16b) O rapaz **veio até** à fac. em 5 m. (17b) ^{ok/?} O rapaz **veio para** a fac. em 5 m.

The boy came to college in 5 m.

The boy came to college in 5 m.

1. The data
1.2.2. Events of movement: some semantic issues

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(iii) When for *x time* adverbial occurs:

☛ PP *até*: the temporal adverbial measures a consequent state (an interval after the event);

(18a) # O rapaz **foi até** à faculdade durante 5 m. (= esteve na fac. 5 m)

The boy went to college for 5 m. (= he stayed in college 5 minutes)

(18b) # O rapaz **veio até** à faculdade durante 5 m. (= esteve na fac. 5 m)

The boy came to college for 5 m. (= he stayed in college 5 minutes)

1. The data
1.2.2. Events of movement: some semantic issues

16

(iii) When for *x time* adverbial occurs:

☛ PP *para* - 2 possible readings: the temporal adverb measures: - the consequent state

- the process phase of the event

(19a) O rapaz **foi para** a fac. durante 5 m. (= ^{ok} esteve a ir para a fac. durante 5 m / # esteve na fac. 5 m)

The boy went towards/to college for 5 m. (= he was going towards col. for 5 m / he stayed in col. 5 m)

(19b) O rapaz **veio para** a fac durante 5 m. (= ^{ok} esteve a vir para a fac. durante 5 m / # esteve na fac. 5 m)

The boy came towards/to college for 5 m. (= he was coming towards col. for 5 m / he stayed in col. 5 m)

1. The data
1.2.2. Events of movement: some semantic issues

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(18a) # O rapaz **foi até** à faculdade durante 5 m. (= esteve na fac. 5 m)

The boy went to college for 5 m. (= he stayed in college 5 minutes)

(18b) # O rapaz **veio até** à faculdade durante 5 m. (= esteve na fac. 5 m)

The boy came to college for 5 m. (= he stayed in college 5 minutes)

(19a) O rapaz **foi para** a fac. durante 5 m. (= ^{ok} esteve a ir para a fac. durante 5 m / # esteve na fac. 5 m)

The boy went towards/to college for 5 m. (= he was going towards col. for 5 m / he stayed in col. 5 m)

(19b) O rapaz **veio para** a fac durante 5 m. (= ^{ok} esteve a vir para a fac. durante 5 m / # esteve na fac. 5 m)

The boy came towards/to college for 5 m. (= he was coming towards col. for 5 m / he stayed in col. 5 m)

N.B. The readings in (18) and the second readings of (19) are similar to those we can find in examples like (20) with achievements.

(20) O rapaz {desmaiou/adormeceu} durante 5 m.

The boy {fainted/ fell asleep} for 5 m.

1. The data
1.2.2. Events of movement: some semantic issues

18

(iv) When the PP has a purely directional interpretation, *ir/vir* combine with *para*, but not with *até*.

(21a) **vai tudo para** {a direita / oeste}

Everything goes towards {the right / the west}

(22a) **vem tudo para** {a direita / oeste}

Everything comes towards {the right / the west}

(21b) * / # **vai tudo até** {à direita / oeste}

Everything goes to {the right / the west}

(22b) * / # **vem tudo até** {à direita / oeste}.

Everything comes to {the right / the west}

+ 1. The data
1.2.2. Events of movement: some semantic issues

19

(v) Only *para* can occur with the Progressive; *até* gives rise to almost ungrammatical examples with a single event reading.

(23a) Ele está a **ir para** a faculdade. (24a) Ele está a **vir para** a faculdade.
He's going towards college. He's coming towards college.

(23b) ???/ok Ele está a **ir até** à faculdade. (24b) ???/ok Ele está a **vir até** à faculdade.
He's going to college. He's coming to college.

■ With frequency adverbials, all examples are grammatical; cf. (25).

(25) *Ele está a (ir/vir) até à faculdade todas as manhãs.*
He's (going / coming) to college every morning.

+ 1. The data
1.2.2. Events of movement: some semantic issues

20

(vi) The combination with the aspectual operator "parar de" (to stop V-ing) produces unacceptable or even ungrammatical results, with a single event reading.

(26a) ???/ok Ele parou de **ir para** a faculdade. (27a) ???/ok Ele parou de **vir para** a faculdade.
He stopped going to college. He stopped coming to college.

(26b) ???/ok Ele parou de **ir até** à faculdade. (27b) ???/ok Ele parou de **vir até** à faculdade.
He stopped going to college. He stopped coming to college.

■ With frequency adverbials, all examples are grammatical; cf. (28).

(28) *Ele parou de (ir/vir) até à faculdade todas as manhãs.*
He stopped (going/coming) to college every morning.

+ 1. The data
1.2.2. Events of movement: some semantic issues

21

(vii) Entailment

The occurrence with Pretérito Perfeito (Past) and *in x time* adverbial entails the truth of the Progressive during the same time. (identification of accomplishments)

(16b) O rapaz **veio até** à faculdade em 5 m.

The boy came to college in 5 m.

→ O rapaz esteve a **vir até** à faculdade durante esses 5 m.

→ *The boy was coming to college during those 5 m.*

+ 1. The data
1.2.2. Events of movement: some semantic issues

22

(vii) Entailment

The occurrence with Pretérito Perfeito (Past) and *in x time* adverb entails the truth of the Progressive during the same time. (identification of accomplishments)

(17b) ok/? O rapaz **veio para** a faculdade em 5 m.

The boy came to college in 5 m.

→ O rapaz esteve a **vir para** a faculdade durante esses 5 m.

The boy was coming to college during those 5 m.

+ 1. The data
1.2.2. Events of movement: some semantic issues

23

(viii) Different possibilities of non-culminating readings.

(29) O rapaz **veio para** a faculdade, mas, a meio do caminho, teve de voltar para trás.
The boy came towards college, but halfway he had to go back.

(30) * O rapaz **veio até** à faculdade, mas, a meio do caminho, teve de voltar para trás.
The boy came to college, but halfway he had to go back.

+ 1. The data
1.3. Events of movement: summarizing the problems

24

■ Syntactic criteria point to the same status of PPs headed by *para* and *até*, when combined with verbs *ir/vir*

◀ they behave as **complements** of the verbs, but...

■ Semantic criteria point to different aspectual contribution.

+ 1. The data
1.3. Events of movement: summarizing the problems

25

- Semantic criteria point to different aspectual contribution:
 1. *para* is associated to a longer stay than *até*; cf. (i)
 2. only *para* can occur with a mere directional interpretation; cf. (iv)
 3. only *para* can occur with Progressive; cf. (v)
 4. only *para* gives rise to non-culminating readings; cf. (viii)

+ 1. The data
1.3. Events of movement: summarizing the problems

26

Furthermore, tests usually used to diagnose aspectual properties of predications give rise to contradictory results:

1. with *in x time* adverbials: durative and telic (cf. (ii))
2. with *for x time* adverbials (cf. (iii)):
 - with *para*: durative and telic or non durative and telic
 - with *até*: non durative and telic; cf. (iii)
3. with "parar de": non durative (cf. (vi))
4. entailment (cf. (vii)):
 - with *para*: durative and telic
 - with *até*: non durative and telic

+ 1. The data
1.3. Events of movement: summarizing the problems

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Summing up:

- Predications with *para*: - denote events that have a terminal point, but...
- the terminal point **can easily be omitted**;
 - when the terminal point is achieved, a reading of **long-lasting stay** in destination arises.
- Predications with *até*: - denote events that have a terminal point, and...
- the terminal point **cannot be omitted**;
 - when the terminal point is achieved, a reading of **non permanent stay** in destination arises.

+ 2. Possible explanation

28

- ☛ Inherently directed motion verbs *ir e vir* denote path scales
(cf. Rappaport Hovav & Levin, 2010, for English verbs; Kennedy and Levin, 2007).

Problem: fully specified scales or underspecified scales?

- ☛ Typically path scales are partially specified in inherently directed motion verbs
(only a few verbs, such as "rise" and "descend", lexicalize all components of a path scale; cf. Rappaport Hovav & Levin, 2010; Fleischhauer & Gameschlag, 2014).

+ 2. Possible explanation

29

- ☛ A scale has the following **parameters** (cf., e.g., Kennedy & McNally, 2005):
 - **A measurement dimension:** indicates the kind of measurement and the way degrees are interpreted (e.g. dimension of TEMPERATURE, WEIGHT)
 - **A set of degrees:** e.g. temperature values, weight values;
 - **An ordering relation:** make explicit the linear order of the degrees.

+ 2. Possible explanation

30

Is the information brought about by prepositions different or is it the same information?

The data indicate that information is different



Different contribution of prepositions to the aspectual construction of predications with *ir* and *vir* (cf. Leal & Oliveira, 2015)

+ 2. Possible explanation

31

- **Para** only determines the **ordering relation** in the scale projected by the verb (to advance on a given point defined by PP with *para*).

The preposition *para* defines the ordering relation by defining an arbitrary degree (an arbitrary location) in the path scale and there is an individual *x* participating in an event *e* that is approaching that arbitrary degree in the course of *e*.

+ 2. Possible explanation

32

- **Até** determines the **set of degrees** and denotes the maximal element of the scale in the scale projected by the verb.

Até operates on the parameter of set of degrees and denotes a maximum element that is contextually relevant, and, thus, transforms the scale projected by the motion verb in a closed scale.

+ 2. Possible explanation

33

PP's with *para*:

- Their **default interpretation** is the atelic interpretation, since *para* does not define a maximal degree (but only an arbitrary degree) and therefore the scale projected by the verb is an open scale.
- There is only a change of location (of degree) of individual *x* in the course of the event, but in the end of the event, *x* cannot achieve the maximal degree as this degree does not exist.

(31a) O rapaz **foi para** a fac.
The boy went towards college.
(31b) O rapaz **veio para** a fac.
The boy came towards college.

+ 2. Possible explanation

34

PP's with *para*:

- In a context where telicity is forced, with *in x time adverbial*, an aspectual shift is necessary (which explains why some informants consider (17) slightly odd), as there is incompatibility between the information of the PP (mere (open) scale orientation) and the *in x time adverbial* (that requires a telic predication, that is, a closed scale).
- In this case, for the informants that accept this reading, the arbitrary location (arbitrary degree on the scale) denoted by PP-*para* must be reinterpreted as a maximal degree, similar to PP-*até*.

(17a) ^{odd?} O rapaz **foi para** a fac. em 5 m. (17b) ^{odd?} O rapaz **veio para** a fac. em 5 m.
The boy went to college in 5 m. The boy came to college in 5 m.

+ 2. Possible explanation

35

PP's with *até*:

- The **default interpretation** is the telic one, since *até* defines a maximal degree and makes the scale associated to the verb contextually closed.
- This means that there is an individual *x* participating in an event *e* and, at the end of *e*, *x* is located in the maximal degree of the scale (the maximal location). Therefore, there is no subpart of *e* where *x* exhibits the maximal degree and the event is telic.

(32a) O rapaz **foi até** à fac. (32b) O rapaz **veio até** à fac.
The boy went to college. The boy came to college.

+ 2. Possible explanation

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- In all the above cases, verbs *ir/vir* are interpreted as durative verbs, which means that they are associated to multi-point scales.

But...

- when for *x time adverbial* occurs, we can have the reading of measurement of the consequent state.

(18a) # O rapaz **foi até** à faculdade durante 5 m. (= *esteve na fac. 5 m.*)
The boy went to college for 5 m. (= he stayed in college 5 minutes)
(18b) # O rapaz **veio até** à faculdade durante 5 m. (= *esteve na fac. 5 m.*)
The boy came to college for 5 m. (= he stayed in college 5 minutes)
(19a) =># O rapaz **foi para** a fac. durante 5 m. (= *estive à ir para a fac. durante 5 m. / estive na fac. 5 m.*)
The boy went towards/to college for 5 m. (= he was going towards col. for 5 m. / he stayed in col. 5 m.)
(19b) =># O rapaz **veio para** a fac. durante 5 m. (= *estive a vir para a fac. durante 5 m. / estive na fac. 5 m.*)
The boy came towards/to college for 5 m. (= he was coming towards col. for 5 m. / he stayed in col. 5 m.)

2. Possible explanation

- In these cases, the verbs seem to be interpreted as punctual, that is, as two-point scales, and PP denote the maximal degree (verbs are interpreted as transitions between a state of not being at the destination and the state of being in the destination).
- As the verb is reinterpreted as punctual (behaving like an achievement), there is no process phase of the event to be measured by the temporal adverbial.
- The adverbial *for x time* can only measure the resultant state of the event, that is, the time interval during which the individual *x* participating in the event *e* remains in destination after the end of *e*.
- This reading is also possible for PP-*para*, provided that the arbitrary degree defined by PP-*para* is reinterpreted as a maximal degree (requires aspectual shift).

3. Concluding remarks

- (i) A 'scale semantics' (cf. Kennedy & McNally, 2005) can account for the contribution of PPs headed by *para* and *até* in EP to the definition of the aspectual profile of the predications that denote events of movement.
 - This proposal relates this type of verbs to other types, namely incremental theme verbs and change-of-state verbs.
- (ii) This proposal assumes that inherently directed motion verbs *ir/vir* have a lexical meaning that can be represented as a partially specified scale (cf. Rappaport Hovav & Levin, 2010).

3. Concluding remarks

- (iii) The PPs headed by *para* and *até*, that are complements of these verbs, contribute in different ways to specify some parameters of the scale (cf. Leal & Oliveira, 2015, regarding manner of motion verbs):
 - *Para* determines the ordering relation in the scale projected by the verb;
 - *Até* determines the set of degrees and denotes the maximal element of the scale projected by the verb.

Some remaining problems:

- > Some tests indicate that predications are non durative. Why?
- > A reading of measurement of the consequent state arises with *for x time* adverbials. Why?
- > *Para* exhibits a reading of long stay in destination, and *até* a brief stay. Why?

Bibliography

- Anche, M. J. (2014) The construction of viewpoint aspect: the imperfective revisited. *NLJ*, 32(3), 791-831.
- Beavers, J. (2008) Scalar complexity and the structure of events. In Dölling, J., Heyde-Zybatow, T. & Schäfer, M. (eds.), *Event Structures in European Form and Interpretation*. Berlin: de Gruyter, 248-265.
- Dowty, D. (1979) *Word Meaning and Montague Grammar*. Dordrecht: Reidel.
- Flexiblauner, J. & Gamschlag, T. (2014). We're going through changes: How change of state verbs and arguments combine in scale composition. *Lingua* 141, pp.30-47.
- Hay, J., Kennedy, C. & Levin, B. (1999). Scalar structure underlies velocity in 'degree achievements'. In Matthews T. & Szabolcs, D. (eds.) *Proceedings of NLLP IX*. Ithaca: CLC Publications, pp.137-144.
- Kennedy, C. & McNally, L. (2005). Scale structure, degree modification, and the semantics of gradable predicates. *Language* 81 (2), pp.345-381.
- Kennedy, C. & Levin, B. (2008). Measure of change: The adjectival core of degree achievements. In L. McNally & C. Kennedy (eds.) *Adjectives and Adverbs: Syntax, Semantics and Discourse*. Oxford: Oxford University Press, pp.118-162.
- Leal, A. & Oliveira, F. (2008). Subtipos de verbos de movimento e classes aspectuais. In *Textos Selecionados do XXX Encontro da Associação Portuguesa de Linguística*. Lisboa: APL, pp.287-298.
- Leal, A. & Oliveira, F. (2016). Verbos de movimento, preposições direcionais e escalas. In *Textos Selecionados do XXX Encontro da APL Braga: APL*, pp.353-366.
- Levin, B. (1993). *English Verb Classes and Alterations: a Preliminary Investigation*. Chicago: The University of Chicago Press.
- Moens, M. (1987). *Time, Aspect and Temporal Reference*. PhD Dissertation, University of Edinburgh.
- Pálón, C. (2006) Weak and strong accomplishments. In Kiss, K. É. (ed.), *Event structure and the left periphery: Studies on Hungarian*. Dordrecht: Springer, 91-106 (<http://palon.sdl.eu.org/covers/vwa.html>).
- Pras de Oliveira, F. & Basso, R. (2010). Sobre a Semântica e a Pragmática do Perfeito. *Revista Letras*, 81, 123-139.
- Rappaport Hovav, M. & Levin, B. (2010). Reflections on manner/result complementarity. In M. Rappaport Hovav, E. Doron, & I. Sichel (eds.) *Syntax, Lexical Semantics, and Event Structure*. Oxford: Oxford University Press, pp.21-38.
- CETEM/Público (Corpus de Extractos de Textos Electrónicos MCT/Público) - <http://www.linguistica.pt>.

The Complementarity of Intentionality and Affectedness

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1. Introduction: topic & proposal (1/2)

- **Topic:** the relation between **intentionality** and **affectedness** in Korean and English
- **Proposals:**
 - (i) I introduce the generalization, *the Complementary of Intentionality and Affectedness* (CIA) (intentionality and affectedness cannot be entailed in a minimal accomplishment predicate at the same time), based on Korean data.
 - (ii) I argue then that **English conative alternations** are an instance of the CIA.

1. Introduction: terminology (2/2)

- **Event structural sense** (e.g. Dowty 1979, Rappaport Hovav & Levin 1998)
 - (i) **Accomplishment**: a caused change-of-state
(e.g. *John broke the vase*)
 - (ii) **Achievement**: a change-of-state that does not necessarily involve causation, (e.g. *The vase broke*)
- **Temporal use** (following Vendler 1957)
 - (i) **Accomplishment**: a durative change-of-state
(e.g. *John built the house*)
 - (ii) **Achievement**: a punctual change-of-state
(e.g. *John broke the vase*)

2. Zero-result: contradictions in English (1/7)

- In English, the inherent result of an accomplishment predicate (i.e. caused change-of-state predicate) must occur in the actual world:

- (1) a. He **opened** the door, #but it was not opened.
b. He **burned** the door, #but it was not burned.
c. He **broke** the door, #but it was not broken.

- This suggests that the English verbs *open*, *burn* and *break* entail actual occurrences of inherent results.

2. Zero-result in Korean: basic data (2/7)

- However, in Korean an actual occurrence of an inherent result is not necessary:

(2) *ku-ka mwwun-ul himkkes yel-ess-ciman,*
he-Nom door-Acc with all the strength open-Pst-but
mwwun-i yel-li-ci anh-ass-ta.
door-Nom open-Pass-Comp Neg-Pst-Dec
(lit.) ‘He opened the door with all his strength, but it was not opened.’ = (roughly) ‘He tried to open the door with all his strength, but it was not opened.’

- In (2) the subject did some kind of action to open the door (e.g. pushing the door), but failed.

2. Zero-result in Korean: basic data (3/7)

Such examples are also found naturally occurring:

- (3) ...*Seyjeong-un* *Yoo Jaesuk-uy* *meli-ey* *pak-ul*
 Seyjeong-Top Yoo Jaesuk-Gen head-on gourd-Acc
kkay-ss-ciman, *pak-un* *kkay-ci-ci* *anh-ass-ta*.
break-Pst-but **gourd-Top** **break-Pass-Comp** **Neg-Pst-Dec**
 (lit.) ‘...Seyjeong broke the gourd on Jaesuk Yoo’s head, but
 the gourd was not broken.’

(http://m.xtorque.xportsnews.com/?ac=article_view&entry_id=758641)

2. Zero-result in Korean: intention (4/7)

- These zero-result (i.e. failed attempt) interpretations entail **intentionality** on the part of the subject (Lee 2015, Beavers & Lee, under review):

(4) *ku-ka mwwun-ul silswulo yel-ess-ciman,*
he-Nom door-Acc **accidentally open-Pst-but**
#mwwun-i yel-li-ci anh-ass-ta.
door-Nom open-Pass-Comp **Neg-Pst-Dec**
(lit.) ‘He accidentally opened the door, but it was not opened.’

- As in (4), when *silswulo* ‘accidentally’ modifies an accomplishment predicate, the result of the predicate must actually occur.

2. Zero-result in Korean: *accidentally* (5/7)

- However, *silswulo* ‘accidentally’ can also describe the agent’s **misunderstanding** as in (5).

(5) [A balloon and a ball are in the room. John intended to kick the ball and not the balloon, but mistook the balloon for the ball and tried to kick the balloon, thinking it was the ball.]

John-i *pwungsen-ul* ***silswulo*** *cha-ss-ciman, pisaŋaka-ss-ta.*

John-Nom balloon-Acc **accidentally** kick-Pst-but miss-Pst-Dec
(lit.) ‘John accidentally kicked the balloon, but missed it.’

- This might suggest that **non-intentional zero-result readings** are possible.

2. Zero-result in Korean: accidentally (6/7)

- However, it is crucial in the context that **there be an intention to kick a particular object** that the speaker believes to have certain properties.

(6) [A balloon and a ball are in the room. John has no desire to kick either, but out of boredom makes a random kicking motion near what she thinks is the ball. It is actually the balloon.]

John-i *pwungsen-ul* ***silswulo*** *cha-ss-ciman*, #*pisnaka-ss-ta*.

John-Nom balloon-Acc **accidentally** kick-Pst-but miss-Pst-Dec
(lit.) ‘John accidentally kicked the balloon, but missed it.’

- The evidence suggests that **intention** is still important for zero-result interpretation.

2. Zero-result in Korean: *accidentally* (7/7)

- If *silswulo* ‘accidentally’ describes the subject’s **non-intentionality**, zero-result reading is not allowed:

(7) [A balloon and a ball are in the room. John has no desire to kick either, but out of boredom makes a random kicking motion near what she thinks is the ball. It is actually the ball.]

John-i kong-ul silswulo cha-ss-ciman, #pisaŋaka-ss-ta.

John-Nom ball-Acc **accidentally** kick-Pst-but miss-Pst-Dec
(lit.) ‘John accidentally kicked the balloon, but missed it.’

- This again suggests that intention is required for zero-result interpretation.

3. Trying vs. Zero-result (1/3)

- The zero-result interpretations are different from the meaning of *try to VP* (VP as an accomplishment) (Lee 2015).

(8) [Context: Minho was breaking the door to enter the room in order to turn on the light. But he failed to break the door and thus failed to turn on the light.]

a. *Minho-ka pwul-ul khi-lye-ko nolyekhay-ss-ta.*

Minho-Nom light-Acc turn.on-to-Comp try-Pst-Dec
kulena pwul-ul khi-l swu eps-ess-ta.

but light-Acc turn.on-Rel way not.exist-Pst-Dec
'He tried to turn on the light. But he could not turn on the light.'

3. Trying vs. Zero-result (2/3)

(8) [Context: Minho was breaking the door to enter the room in order to turn on the light. But he failed to break the door and thus failed to turn on the light.]

b. #*Minho-ka pwul-ul khi-ess-ciman,*

Minho-Nom light-Acc turn.on-Pst-but

pwul-ul khi-l swu eps-ess-ta.

light-Acc turn.on-Rel way not.exist-Pst-Dec

(lit.) ‘Minho turned on the light, but he could not turn on the light.’ (zero-result reading is intended)

- Zero-result reading requires some fairly direct cause of the result state, but *try to VP* does not.

3. Trying vs. Zero-result (3/3)

- The two sentences in (8) can be plausibly applied to a new context like ‘*Minho lifted the switch of the light, but the light was not turned on because there was a problem in the electrical wiring between the switch and the light*’, since a **direct cause** (lifting the switch of the light) occurred in this context.
- In short, zero-result interpretation is more restricted than *try to VP* meaning in terms of event occurrence.
- *Try to VP* is also entails intention, but vague on result (see Lee 2015).
- Direct causation is not limited to zero-result — partial result and culmination also require this (see Lee 2015).

4. Actual-result in Korean (1/1)

- The default reading of a Korean caused change-of-state predicate is the reading in which the inherent result of the predicate actually occurs.
- When the result actually occurs, the subject's intention is not required:

(9) *ku-ka mwwun-ul ipwule / silswulo yel-ess-ko,*
he-Nom door-Acc **deliberately / accidentally** open-Pst-and
mwwun-i wancenhi/ cokum yel-li-ess-ta.
door-Nom **completely / little** open-Pass-Past-Dec
'He deliberately/accidentally opened the door, and it was
completely / little opened.'

5. Multiple readings in Korean (1/7)

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- Summarizing, a Korean accomplishment predicate can have three different kinds of readings:
 - 1) [intentional +] and [affected -] = zero-result readings
 - 2) [intentional +] and [affected +] = actual-result readings
 - 3) [intentional -] and [affected +] = actual-result readings
- From these readings, I suggest that when intentionality is *entailed*, affectedness is not entailed (i.e. result is vague) and when affectedness is *entailed*, intentionality is not entailed.

5. Multiple readings in Korean: CIA (2/7)

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- Based on this mutual exclusivity of *entailments* of intentionality and affectedness, I propose the constraint in (10) (Lee 2016).

(10) **The Complementarity of Intentionality and Affectedness(CIA):**
it is impossible that the subject of a minimal accomplishment predicate (the combination of a verb and its complement(s) which is a causative accomplishment) must have an intention with the inherent result of the predicate and the patient of the predicate must be affected at the same time.

5. Multiple readings in Korean: CIA (3/7)

- The **CIA** has three logically possible semantic conditions:
 - a. **Intended Result:** The subject of a minimal accomplishment predicate must have an intention with the inherent result of the predicate and it is not that the patient of the predicate must be affected.
 - b. **Actual Result:** The patient of a minimal accomplishment predicate must be affected and it is not that the subject of the predicate must have an intention with the inherent result of the predicate.
 - c. **Unspecified Result:** It is not that the subject of a minimal accomplishment predicate must have an intention with the inherent result of the predicate and it is not that the patient of the predicate must be affected.

5. Multiple readings in Korean: ambiguity (4/7)

- The CIA is more general than the mutual exclusivity of entailments of intentionality and affectedness.
- The mutual exclusivity of entailments of intentionality and affectedness correspond to the two semantic natural classes, **Intended Result** (only intentionality is entailed) and **Actual Result** (only affectedness is entailed).
- The CIA also includes another semantic natural class, **Unspecified Result** (both intentionality and affectedness are not entailed).
- The Korean accomplishment predicates above are **ambiguous** between **intended-result** and **actual-result readings**.

5. Multiple readings in Korean: ambiguity (5/7)

- This **ambiguity** can be verified by the **identity test** (see Lakoff, 1970; Zwicky & Sadock, 1975):

(11) *Jane-i chayk-ul taywu-ess-ko, Max-to kulay-ss-ta.*

Jane-Nom book-Acc burn-Pst-and Max-also do.so-Pst-Dec

(i) ‘Jane burned a book and so did Max.’

(actual result readings of the clauses) or

(ii) (roughly) ‘Jane tried to burn a book and so did Max.’

(intended result readings of the clauses)

- If *taywu-* ‘burn’ were **vague** in its meaning, zero result or partial result or culmination should be freely available for either conjunct.

5. Multiple readings in Korean: ambiguity (6/7)

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- But either both conjuncts involve **intentionality** (regardless of result) or both involve **result** (regardless of intention).
- What is not possible is a reading where one conjunct describes **zero result** and the other **non-intentional result** (partial or complete).
- This suggests that caused change-of-state predicates are **ambiguous** between two readings: one entailing **intentionality** but vague on a result (deriving zero result), and one entailing **a result** but vague on intentionality (Lee 2016, Beavers & Lee, under review)
- That said, in principle both uses admit **an intentional partial result** or **intentional culmination reading**.

5. Multiple readings in Korean: *hyanghay* (7/7)

- The Korean sentence in (12) belongs to **Unspecified Result**.

(12) *ku-ka* *ilpwule* / *silswulo* *mwwun-ul* *hyanghay*
he-Nom **deliberately** / **accidentally** door-Acc **towards**
cha-ss-ta. *hacinan* *pisnaka-ss-ta* /
kick-Pst-Dec but **miss**-Pst-Dec /
kwulayse mwwun-i *cha-i-ess-ta.*
so door-Nom **kick**-Pass-Pst-Dec

(lit.) ‘He deliberately/accidentally kicked towards the door.

But he missed it./So the door was kicked.’

6. Agent Control Hypothesis (1/5)

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- Demirdache & Martin (2015) argue for the **Agent Control Hypothesis** (ACH), which states that “[zero result] construals only require the predicate’s external argument to be associated with ‘agenthood’ properties.”
- Jacobs (2011) argues that **agent control** (“controlled situations are those in which the agent functions with usual average capacities in keeping things under control” from Thompson & Thompson, 1992: 52, cited in Jacobs, 2011: 9) is required for non-culmination readings in `Skwxwu7mesh`.

6. Agent Control Hypothesis (2/5)

(13) a. **c-predicate** does not require culmination. (S_{kw̥x̥wu7}mesh)

chen kwélash-t-∅ ta mixalh,

1S.SUB shoot-TR-3OBJ DET bear

‘I shot the bear;’

welh na t'emt'ám te-n skwélash

but RL astray DET-1S.POS shot

‘but I missed (lit. my shot went astray).’

b. **lc-predicate** requires culmination. (S_{kw̥x̥wu7}mesh)

chen kwélash-nexw-∅ ta mixalh,

1S.SUB shoot-LCTR-3OBJ DET bear

‘I shot the bear;’

#welh na t'emt'ám te-n skwélash

but RL astray DET-1S.POS shot ‘but I missed.’

6. Agent Control Hypothesis (3/5)

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- In (13) the **c-predicate** (control-predicate) describes the agent's control and the **lc-predicate** (limited control-predicate) expresses the limited control of the agent, which may be in **a difficult situation** (see Thompson, 1979; Thompson & Thompson, 1992; Bar-el, 2005; Jacobs, 2011).
- Now in order to see if **the agent control** (the degree of control) is also required for Korean zero-result interpretations, we can test whether zero-result interpretations are allowed even when the agent is **intentional** but experiences a **difficulty**.

6. Agent Control Hypothesis (4/5)

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- In (14), Wiley intended to burn the book, but he was in a difficult situation (Lee 2015).

(14) [Context: The book was so wet. Wiley was uncertain about whether he could burn the book, but he put it into fire to burn it.]

Wiley-ka ku chayk-ul thaywe-ss-ciman,

Wiley-Nom that book-Acc burn-Pst-but

cenhye tha-ci anh-ass-ta.

at.all burn-Comp Neg-Pst-Dec

(lit.) ‘Wiley burned the book, but it did not burn at all.’

= (roughly) ‘Wiley tried to burn the book, but it did not burn at al.’

6. Agent Control Hypothesis (5/5)

- The key constraint in Korean is that **the agent intends** — and in particular **believes** — that the result can be obtained by the contextually defined action, **not that the agent is necessarily sure of success.**
- If “control” in ACH more broadly means having “**agenthood**” properties (as in the definition itself rather than the name of the ACH), Korean does seem to instantiate the ACH.
- **Intentionality** is strongly correlated with **agentivity** (e.g. Dowty 1991: 572, (27) lists closely related volitionality in his proto-agent properties) and is required for **zero-result in Korean.**

7. Conative constructions: result (1/4)

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- I argue that English conative constructions belong to **Intended Result** and the corresponding transitive verb constructions belong to **Actual Result**.
- First, the inherent result of the minimal accomplishment predicate of a conative construction does not necessarily occur in the actual world.

(15) a. Emma **kicked at** the ball, but she missed it/and the ball was kicked.

b. Emma **shot at** the bird, but she missed it/and the bird was shot.

7. Conative constructions: intention (2/4)

- Second, conative constructions in English require **intentionality** on the part of the subject:

(16) a. #Tom **accidentally** kicked at the ball.

b. #Tom **accidentally** shot at the bird.

- Here the adverb *accidentally* is assumed to describe non-intentionality of the subject.

7. Conative alternation: direct causation (3/4)

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- Third, **the direct causing event** of a conative construction must occur:

(17) [Jane was opening the door to enter the room in order to kick the ball inside the room. But she failed to open the door and thus failed to kick the ball.]

a. #Jane **kicked at** the ball.

b. Jane **tried to kick** the ball.

(18) [Jane swung her leg in order to kick the ball. But she missed it.]

a. Jane **kicked at** the ball.

b. Jane **tried to kick** the ball.

7. Conative constructions: agent control (4/4)

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- Fourth, **agent control** (the degree of control) is not required for English conative sentences:

(19) a. [Context: Willey injured his leg, but he swung it in order to kick the ball.]

Willey **kicked** at the ball (but he missed it).

b. [Context: Willey injured his finger, but he pulled the trigger of a gun in order to shoot the bird.]

Willey **shot** at the bird (but he missed it).

- In short, **English *at*-conatives belong to Intended Result.**

8. Transitive verb construction (1/1)

- The patient of the corresponding English transitive verb construction must be affected:

(20) a. Tom **kicked** the ball, #but it was not kicked.

b. Tom **shot** the bird, #but it was not shot.

- Intentionality of the subject is not necessary for the transitive verb constructions:

(21) a. Tom **accidentally** / **deliberately** kicked the ball.

b. Tom **accidentally** / **deliberately** shot the bird.

- Then the **English transitive verb constructions belong to Actual Result.**

9. Potential counterexamples: *murder* (1/2)

- It seems to be generally assumed that *murder* entails the agentive subject's intention and the result.
- However, it is not clear whether *murder* really entails intention.

(22) **Accidental murder:**

“Bob and Alice are fighting; Carol, a friend to both, tries to break it up and gets accidentally shot while Bob and Alice are wrestling for a gun”

(<http://tvtropes.org/pmwiki/pmwiki.php/Main/AccidentalMurder>)

9. Potential counterexamples: assassinate (2/2)

- *Assassinate* also seems not entail intention:

(23) **Accidental assassination:**

A guard shot to kill the president, but the president was not shot, but the first lady was shot and died.

- If only result is entailed, the accomplishment predicates involving verbs like *murder* or *assassin* should belong to **Actual Result**.

10. Conclusion: summary (1/2)

- 1) I discussed the various readings (**zero-result** or **actual-result readings**) of Korean caused change-of-state predicates.
- 2) Based on these readings, I argued for the Complementarity of Intentionality and Affectedness (**CIA**): (i) **Intended Result**, (ii) **Actual Result**, and (iii) **Unspecified Result**.
- 3) I also argued that English conative constructions belong to **Intended Result** and their corresponding transitive verb constructions **Actual Result**.

10. Conclusion: future work (2/2)

- **Typological basis:**
Non-culmination reading is possible in many other languages. Is the CIA applied to those languages?
- **Formal description:**
 - (i) How to formalize the CIA.
 - (ii) How exactly the intended result reading is compositionally derived from the combination of the verb and the *at* phrase in a conative construction.

Selected references

- Bar-el, Leora. 2005. *Aspectual distinctions in Skwxw7mesh*. Unpublished PhD Dissertation, The University of British, Columbia.
- Beavers, John & Juwo Lee. Under review. Intentionality, Scalar Change, and Non-culmination in Korean Caused Change-of-State Predicates.
- Demirdache, Hamida & Fabienne Martin. 2013. Agent control over nonculminating events. ms, University of Nantes and University of Stuttgart.
- Jacobs, Peter William. 2011. *Control in Skwxw7mesh*. Ph.D. thesis, The University of British Columbia, Vancouver.
- Lee, Juwon. 2015. *An Intention-based Account of Accomplishments in Korean*. Ph.D. thesis, The University of Texas at Austin, Austin.
- Lee, Juwon. 2016. Intentionality and conative constructions in English. *Studies in Linguistics* 41:327–356.

The Causative Event Structure of Some “Activity” Predicates

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1. Introduction (1/4)

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- **Topic:** activity predicates (involving manner of motion verbs, manner of speaking verbs, or perception verbs) in Korean
- **Question:** what is the true event structure of activity predicates in Korean?
- **Proposal:** some “activity” predicates in Korean actually have a causative event structure.

1. Introduction (2/4)

- Activity predicate in English can be defined as the predication of an action over an individual:

(1) He jumped / walked / ran / spun / swam / danced.

- The English activity verbs are considered to have the simplex event structure in (2b) (see e.g. Rappaport Hovav & Levin 1998).

(2) a. **State:** [x <STATE>] *know, believe, have, desire, love*

b. **Activity:** [x ACT <manner>] *run, walk, swim*

c. **Achievement:** [BECOME [x <STATE>]] *arrive, notice, find*

d. **Accomplishment:** [[x ACT] CAUSE [BECOME [y <STATE>]]]

paint a picture, make a chair, draw a circle, build a house

1. Introduction (3/4)

- The Korean manner of motion verbs:

(3) *ku-ka twi-ess-ta / kel-ess-ta / talli-ess-ta / tol-ass-ta*
he-Nom jump-Pst-Dec / walk-Pst-Dec / run-Pst-Dec / spin-Pst-Dec
/ *swuyenghay-ss-ta / chwumchwu-ess-ta.*
/ swim-Pst-Dec / dance-Pst-Dec
'He jumped / walked / ran / spun / swam / danced.'

- In the literature the Korean verbs like (3) are called **activity verbs** and so it is just assumed that they also have the simplex event structure (i.e. [X *ACT*<*manner*>])

1. Introduction (4/4)

- I propose the hypothesis (Lee 2016):
Some “activity” predicates in Korean are actually a kind of accomplishment having a complex causative event structure whose caused subevent is an action.
- Several pieces of evidence (Lee 2016):
 - (i) zero-result readings of Korean “activity” verbs
 - (ii) ambiguity with *maney*-adverbial (*in*-adverbial)
 - (iii) ambiguity with *keyu* ‘almost’
 - (iv) non-ambiguity with *tasi* ‘again’

2. Zero-result: contradictions in English (1/9)

- The inherent result of an accomplishment predicate cannot be denied:
 - (4) a. Lily **broke** the window, #but it was not broken.
b. Lily **opened** the window, #but it was not opened.
 - The action of an activity predicate cannot be denied:
 - (5) a. Lily **walked**, #but she could not walk.
b. Lily **jumped**, #but she could not jump.
c. Lily **ran**, #but she could not run.
d. Lily **danced**, #but she could not dance.

2. Zero-result: lexical accomplishments (2/9)

- The zero-result reading of a lexical accomplishment predicate in Korean (Lee 2012, 2014, 2015, 2016, Beavers & Lee under review):

(6) *ku-ka mwmun-ul kkay-ss-ciman,*

he-Nom door-Acc **break**-Pst-but

cokumto kkay-ci-ci anh-ass-ta.

at.all break-Pass-Comp **Neg**-Pst-Dec

(lit.) ‘He broke the door, but it was not broken at all.’

= (roughly) ‘He tried to break the door, but it was not broken at all.’

2. Zero-result: derived accomplishments (3/9)

- Zero-result reading is also available for derived accomplishment in Korean (e.g. resultative or causative constructions):

(7) *ku-ka os-ul kkaykkusha-key mwuncille- / hay-ss-ciman,*
he-Nom clothes-Acc clean-Key rub- / do-Pst-but
cokumto kkaykkusha-ci anh-ass-ta.
at.all clean-Comp Neg-Pst-Dec
(lit.) ‘He rubbed/made the clothes clean, but it was not clean at all.’

2. Zero-result: achievements (4/9)

- Non-culmination is not allowed for achievements:

(8) *ku-ka samwusil-ey tochakhay-ss-ciman,*
ku-Nom office-at arrive-Pst-but
#tochakha-l swu eps-ess-ta.
arrive-Rel way **not.exist**-Pst-Dec
(lit.) ‘He arrived at the office, but he could not arrive at the office.’

(9) *ku-ka Jane-ul alapo-ass-ciman,*
he-Nom Jane-at recognize-Pst-but
#alapo-l swu eps-ess-ta.
recognize-Rel way **not.exist**-Pst-Dec
(lit.) ‘He recognized Jane, but he could not recognize Jane.’

2. Zero-result: states (5/9)

- States do not allow zero-result interpretation:

(10) *kapang-i mwuke-wess-ciman,*

bag-Nom heavy-Pst-but

#mwukep-ci anh-ass-ta.

heavy-Comp Neg-Pst-Dec

(lit.) ‘The bag was heavy, but it was not heavy.’

- Summarizing, the generalization observed so far is that zero-result is available for **accomplishment** (whether it be lexical or derived) but **not state or achievement** in Korean.

2. Zero-result: manner of motion verbs (6/9)

- The Korean manner of motion verb *twi-* ‘jump’ seems to permit zero-result reading:

(11) [Context: Jane's legs were stuck in the mud.]

Jane-i onhimultahayse twi-ess-ciman,

Jane-Nom with.all.the.strength jump-Pst-but

cokumto twi-l swu eps-ess-ta.

at.all jump-Rel way **not.exist-Pst-Dec**

(lit.) ‘Jane jumped with all the strength, but she could not jump at all.’ = (roughly) ‘Jane tried to jump with all the strength, but she could not jump at all.’

2. Zero-result: manner of motion verbs (7/9)

- Zero-result reading of *ket-* ‘walk’:

(12) [Context: Jane's legs were stuck in the mud.]

Jane-i onhimultahayse kel-ess-ciman,

Jane-Nom with.all.the.strength walk-Pst-but

cokumto kel-ul swu eps-ess-ta.

at.all walk-Rel way not.exist-Pst-Dec

(lit.) ‘Jane walked with all the strength, but she could not walk at all.’ = (roughly) ‘Jane tried to walk with all the strength, but she could not walk at all.’

2. Zero-result: manner of motion verbs (8/9)

- However, it seems that not every the activity predicate allows zero-result reading:

(13) a. [Context: Jane's legs were stuck in the mud.]

Jane-i onhimultahayse talli-ess-ciman,

Jane-Nom with.all.the.strength **run**-Pst-but

??*cokumto talli-l swu eps-ess-ta.*

at.all run-Rel way **not.exist**-Pst-Dec

(lit.) ‘Jane ran with all the strength, but she could not run at all.’

2. Zero-result: manner of motion verbs (9/9)

(13) b. [Context: Jane was tightly bound.]

Jane-i onhimultahayse chwumchwu-ess-ciman,

Jane-Nom with.all.the.strength dance-Pst-but

??*cokumto chwumchwul-l swu eps-ess-ta.*

at.all dance-Rel way **not.exist**-Pst-Dec

(lit.) ‘Jane danced with all the strength, but she could not dance at all.’

- In short, at least some Korean “activity” predicates allow zero-result readings.

3. Trying vs. Zero-result (1/3)

(14) [Context: Mary was breaking the door to go out and walk but she failed to break it and so she could not walk.]

- a. *Mary-ka kel-ulye-ko nolyekhay-ss-ciman,*
Mary-Nom walk-to-Comp try-Pst-but
kel-ul swu eps-ess-ta.
walk-Rel way not.exist-Pst-Dec
(lit.) ‘Mary tried to walk, but she could not walk.’

- b. #*Mary-ka kel-ess-ciman,*
Mary-Nom walk-Pst-but
kel-ul swu eps-ess-ta.
walk-Rel way not.exist-Pst-Dec
(lit.) ‘Mary walked, but she could not walk.’

3. Trying vs. Zero-result (2/3)

(15) [Context: Mary tried to move her leg to walk.]

a. *Mary-ka kel-ul-ye-ko nol-yekh-ay-ss-ciman,*

Mary-Nom walk-to-Comp try-Pst-but

kel-ul swu eps-ess-ta.

walk-Rel way not.exist-Pst-Dec

(lit.) ‘Mary tried to walk, but she could not walk.’

b. *Mary-ka kel-ess-ciman,*

Mary-Nom walk-Pst-but

kel-ul swu eps-ess-ta.

walk-Rel way not.exist-Pst-Dec

(lit.) ‘Mary walked, but she could not walk.’

3. Trying vs. Zero-result (3/3)

- Zero-result readings require an occurrence of a direct causing event.
- The Korean “‘activity’” predicates allow zero-result readings.
- Thus these predicates should encode a causing event in a causative event structure.

4. In-adverbial (1/3)

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- If *cis-* 'build' is modified by a *money-adverbial* (*in-adverbial*), they have ingressive and completion readings:

(16) *Bill-i han tal money cip-ul ci-ess-ta.*

Bill-Nom one month in house-Acc build-Pst-Dec

'Bill built the house in one month.'

1. Ingressive reading: It took one month for Bill to prepare to build the house.

2. Completion reading: It took one month for Bill to complete building the house.

4. In-adverbial (2/3)

- The Korean manner of motion verbs are parallel to the accomplishment predicates:

(17) *Jack-i i cho maney twi-ess-ta.*

Jack-Nom two second in jump-Pst-Dec

(lit.) ‘Jack jumped in two seconds.’

1. Ingressive reading: It took two seconds for Jack to prepare to jump (e.g. Jack stood on the ground just before he started jumping).

2. Completion reading: It took two seconds for Jack to actually jump (e.g. Jack bent and stretched his legs and then took his feet off the ground).

4. In-adverbial (3/3)

- Ambiguity of *ket-* ‘walk’ with *maney-*adverbial:

(18) *Jack-i il pwwn maney kel-ess-ta.*

Jack-Nom one minute in walk-Pst-Dec

(lit.) ‘Jack walked in one minute.’

1. Ingressive reading: It took one minute for Jack to prepare to walk (e.g. Jack tied his shoe laces and then stood on the starting line just before he started walking).

2. Completion reading: It took one minute for Jack to actually walk (e.g. Jack lifted his leg and then put it onto the ground).

5. *Keuy* ‘almost’ (1/3)

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- The Korean accomplishment predicates are also ambiguous with *keuy* ‘almost’:

(19) *Taylor-ka keuy mwun-ul yel-ess-ta.*

Taylor-Nom almost door-Acc open-Pst-Dec

‘Taylor almost opened the door.’

1. Taylor almost started opening the door (e.g. Taylor stood in front of the door to open it, but changed his mind and went away).

2. Taylor started a causing action of opening the door (e.g. Taylor pushed the door), but he almost but not quite finished it.

5. *Keyu* ‘almost’ (2/3)

- The "activity" predicates are also ambiguous with *keyu* ‘almost’.

(20) *Taylor-ka keyu twi-ess-ta.*

Taylor-Nom **almost jump**-Pst-Dec

(lit.) ‘He almost jumped.’

1. Taylor almost started a causing action of jumping (e.g. he stood on the ground to jump, but changed his mind and went away).
2. Taylor started a causing action of jumping (e.g. he bent his legs and stretched them to jump by internal functions of his body), but he almost but not quite finished jumping (e.g. he did not take his feet off the ground).

5. *Keyu* ‘almost’ (3/3)

- *Ket-* ‘walk’ is also ambiguous when modified by *keyu* ‘almost’:

(21) *Taylor-ka keyu kel-ess-ta.*

Taylor-Nom almost walk-Pst-Dec

(lit.) ‘He almost walked.’

1. Taylor almost started walking (e.g. he stood on the starting line to walk, but changed his mind and went away).
2. Taylor started a causing action of walking (e.g. he lifted his leg to walk by internal functions of his body), but he almost but not quite finished walking (e.g. he did not put his leg onto the ground probably because someone bumped against him at that moment).

6. Two types of accomplishments (1/2)

- It is more plausible to view the Korean verbs such as *twi*- 'jump' and *ket*- 'walk' as an accomplishment.
- I refer to this kind of accomplishment as *activity-accomplishment*:

(22) Activity-Accomplishment:

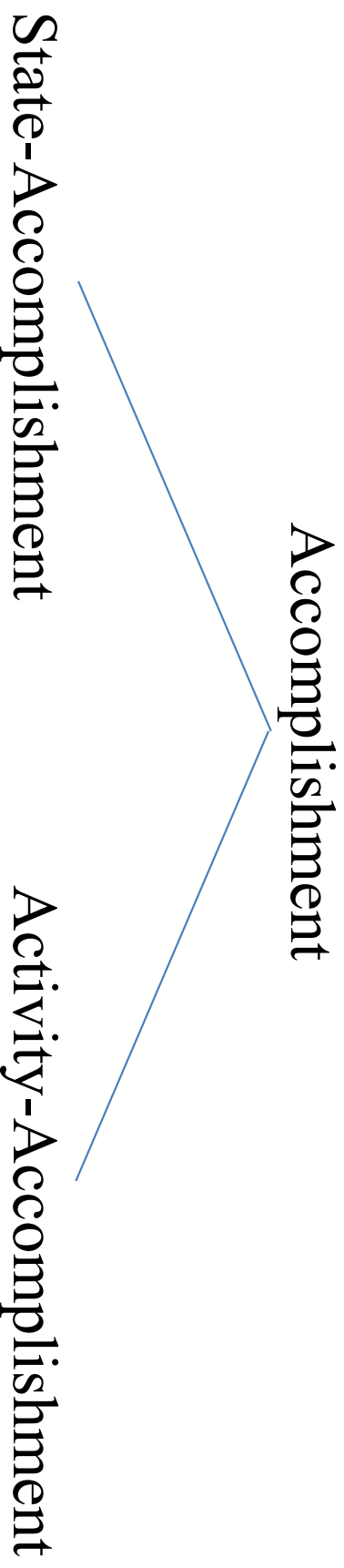
[x ACT] CAUSE [x ACT<*MANNER*>]

- The causing subevent [x ACT] is an unspecified action (though it seems to involve internal functions of our body), and the caused subevent [x ACT<*MANNER*>] specifies a **result action**.

6. Two types of accomplishments (2/2)

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(23) Classification of accomplishment predicates in Korean:



- State-accomplishment includes a result state.
- Activity-accomplishment includes a result action.

7. Activity-accomplishment: derived (1/1)

- Resultative constructions in Korean can be broadly classified into two types: **stative resultative** like (24a) and **eventive resultative** like (24b) (see e.g. Son 2008).

(24) a. *ku-ka os-ul kkaykkusha-key mwuncille-ss-ta.*

he-Nom clothes-Acc clean-Key rub-Pst-Dec
'He rubbed the clothes clean.'

b. *Mary-ka Marcus-lul twi-key mil-ess-ta.*

Mary-Nom Marcus-Acc jump-Key push-Pst-Dec
'Mary pushed Marcus so that he jumped.'

- The existence of **derived activity-accomplishments** such as (24b) further supports the general classification in (23).

8. *Tasi* ‘again’ (1/5)

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- The ambiguity involving *tasi* ‘again’ is used as a general property of accomplishment predicates (see e.g. Stechow 1996).
- However, the manner of motion verbs seem to have only the repetitive readings:

(25) a. *Sam-i tasi twi-ess-ta.*

Sam-Nom **again** jump-Pst-Dec

‘Sam jumped again.’

1. Repetitive reading: Entails that Sam jumped and presupposes that Sam jumped before.

b. *Sam-i tasi kel-ess-ta.*

Sam-Nom **again** walk-Pst-Dec

‘Sam walked again.’

1. Repetitive reading: Entails that Sam walked and presupposes that Sam walked before.

8. *Tasi* 'again' (2/5)

- Then there are two possible approaches to the non-ambiguity with *tasi* 'again':
 - (i) the manner of motion verbs are **not accomplishments** (like English counterparts) or
 - (ii) they are in fact accomplishments, but there is a **confounding factor** preventing them from being ambiguous with *tasi* 'again'.
 - If we assume that the manner of motion verbs are not accomplishment, then we would have much burden to explain why they have crucial properties of typical accomplishments.
 - If we assume that the manner of motion verbs are accomplishment, then the confounding factor should be identified.

8. Tasi 'again' (3/5)

- The causal relation in the activity-accomplishment is assumed to be **reflexive**: the causer is the causee.

[[x ACT] CAUSE [x ACT<*MANNER*>]])

- Intuitively, we can jump or walk only by internal functions of our bodies. In other words, whenever jumping or walking occurs, this is generally done by the very person who jumps or walks unlike opening a window or waking a person, which can be done by different agents.

- Then if *tasi* 'again' takes scope only over the result action, we seem to have **the restitutive reading** that entails Sam jumped (i.e. [[Sam ACT] CAUSE [Sam ACT<*MANNER*>]]) and presupposes that Sam jumped before (i.e. [Sam ACT<*MANNER*>], which should be caused by [Sam ACT]).

8. Tasi ‘again’ (4/5)

- This **restitutive reading** is basically the same as the **repetitive reading** that entails that Sam jumped (i.e. [[Sam ACT] CAUSE [Sam ACT]]) and presupposes that Same jumped (i.e. [[Sam ACT] CAUSE [Sam ACT]]) before.
- In other words, the reflexivity in the lexical activity- accomplishment seems to restrict the restitutive reading in a way that it is applied to the same situation described by the repetitive reading, although at first glance the restitutive reading seems to be unavailable.

8. Tasi ‘again’ (5/5)

- Then if the participants are different in the event of an activity-
accomplishment sentence, we expect that **the restitutive reading**
should be different from **the repetitive reading**.

(26) *Mary-ka tasi Marcus-lul twi-key mil-ess-ta.*

Mary-Nom **again** Marcus-Acc **jump-Key push-Pst-Dec**

‘Mary pushed Marcus so that he jumped again.’

1. Repetitive reading: Entails that Mary pushed Marcus so that
he jumped and presupposes that Mary pushed Marcus so that he
jumped before.

2. Restitutive reading: Entails that Mary pushed Marcus so that
he jumped and presupposes that Marcus jumped before.

9. Manner of speaking verbs (1/1)

- **Manner of speaking verbs** allow zero-result readings (Lee 2016):

(27) [Context: Jane was not completely recovered from injury to her vocal cords.]

Jane-i onhimultahayse soksaki-ess-ciman,

Jane-Nom with.all.the.strength whisper-Pst-but

moksoli-ka nao-ci anh-ass-ta.

voice-Nom come.out-Comp Neg-Pst-Dec

(lit.) ‘Jane whispered with all the strength, but her voice did not come out.’ = (roughly) ‘Jane tried to whisper with all the strength, but her voice did not come out.’

9. Perception verbs (1/1)

- **Korean perception verbs** permit failed attempt readings (Lee 2016):

(28) [Context: There were trees in front of the window.]

ku-ka changpakk-ul po-ass-ciman,

he-Nom window.outside-Acc see-Pst-but

changpakk-i po-i-ci anh-ass-ta.

window.outside-Nom see-Pass-Comp **Neg**-Pst-Dec

(lit.) 'He saw the outside of the window, but it was not seen.' =
(roughly) 'He tried to see the outside of the window, but it was not seen.'

10. Conclusion

- Although all the possible properties of typical accomplishments are not discussed in this paper, the set of the important features here seems to be enough to categorize some "activity" predicates as an accomplishment having a complex causative event structure (**activity-accomplishment**).
- It would be interesting to investigate whether the so-called activity predicates in other languages also allow failed attempt readings and to examine what event structure they actually have.

Selected references

- Beavers, John & Juwon Lee. Under review. Intentionality, Scalar Change, and Non-culmination in Korean Caused Change-of-State Predicates.
- Lee, Juwon. 2012. Change of State Verb and Syntax of Serial Verb Constructions in Korean: An HPSG Account. In *Proceedings of the Poster Session of the West Coast Conference on Formal Linguistics, Coyote Papers: Working Papers in Linguistics* 20, 57-65.
- Lee, Juwon. 2014. Multiple Interpretations and Constraints of Causative Serial Verb Constructions in Korean. In *Proceedings of the 38th Annual Meeting of the Berkeley Linguistics Society*, 288-305.
- Lee, Juwon. 2015. *An Intention-based Account of Accomplishments in Korean*. PhD dissertation, The University of Texas at Austin.

Selected references

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- Lee, Juwon. 2016. Some Activity Predicates as Accomplishments. *Language and Information* 20.2, 117-143.
- Levin, Beth. 1993. *English Verb Classes and Alternations: A Preliminary Investigation*. Chicago, IL: University of Chicago Press.
- Rappaport Hovav, Malka and Beth Levin. 1998. Building Verb Meanings. In Miriam Butt and Wilhelm Gender (eds.), *The Projection of Arguments: Lexical and Compositional Factors*, 97-133. Stanford: CSLI Publications.
- Stechow, A von. 1996. The Different Readings of Wieder 'Again': A Structural Account. *Journal of Semantics* 13: 87-138.
- Zwicky, Arnold M. 1971. In a Manner of Speaking. *Linguistic Inquiry* 2.2: 223-233.

Children's non-adultlike interpretations of telic predicates across languages

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'Non-culminating, Irresultative and Atelic Readings of Telic Predicates. Combining Theoretical and Experimental Perspectives'

Introduction

1 Goal of the study

- In the acquisition literature, researchers have documented a range of misinterpretations of telic sentences by children.¹
- No comprehensive analysis of these children interpretations across languages.
- At the surface, these non-adultlike interpretations seem scattered and defy any unified account.

¹ Many thanks for discussions, inputs and collaborative works on related topics to Ingrid Falk, Zsofia Gyarmathy, Jinhong Liu, Christopher Piñón, Antje Rossdeutscher, Florian Schäfer, Hongyuan Sun and Karoly Varasdi. None of them is responsible for any of our mistakes.

GOAL: provide a unified account for three non-adultlike, seemingly contradictory patterns (see Table 1) found in early language development.

2 Subtypes of non-adultlike interpretation of telic sentences

Three types of non-adultlike interpretations of telic sentences, see Patterns 1-3 in Table 1.

2.1 Pattern 1

Ex: English, truth value judgment task, van Hout et al. (2010; in prep.).

DESIGN: The participant is shown a clown building a bridge; when the music stops, the bridge is incomplete.

(1) When the music was playing, the clown built a bridge.

Adults (88%): *false*

Children (84%): *true*

2.2 *Pattern 2*

Ex: Russian, modified truth value judgment task, Kazanina and Phillips (2007).

DESIGN:

- The participant is shown a video where a monkey starts a journey down a road with three different locations L1-L3. It builds a smurf completely at L1, incompletely at L2, and does nothing at L3.
- The test sentence is submitted to the participant:

(2) Gde obez'yanka sobirala gnomika? (RUSSIAN)
Where monkey assemble-IMP smurf
'Where was the monkey assembling the smurf?'

Adults (100%): L1, L2
Children (61%): L1 only

2.3 *Pattern 3*

Ex: Mandarin Chinese, truth value judgment task, Chen (2005; 2016).

DESIGN: the participant is shown a failed-attempt *P*-action and is then asked to answer the test sentence.

(3) Ayi zhai le pingguo ma? (MANDARIN)
Aunty do.picking.action PFV apple question-particle
'Did aunty do a picking action on the apple?'

Results:² Adults (100%): *yes*
Children (80-100%): *no*

Kazanina et al. (2016): ENG learners have been shown to interpret ditransitive *send*-verbs in perfective sentences as if they entailed a change of state, contrary to the adults (Oehrle (1976), Beavers (2011).)

² The results are particularly surprising given the fact that in a related semantic rating survey on these verbs, Chen found out that adults tend to find the sentence using this verb with a subsequent result denial as rather unacceptable.

2.4 *Summary and questions*

QUESTIONS

- Why are English or Dutch learners too permissive with telic predicates³
- ... while Russian learners are too restrictive with the same predicates?⁴
- Not addressed here: Pattern 3.

³ ...accepting perfective sentences in an incomplete situation more often than adults.

⁴ over-requiring culminating event interpretations for imperfective sentences.

Table 1: Types of non-adultlike interpretations of telic sentences across languages

	Type of misinterpreted sentence	Type of non-adultlike performance	Child languages concerned	Studies
PATTERN 1	Perfective sentences with a telic verb	excessive non-culminating event interpretations	Dutch English German Italian Spanish	van Hout 1998, 2005, 2016, submitted van Hout et al. 2010, in prep. Garcia del Real 2015
PATTERN 2	Imperfective sentences with a telic verb	excessive culminating event interpretations	Russian Polish	Kazanina & Philipps 2007 van Hout 2005, 2008
PATTERN 3	Perfective sentences with verbs implying a result	excessive result-entailed interpretations	Mandarin Chinese English	Chen 2004, 2008, 2016 Kazanina et al. 2016

- Focus on English, Spanish, Italian, Russian and Polish.⁵

Some accounts have appealed to language-independent cognitive principles:

- Gentner's 1978 'MANNER BIAS HYPOTHESIS': *children have a general bias to include manner and ignore the result information in their semantic representation of verbs.*
 - Applied to Pattern 1 in child English by. e.g. Gropen et al. (1991).⁶
 - But...
 - ... Mandarin children do not exhibit excessive non-culminating event interpretations of perfective telic sentences compared to English or Dutch children of the same age;⁷
 - ...Russian and Polish children very early perform like adults in their interpretation of perfective telic sentences.⁸
- Behrend's 1990 'RESULT VERB BIAS HYPOTHESIS': *children have a general tendency to focus on the result information in their representation of verbs.*
- But then, why Pattern 1 in child English/Dutch/Spanish...?

More generally, how could these two opposite conceptual biases can be reconciled? Why one bias wins over the other in a certain language, or for a certain subset of predicates?

3 Proposal in a nutshell: (Un)Markedness hypothesis

CLAIM: the account of children's non-targetlike interpretations of telic sentences should be sensitive to language-specific configurations, specifically, on the way **linguistic forms compete** in each language.

⁵ ...with the hope that the hypothesis can extend to other languages investigated in van Hout et al. 2010, in prep., incl. Dutch, Greek, Estonian, as well as to Mandarin Chinese.

⁶ Wittek (2002) proposes a variant of this bias that she calls the 'WEAK ENDSTATE HYPOTHESIS', according to which children tend to interpret German (telic) change of state verbs like *wecken* 'wake up' as *trying to wake up*, that is, as mainly describing an action performed in view of triggering a change of state. In child languages, the change of state is therefore implied rather than entailed by the verb.

⁷ Chen 2016:9.

⁸ Kazanina and Phillips (2007), Van Hout (2005), van Hout (2008), van Hout et al. (2010; in prep.).

Language	Unmarked form		Marked form
	Default interpretation	Auxiliary interpretation	Invariant interpretation
Adult English Adult Spanish Adult Italian Adult Dutch	Telic VPs in their perfective form		Telic VPs in their imperfective form
	Complete event	Incomplete event	Incomplete event
Adult Russian Adult Polish	Telic VPs in their imperfective form		Telic VPs in their perfective form
	Incomplete event	Complete event	Complete event

Figure 1: locus of children non-adultlike interpretations of telic sentences (in gray)

Our three-fold hypothesis⁹ outlined in (4) and Figure (1):

(UN)MARKEDNESS HYPOTHESIS

- (4) a. In every language, the **locus of children's non-targetlike interpretations** of telic sentences is always an **unmarked form**, with a main/salient/most frequent interpretation *and* a peripheral/auxiliary interpretation;
- b. non-targetlike interpretations of telic sentences result from an **overgeneralization of the auxiliary interpretation** of this unmarked form, which is **contextually more restricted** than the default interpretation of this form;
- c. children's overgeneralization of the auxiliary form reflects their **immature command of the pragmatic reasoning** responsible for the adultlike interpretation of the unmarked form.

- It has been independently shown that children fare better with the semantic than the pragmatic content of linguistic expressions.¹⁰
 ~> That unmarked forms raise more difficulty for children than marked forms is not surprising.
- ~> Children's over-extension of the auxiliary interpretation does not always illustrate the same lack of pragmatic competence. In our account, non-adultlike Patterns 1 and 2 have their source in
 - a 'blindness' to the contextual (incl. lexical) restrictions bear-

⁹ The idea has been previously discussed in van Hout (2008:1754) and van Hout et al. (2010, in prep).

¹⁰ See e.g. Katsos (2014) for an overview, as well as Chierchia et al. (2001), Gualmini et al. (2001), Noveck (2001).

ing on the (auxiliary) imperfective interpretation of the default perfective morphology (English simple past)...

- An overpermissiveness for the (auxiliary) non-maximal reading of definites (*the glasses* >> *some of the glasses*) (English, Spanish, Italian telic VPs).
 - or a difficulty to *accommodate* a discourse referent for the reference time (Russian imperfective).
- \rightsquigarrow Variety of sources, that nevertheless all reflect a 'blindness' to the (often subtle) interactions between the semantic and pragmatic components of unmarked forms.

Pattern 1: Excessive incomplete event interpretations

LANGUAGES CONCERNED (see a.o. Figure 3):

Among the 13 languages investigated in van Hout et al. (2010, in prep.), Pattern 1 is¹¹

- most salient in English, but also found (to a less extent) in Dutch, Italian, Spanish
- virtually absent from Russian, Serbian, Croatian or Polish¹²

TELIC PREDICATES CONCERNED (see Figure 4):

Incomplete event interpretations for perfective telic sentences are much more widespread with (non-particle) incremental theme verbs (*eat/draw an apple, fill the glass*) than with particle verbs and non-incremental theme predicates (*close the door, break the glass, kill the mouse*).¹³

- Child English stands out in the set of languages reviewed in Figures (2), (3) and (4) in that it features incomplete event interpretations *even with non-incremental theme verbs* (although to a much less extent than with incremental theme verbs);
- for incremental theme verbs (and in particular the subset of consumption verbs)¹⁴, even adults show a high number of incomplete event interpretations for perfective telic sentences.
 - Tendency very well established for adult English,¹⁵ although less in studies that overtly contrast IMP with PFV (favouring a one-to-one matching between forms and interpretations)¹⁶
 - Less studies using 'non-contrasting' tasks for other languages.

CLAIMS FOR ADULT ENGLISH:

¹¹ See also van Hout (submitted;s) for a recent overview.

¹² where children very early behave target-like with perfective telic sentences (Kazanina & Phillips 2007 and Vinnitskaya & Wexler 2001 on child Russian, van Hout 2005, 2008 on child Polish, van Hout 2010 et al., in prep. on child Polish, Serbian, Croatian and Russian.

¹³ See van Hout (1998), van Hout et al. (2010, in prep.), van Hout (2016, submitted).

¹⁴

- van Hout (1998): 75% of English-speaking adults interpret perfective sentences with CONSUMPTION verbs and a DEFINITE INCREMENTAL THEME (*He ate his cheese*) as **true** in an **incomplete** event situation.
- O'Bryan (2004): 13/16 English-speaking adults interpret similar sentences (e.g. *The man drank the beer*) as true in the same situation.

¹⁵ Cf. e.g. Arunachalam and Kothari (2011), Jeschull (2007), Ogiela et al. (2014), Wright (2014)...

¹⁶ Cf. van Hout et al. 2010, in prep.

- standard assumption: With non-stative predicates and in non-generic contexts, the English simple past (SP_{EN}) is a standard perfective (requiring completion), and not only maximality as e.g. the Hindi perfective as analysed by e.g. Altshuler (2014).¹⁷
- Incomplete event readings of incremental theme verbs in English stem a.o. from the non-maximal vague interpretation of the determiner in the incremental theme DP.

¹⁷ See the Appendix for arguments.

CLAIM FOR CHILD ENGLISH: excessive incomplete event readings of perfective telic sentences have two different sources:

- With stative predicates or in generic contexts, SP_{EN} has truly imperfective readings. Children fail to grasp these contextual restrictions bearing on the imperfective readings of SP_{EN} .
- children are overpermissive with non-maximal readings of quantized DPs.¹⁸

¹⁸ Caponigro et al. (2012), Tieu et al. (2015)

4 *Unmarked perfective: English*

QUESTION: why child English instantiates Pattern 1 more than child Dutch, Spanish, Italian...? Why do we find this pattern even with non-incremental theme verb in child English only?

4.1 *A key difference between the default PFV morphology in ENG vs. SP/IT/FR*

- SP_{EN} entails completion with (non incremental theme) telic predicates:

(5) Mary walked to school # and she's still walking. (Smith (1991, 64)

- But SP_{EN} is well-known to have imperfective readings with stative predicates (Comrie (1976), Smith (1991)):¹⁹

(6) There was a bar at the corner... and it is still there. (Schaden (2011)

(7) When I visited him, Peter was sick.²⁰

a. OK $\tau(s)$ includes t ;

b. OK t includes $\tau(s)$.

- Also, SP_{EN} can receive imperfective reading with non-stative predicates in generic/habitual sentences, see e.g. Boneh & Doron 2013

¹⁹ 'Non-stative perfectives present events as closed [terminated, completed] (...) stative sentences with the perfective viewpoint (...) are flexible in interpretation. (Smith (1991, 170)

²⁰ It may be that reading b. requires the (overt or covert) presence of a durative adverbial.

(8) Ruti was such a modest person. She went to work by bus.

• On all these points, SP_{EN} is different from the default perfective morphology (PFV_{RO}) in Romance languages,²¹ as noted by e.g.

Schaden (2011) for French:

(9) Hubo un bar en la esquina, # y todavía sigue allí.
There-be-PFV-3SG a bar at the corner and still is there
'There was a bar at the corner, and it is still there.'

²¹ The *pretérito simple* in Spanish, the *passé composé* in French, the *passato prossimo* in Northern Italian...
(SPANISH)

(10) Ruti era una persona tan modesta. #Se fue al trabajo en bus.
Ruti be-IMP-3SG a person so modest she go-PFV-3SG to the work in bus
Intended: 'Ruti was such a modest person. She went to work in bus.'

(11) Cuando fue a su casa Pedro estuvo triste.
When go-PFV-1SG at his place Pedro be-PFV-3SG sad
'When I visited him, Pierre was sad'

(Roughly) same facts in Italian and French:

(12) C'è stato un bar all'angolo, # ed è ancora lì. (ITALIAN)
There-be-PFV-3SG a bar at the corner and is still there
'There was a bar at the corner, and it is still there.'

(13) Il y a eu un bar au coin... #et il y est encore. (Schaden (2011))
There be-PFV-3SG a bar at the corner and it be-PST-3SG still
'There was a bar at the corner, and it is still there.'

(14) Quand je suis passé chez lui, Pierre a été malade.
When I go-PFV-3SG at his place Pierre be-PFV-3SG sick
'When I visited him, Pierre was sick'

a. # $\tau(s)$ includes t ;

b. t includes $\tau(s)$.

(15) Ruti était une personne si modeste. #Elle est allée travailler en bus.
Ruti be-IMP-3SG a person so modest she go-PFV-SG work in bus
'Ruti was such a modest person. She went to work in bus.'

4.2 Semantics of SP_{EN} vs. PFV_{ROM}

See Appendix for the details.

	ENG simple past	SP simple past
Has perfective reading?	Yes	Yes
Has imperfective reading?	Yes	No
	↓	↓
	Unmarked form	Marked form

Table 2: Marked vs. unmarked default perfective morphology in English vs. Spanish

4.3 Back to child English

HYPOTHESIS:

- English learners are aware that SP_{EN} has both perfective and imperfective interpretations;
- however, they are unable to grasp the contextual restrictions bearing on its imperfective reading;²²
- \rightsquigarrow they over-extend this reading to contexts where $PAST_{EN}$ is a perfective, like in dynamic non-generic sentences.
- This accounts for why Pattern 1 is exhibited in child English even for non incremental theme verbs.
- (Spanish (and to a lesser extent Italian, see below) learners enjoy an easy one-to-one setting from perfective morphology to meaning.)

²² That is, that it appears only with stative predicates and/or in generic sentences.

5 Non-maximal reading of (in-)definites

This, however, does not explain yet why non-targetlike incomplete event interpretations show up more often with incremental theme verbs than with non incremental theme verbs (in both adult and child languages.)

5.1 Definition

A subtype of quantized DPs — definites — is well-known to give rise to so-called *non-maximal readings*.

- This reading has mostly been studied for **plural** definites²³. Under this reading, not all entities within the salient set of Ns satisfy the predicate.²⁴

(16) The townspeople are asleep.

(17) The glasses are dirty.

- Non-maximal readings have also been observed for **singular** definites.²⁵

(18) The book is intelligently written.

(19) The sky darkened in an hour, but it wasn't completely dark.²⁶

(20) Peter ate a/the pizza.

- Piñón (2006), Piñón 2005; 2009: not only *the*, but also *a* can be used in a '**vague**' way. He treats them as applying to a nominal predicate *P* and a verbal predicate *R*, *with allowance for a degree argument*. E.g.:

²³ Brisson (1998), Lasersohn (1999), a.o.

²⁴ For instance, Lasersohn (1999) observes that (16) seems true even if not all townspeople are asleep. Also, Yoon (1996) notes that (17) is judged true in a situation such that only 3 out of 6 glasses are dirty (while the judgment is different with *clean*). Krifka (1996) emphasizes the role of the context in the licensing of the non-maximal reading. Malamud (2012) shows how much its availability depends on the goals of the speaker and the hearer.

²⁵ Križ (2015, 23) (about (18)): 'one can surely say that a book is intelligently written even if some passages contain a blunder when those don't detract from the point that it's worth reading.'

²⁶ Kennedy and Levin (2008): ['the sky' in (19) is] 'interpreted imprecisely, allowing for the possibility that the verbs do not apply to subparts of the objects that the descriptions are used to refer to. In other words, what is denied in the second conjunct of (19) is that all parts of the sky are dark [...].'

(21) $a \rightsquigarrow \lambda P \lambda R \lambda d \lambda e [\exists y [R(e, d, y) \wedge P(y)]]$.

• Some subtype of quantized DPs **do not allow** for non-maximal/vague interpretations:

- ‘very precise’ cardinal quantifiers (*three and a half apples*, *465 apples*)
- universal determiners (*all the apples*²⁷)
- DPs with *whole* (*a/the whole apple*)²⁸

• Some subtype of quantized DPs **disprefer** (but arguably do not completely block) non-maximal/vague interpretations:

- cardinal quantifiers with a ‘coarser’ interpretation (cp. *twenty students* and *twenty seven students*)²⁹

5.2 How non-maximal/vague readings of DPs affect the interpretation of incremental VPs

FACT. In languages with (in)definite determiners licensing non-maximal/vague readings, the complete event interpretation of incremental verbs under their perfective form depends on the maximal/vague reading of their incremental theme.

PROPOSAL: Some **incomplete event** interpretations of perfective incremental accomplishments originate from the **non-maximal/vague reading of their incremental theme**.

- Despite this connection, few studies relate partitive interpretations of perfective telic predicates and the non-maximal reading of quantized NPs.
- A counter-example is Piñón (2006; 2009), who proposes that partitive (incomplete event) interpretations of incremental accomplishment verbs partly depend on the fact that their incremental theme is regularly interpreted *in a vague way*.

5.3 Predictions for in adult English

- The proposed hypothesis predicts that incomplete event interpretations...
 - ...are **much less frequent**—and in fact quasi-non-existent— with **non-incremental causative verbs** (*blow out the candle*) in English, but also in many other Germanic and Romance languages.³⁰

²⁷ Cp. (16) with (Lasersohn 1999):

(i) All the townspeople are asleep.

²⁸ Piñón (2006) analyses *whole* as introducing a condition that the individual described participates in the measuring-out relation above fully, i.e. to degree 1. Therefore, if combined with *eat*, *whole* restricts the value of *d* to be 1, whereas if *whole* is absent, no such restriction is imposed.

²⁹ Cf. Krifka 2002, 2007, who assumes the following pragmatic tendency for measurement terms: VAGUENESS: ‘measurement terms are preferably interpreted in a vague way’

³⁰ E.g. in a ‘failed-attempt’ situation, adults reject the perfective form of *open*, *close*, *blow out* in virtually all languages tested in van Hout et al. (2010; in prep.).

- ...should be more frequent with *the* than with *two*, and even less there with *two and a half* than with *two*.
- see Ogiela (2007), Ogiela et al. (2014): perfective sentences with *eat/drink* and a CARDINAL NUMBER (*He ate two cookies*) are judged **less often true** in an **incomplete** event situation than with a DEFINITE (*He ate the cookies*).
- ...are more frequent with *eat* than with *build*:
- See Ogiela et al. *ibid*: perfective sentences with *build/fix* and a DEFINITE (*He built the houses*) are judged **less often true** in an **incomplete** event situation than the same sentences with *eat/drink* (*He ate the cookies*).

The choice between maximal or non-maximal readings is heavily driven by contextual parameters, relating a.o. to the **speaker's and hearer's goals**³¹:

- * whether the agent ate his sandwich completely or not is generally not highly relevant for the speaker and hearer's goals;
- * whether a house has been completely built or not is generally highly relevant (as it can often be inhabited in the first case only).

...hence the weak tendency to endorse an incomplete event interpretation more often with *eat the apple* than with *build the house*.

5.4 Facts accounted for in child English

- REMINDER: English children have *excessive (non-adultlike) incomplete event interpretations* of telic sentences, especially with incremental verbs.³²
- OUR PROPOSAL: this is partly due to the independently well-documented children's *overpermissive with non-maximal readings* for certain types of quantized NPs.³³
- Example from Caponigro et al. (2012): Act-Out task to assess plural definition description with 4 to 7 year-old children vs adults:

(22) Give me the things in the bucket

Results:

- 4- and 5-year olds do not initially interpret plural definites maximally;³⁴
- they begin to do so by 6 to 7 years of age, at which point their responses are similar to those of adults.

³¹ See Krifka (1996), Malamud (2012).

³² Cf. van Hout et al. (2010; in prep.), van Hout (submitted).

³³ Caponigro et al. (2012) on child English, Karmiloff-Smith (1981) and Tieu et al. (2015) on child French (on plural definites).

³⁴ That is, many of them (70/80%) give only a subset of all the objects in the bucket when asked to perform the task above.

- We speculate (!) that children might show the same over-tolerance for non-maximal readings with *singular* definite (*the sky*) and indefinite (*a cookie*).
- \rightsquigarrow This would explain that in child English, excessive *incomplete event interpretations* are more often found with incremental verbs, included with a singular definite and indefinite incremental theme DP (since the complete event interpretation a.o. depends on the *maximal reading of the quantized incremental theme DP*).

6 Marked perfective morphology: Spanish, Russian

QUESTIONS:

1. Why other child languages exhibiting Pattern 1 do so for *incremental theme verbs* only?
 - Focus on child Italian and Spanish
2. Why is Pattern 1 not instantiated in child Russian and child Polish with any subtype of verbs?
3. Why does Pattern 1 seem more salient in child Italian than in child Spanish?³⁵

6.1 Languages with a marked perfective, but with non-maximal readings for the incremental theme DP: Spanish

The default perfective morphology in Spanish (PFV_{SP}) — the *preterito simple* — does not have imperfective readings (see above) or Hindi-like perfective readings (see Appendix).³⁶

\rightsquigarrow Pattern 1 occurs in child Spanish *only* with verbs whose incomplete event readings can be exclusively rooted in the non-maximal interpretations of quantized DPs among children, that we assume to be similar across child English, Italian and Spanish.

6.2 Languages with a marked perfective, and without non-maximal readings for the incremental theme: Russian, Polish

REMINDER: Pattern 1 is not instantiated in child and adult Russian or Polish with any subtype of verbs.³⁷

MARKED PERFECTIVE

PFV_{RU} is marked and invariably requires completion (see refs. below).

- (23) Ivan s'el buterbrod, # no kusoček ostavil.
 Ivan eat.PFV.PST sandwich, but piece left
 'Ivan ate (all of) the/a sandwich, but left a piece.'

³⁵ This tendency is documented by the preliminary data provided in van Hout et al. (2010; in prep.), but still has to be confirmed yet.

³⁶ Italian and Spanish differ in the type of tense/aspect morphology used by default to express perfective aspect. (North) Italian is similar to standard French in that the present perfect form (*perfetto composto*, *passé composé*) is the unmarked form used to express perfectivity, cf. e.g. (Squartini and Bertinotto (2000)). (Peninsular) Spanish is different. The Spanish simple past (*pretérito simple*) is the unmarked perfective form. The Spanish present perfect (*pretérito compuesto*) is similar to the English present perfect in that it is used to refer to past events with current relevance, and is in principle excluded in several contexts, e.g. in presence of localizing temporal expressions like *yesterday* (see e.g. Schaden (2009)). In practice, however, it has been observed that the *perfecto compuesto* seems to lose its current relevance value, and tends to be also used as an unmarked aorist (Detges (2004)).

³⁷ See e.g. Kazanina and Phillips (2007) for Russian, Van Hout (2005), van Hout (2008) for Polish, van Hout et al. (2010; in prep.) for both.

The same is true of the Polish perfective morphology.³⁸

↪ Similarly to Spanish children, Russian and Polish children enjoy an easy one-to-one setting from perfective morphology to meaning.

NO DETERMINER WITH (NON-)MAXIMAL READINGS

Moreover, Russian, like Polish or Czech, does not have a grammaticalized definite or indefinite article.³⁹

↪ Completion is therefore exclusively encoded by PFV, and not via (in)definiteness; incomplete event readings derived from existential/non-maximal readings of the determiner are therefore excluded for these languages.

↪ We therefore expect Pattern 1 not to be exhibited in child (and adult) Russian, even with incremental verbs.⁴⁰

6.3 When the perfect enters the competition

- Among languages with a marked perfective, some seem to instantiate Pattern 1 with incremental verbs more strongly than others.
- Example: van Hout et al.'s 2010 preliminary results tend to suggest that the incomplete event interpretation of perfective telic sentences is **more frequent in child Italian than in child Spanish**.
- RELEVANT DIFFERENCES between the past aspectual system in IT/FR and EN/SP:

LG	default PFV=perfect?	Has a perfect progressive?
Spanish	No	Yes
English	No	Yes
French	Yes	No
Italian	Yes	No

- the default PFV_{IT/FR} morphology (*passé composé/perfetto composto*) is a perfect.

- The perfect has a default perfective reading, but can also have a (marked) imperfective reading⁴¹:

(24) Ce matin j'ai corrigé les copies. (existential reading)
 this morning I have graded the copies
 'This morning **I've graded** the copies.'

(25) Depuis ce matin j'ai corrigé les copies. (universal r.)
 since this morning I have graded the copies
 'Since this morning **I've been grading** the copies.'

- Under this reading, the perfect of languages like Italian and French can cover the imperfective use occupied by the present perfect progressive in languages like English or Spanish.
- Confirmed by the fact that the default PFV_{FR/IT} is precisely **very often** used to **translate** the **English present perfect progressive**

³⁸ See e.g. Frackowiak (2015) and references therein.
³⁹ See Filip (2004; 2008) a.o.

⁴⁰ Note that this analysis sheds some light on the assumption, endorsed by e.g. Borer (2005), that the definite article in Germanic languages and the perfective aspect in Slavic have the same role of expressing totality. An obvious argument against this view is that while definiteness licenses non-maximal readings in the domain of entities, the Slavic perfective does not license these readings in the domain of events.

Table 3: Some differences in the past aspectual system of Spanish, English, French and Italian

⁴¹ Cf. Schaden (2007) and references therein for French. The imperfective reading of the present perfect is called 'universal' or 'continuative', whereas the perfective one is called 'existential'.

in corpora, see e.g. Figure 5, and (26) (from the Europarl Corpus).

CONTEXTUAL RESTRICTIONS

- Arguably in restricted contexts only (e.g. in presence of *since*-adverbials and/or adverbials like *without interruption*).

- (26) a. Since 2007, the Community and Ukraine **have been negotiating** an Association Agreement. (ENG Europarl)
- b. Desde 2007, la Comunidad y Ucrania **han venido negociando** un Acuerdo de Asociación. (SP transl.)
- c. Dal 2007 la Comunità e l'Ucraina **hanno negoziato** un accordo di associazione. (IT transl.)

LEXICAL RESTRICTIONS

- The universal reading of the PC is probably more common with atelic predicates.
- But it is also be compatible with **incremental theme** telic verbs, see e.g. (27).

- (27) J'ai nettoyé l'appartement depuis ce matin!
I've cleaned the flat since this morning
'I've been cleaning the flat since this morning.'

- However, the PC in its continuative reading is not acceptable with non-incremental theme accomplishments (FR *open the door*) or with (quasi-)achievements:

- (28) (?)J'ai tué un moustique depuis 10 minutes
'Ten minutes ago, I killed a mosquito.'
NOT: #I've been killing a mosquito for 10 minutes'

- (29) (?)On a cassé la porte depuis 10 minutes
'We broke the door ten minutes ago.'
NOT: 'We've been breaking the door since 10 minutes.'

Table 4: Marked vs. unmarked default perfective morphology in English vs. Spanish

	with increm. ACC	with non-increm. ACC/ (quasi)-ACH
perfect _{FR} has PFV reading?	Yes	Yes
perfect _{FR} has IMP reading?	Yes (in cert. C)	No
	↓	↓
	Variant use	Invariant use

HYPOTHESIS:

- Italian and French learners tend to allow more incomplete event interpretation for incremental theme verbs with the default PFV_{IT/FR} morphology, for the latter has imperfect readings **with these verbs**.
- Spanish learners show less of this tendency, for, the default PFV_{SP} does not have perfect uses.
 ~> it is less ambiguous and therefore easier to acquire.

Pattern 2: excessive complete event interpretations

REMINDER: Pattern 2= too many complete event interpretations for imperfective telic sentences.

7 Unmarked imperfective: Russian and Polish

- Child Russian clearly instantiates this pattern, see Kazanina and Phillips (2007); child Polish shows the same tendency too, see Van Hout (2005), van Hout (2008).

HYPOTHESIS: the saliency of Pattern 2 in child Polish/Russian is due to the fact that IMP_{RU/PO} is semantically unmarked and has both imperfective and perfective interpretations (with a preference for the former), see Grønn (2008) on Russian, Frackowiak (2015) on Polish.

7.1 The imperfective in child Russian: Kazanina and Phillips (2007)

- Kazanina and Phillips (2007) used a truth-value judgment task to examine the comprehension of imperfective sentences with incremental creation (Exp. 1) and change-of-state (Exp. 2) predicates by 3-6 years old Russian children.
- EXP. 1/2 : the agent who had an opportunity to carry out the same event three times (e.g. build a smurf) once at each of three locations, and performed it completely at one location, partially at another location and not at all at the remaining location.
- RESULTS OF EXP. 1/2:
 - Unlike adults who chose both the complete and incomplete location in response of the imperfective question, e.g. (2), 61% of the

children failed to associate the imperfective with an incomplete event.⁴²

- (30) Gde obez'yanka sobrala gnomika?
Where monkey assemble-PFV smurf
'Where has the monkey assembled the smurf?'
- (31) [(2)] Gde obez'yanka sobirala gnomika?
Where monkey assemble-IMP smurf
'Where was the monkey assembling the smurf?'

• EXP. 3/4: essentially differed from previous ones in that the test sentence contained an overt temporal modifier clause (a *while*-clause providing an explicit reference time *t* for the main clause; e.g. (32).

- (32) Poka mal'chik polival cvety, devochka vytirala stol.
while boy water-IMP-3SG flowers girl clean-IMP-3SG table
'While the boy was watering the flowers, the girl was cleaning the table.'

- RESULTS: the children then succeeded in accepting the imperfective sentences with incomplete events, even when they had previously failed to do so in Exp. 1 or 2!
- QUESTION: Why does the presence of the *while*-clause dramatically improve children's performance in the interpretation of IMP_{RU} ?

7.2 The imperfective in adult Russian: an unmarked aspectual form

1. Some assumptions about IMP_{RU} (Grønn (2008) a.o.)
 - IMP_{RU} is the unmarked aspectual form in the Russian system;
 - IMP_{RU} receives both imperfective and perfective interpretations.
 $\rightsquigarrow IMP_{RU} = t \subseteq e \vee t \supseteq e$, see e.g. Grønn (2008), Grønn (2014).⁴³
 - Clearly, however, the **incomplete interpretation** is *unmarked* and forms the **Hauptbedeutung** of IMP_{RU} .
2. Grønn (2008) formally captures the (often subtle and complex) way through which IMP_{RU} is in context-sensitive competition with PFV_{RU} in a version of bidirectional optimality theory⁴⁴ enriched with a contextual parameter.
3. Crucial point for us: Grønn expects the incomplete event interpretation of IMP_{RU} to be easier to get for the hearer in presence of an overt element providing a discourse referent for *t*, like a *while*-clause, than in absence of such element.⁴⁵

⁴² Note that the experimenter explicitly invited the subjects to point to all locations making the sentence true (all where-questions were accompanied by a follow-up question asking if the described situation was satisfied anywhere else in order to ensure that the task targeted all potential interpretations of the aspectual operator, rather than just its preferred interpretation).

⁴³ In favour of this analysis of IMP_{RU} as underspecified, note that 100 % of Russian adults tested in Kazanina and Phillips (2007) accepted imperfective sentences with both complete and incomplete events (Exp. 1&2).

⁴⁴ Cf. Blutner 1998, 2000.

⁴⁵ This perfectly fits with Kazanina and Phillips's 2007 observation about child Russian!

4. Why a *while*-clause makes the incomplete event interpretation easier to get?

- In order to rank meanings independently of forms, Grønn adopts a single and general constraint for the hearer: ⁴⁶

(33) “Do not accommodate!”

- If a *while*-clause is present, it provides a discourse referent t for the reference time in the aspectual relation $t \subseteq e$.
 \rightsquigarrow no need to construct one through accommodation to get this interpretation.
- If it is not present, only the overt past tense morpheme of the sentence provides a value for the reference time t .
 This interval $t \approx$ “the whole past preceding the utterance time”.
 - this large interval perfectly fits the need for the complete event interpretation $e \subseteq t$...
 - ...but it is too big for the incomplete event interpretation $t \subseteq e$!
 - * \rightsquigarrow this interpretation requires *accommodation of a time t* referring to ‘some point in the past’.
 - * This interpretation is, therefore, dispreferred (although possible), because it violates the hearer’s constraint “Do not accommodate!”.

⁴⁶ Also known as “*new” or “avoid introduction of new discourse referents”.

PROPOSAL:

Russian children’s inability to associate IMP_{RU} to the incomplete event interpretation *in absence of a while-clause only* stems from their inability to accommodate a discourse referent t needed for this interpretation.

\rightsquigarrow they stick with the big interval provided by the past tense morpheme...

... and get the complete event interpretation only.

ADDITIONAL ARGUMENT: That young children have problems with interpretations requiring accommodation has been proposed before for other types of expressions.⁴⁷

\rightsquigarrow The incorrect disambiguation by Russian children of IMP_{RU} in absence of a temporal locating adjunct may reflect a **more general pragmatic difficulty**, namely a **failure to construct discourse referents not overtly provided by the discourse**, but nevertheless taken for granted in the context of the speaker.

⁴⁷ Example: Krämer (2000) about the interpretation of indefinites by Dutch children, who argued that children have difficulties interpreting indefinites as free variable because this interpretation requires accommodation, and tend to interpret them instead as predicates:

8 Marked imperfective: adult Italian, Spanish, French

8.1 No truly perfective interpretation for the Romance imperfective

- For languages that have an imperfective morphology with a marked, invariant semantics, we expect children to perform better than Russian and Polish children with the imperfective morphology⁴⁸

ASSUMPTION about IMP_{IT/SP/FR}:

$\langle \text{IMP}, e \subseteq t \rangle$ is not generated by the grammar of Spanish, Italian or French.

IMP_{ROM} invariably conveys imperfectivity ' $t \subseteq e$ ' and has no truly perfective readings, contrary to IMP_{RU}

⁴⁸ ...Since by hypothesis, adult-like interpretations are more easily acquired for marked aspectual forms than for unmarked ones.

See also Grøn (2008) on French.

- Paradigmatic cases: $t \subset e$, cf. (34).⁴⁹
- But proper parthood is too strict for the so-called narrative reading of IMP_{ROM}.⁵⁰
- With Grøn (2008), we assume that under this reading, $e = t$, cf. e.g. (35)

⁴⁹ This example is typically interpreted such that Peter's letter-writing event is not finished at the end of the speaker's visit yet (the reference time t provided by the *when*-clause). This sentence is *false* in a situation where Pierre finished writing his letter in his room at 16.30.

⁵⁰ Cf. Jayez (1999) for French, Bonomi for Italian.

(34) Quand je suis passé chez eux de 16 à 20 heures, Pierre écrivait une lettre.
When I am passed at them from 16 to 20 hours Pierre write-IMP-3SG a letter
'When I visited them from 4 to 8 PM, Peter was writing a letter.'

(35) Le lendemain, à midi pile, Pierre trouvait une solution au problème.
The day after at noon sharp Pierre find-IMP-3SG a solution to the problem.
'The day afterwards, at noon sharp, Pierre found a solution to the problem.'

The contrasts below show that the range of interpretations for IMP is larger in Slavic than in Romance: 'strictly perfective' readings ($e \subset t$) are attested in Slavic, but not in Romance.⁵¹

⁵¹ Example (37) is from Frackowiak (2015), and (39) from Grøn (2008).

(36) Ivan segodnja chinil computer! (RUSSIAN)
Ivan yesterday repair-IMP-3SG komputer
'Ivan repaired a computer yesterday.'

(37) Naprawialem kiedyś mój komputer i wiem, jak to się robi. (POLISH)
I repair-IMP-3SG one time my computer and I know how to do this
'I repaired my computer once and I know how to do this.'

(38) #Riparavo il mio computer la settimana scorsa e io so come farlo. (ITALIAN)
I repair-IMP-3SG the mine computer the week past and I know how do-it
'I repaired my computer once and I know how to do this.'

- (39) Ty segodnja obedal v restavranante! (RUSSIAN)
 you today have-dinner-IMP-2SG in a restaurant
 'You had dinner in a restaurant today!'
- (40) #Cenabas en un restavranante hoy! (SPANISH)
 Have-dinner-IMP-2SG in a restaurant today
 'You were having dinner in a restaurant today!'

8.2 Acquisition studies on the interpretation of IMP in child Italian and Spanish

- 'Truly perfective situations' are to our knowledge **not tested for Romance languages**.⁵²
- A potential exception: van Hout (2008), who conducted an experiment on some points similar to those of Kazanina and Phillips on child Italian vs. child Polish.
- Conforming to our expectations, the preference Polish 3-years-old showed for the complete event interpretation of IMP is *not found among Italian children*.

⁵² Virtually all studies on the interpretation of IMP_{ROM} by Italian and Spanish children (and adults) focus on test sentences satisfying the aspectual relation ' $t \subseteq e$ '.

9 Conclusions

Children are great semanticists!

10 References

- Daniel Altshuler. A typology of partitive aspectual operators. *Natural Language & Linguistic Theory*, 32(3):735–775, 2014.
- Daniel Altshuler and Roger Schwarzschild. Moment of Change, Cessation Implicatures and Simultaneous Readings. In Emmanuel Chemla, Vincent Homer, and Grégoire Winterstein, editors, *Proceedings of Sinn und Bedeutung 17*, pages 45–62. 2012.
- Sudha Arunachalam and Anubha Kothari. An experimental study of Hindi and English perfective interpretation. *Journal of South Asian Linguistics*, 4(1):27–42, 2011.
- John Beavers. An aspectual analysis of ditransitive verbs of caused possession in english. *Journal of Semantics*, 28(1):1–54, 2011.
- Douglas A Behrend. The development of verb concepts: Children's use of verbs to label familiar and novel events. *Child Development*, 61(3):681–696, 1990.
- Andrea Bonomi. Semantical remarks on the progressive reading of the imperfective. Manuscript.
- Hagit Borer. *The normal course of events*. Oxford University Press, Oxford, 2005.
- Christine Brisson. *Distributivity, Maximality, and Floating Quantifiers*. PhD thesis, Rutgers University, 1998.
- Ivano Caponigro, Lisa Pearl, Neon Brooks, and David Barner. Acquiring the meaning of free relative clauses and plural definite descriptions. *Journal of Semantics*, 29(2):261–293, 2012.
- Jidong Chen. Interpreting state-change: Learning the meaning of verbs and verb compounds in mandarin. In *Supplement to the Proceedings of the 29th Boston University Conference on Language Development, Boston*, volume 22, 2005. URL <http://128.197.86.186/posters/29/ChenBUCLD2004.pdf>.
- Jidong Chen. When transparency doesn't mean ease: learning the meaning of resultative verb compounds in mandarin chinese. *Journal of child language*, pages 1–24, 2016.
- Gennaro Chierchia, Stephen Crain, Maria Teresa Guasti, Andrea Gualmini, and Luisa Meroni. The acquisition of disjunction: Evidence for a grammatical view of scalar implicatures. In *Proceedings of the 25th Boston University conference on language development*, pages 157–168. Cascadilla Press Somerville, MA, 2001.
- Bernard Comrie. *Aspect: An introduction to the study of verbal aspect and related problems*, volume 2. Cambridge university press, Cambridge, 1976.
- Ulrich Detges. Argument Inheritance as a Metonymic Effect. *metaphorik.de*, 6:6–36, 2004.

- Hana Filip. The telicity parameter revisited. In *Semantics and Linguistic Theory*, volume 14, pages 92–109, Cornell University, New York, 2004.
- Hana Filip. Events and maximalization: The case of telicity and perfectivity. *Theoretical and crosslinguistic approaches to the semantics of aspect*, 110:217–256, 2008.
- Ewelina Frackowiak. *Understanding Situation and Viewpoint Aspect in Polish through Dative Anticausative Constructions and Factual Imperfectives*. PhD thesis, University of Ottawa, 2015.
- Dedre Gentner. On relational meaning: The acquisition of verb meaning. *Child Development*, 49:988–998, 1978.
- Atle Grønn. Imperfectivity and complete events. In *Interdependence of diachronic and synchronic analyses*, pages 149–165. 2008.
- Atle Grønn. On (in)definite tense and aspect in russian. In Gerhild Zybatow, Petr Biskup, Marcel Guhl, Claudia Hurtig, Olav Mueller-Reichau, and Maria Yastrebova, editors, *Slavic Grammar from a Formal Perspective. The 10th Anniversary FDSL Conference, Leipzig 2013*, pages 175–196. Peter Lang, 2014.
- Jess Gropen, Steven Pinker, Michelle Hollander, and Richard Goldberg. Affectedness and direct objects: The role of lexical semantics in the acquisition of verb argument structure. *Cognition*, 41(1):153–195, 1991.
- Andrea Gualmini, Stephen Crain, Luisa Meroni, Gennaro Chierchia, and Maria Teresa Guasti. At the semantics/pragmatics interface in child language. In *Proceedings of Semantics and Linguistic Theory (SALT) 11*, pages 231–247, 2001.
- Jacques Jayez. Imperfectivity as progressivity. In T. Matthews and D. Strolowitch, editors, *Proceedings of Salt 9*, pages 145–162. CLC Publications, Ithaca, 1999.
- Liane Jeschull. Children's comprehension of completive and inceptive particle verbs. In *Proceedings of the 31st Annual Boston University Conference on Language Development*, volume 1, page 321. Cascadilla Press, 2007.
- Annette Karmiloff-Smith. *A functional approach to child language: A study of determiners and reference*, volume 24. Cambridge University Press, 1981.
- Napoleon Katsos. Scalar implicature. In John Benjamins, editor, *Pragmatic Development in First Language Acquisition*. D. Matthews, Amsterdam, 2014.
- Nina Kazanina and Colin Phillips. A developmental perspective on the imperfective paradox. *Cognition*, 105(1):65–102, 2007.
- Nina Kazanina, Sara Baker, and Hayley Seddon. Actuality Bias in Verb Learning: A case of Ditransitive Verbs of Transfer. Manuscript, University of Bristol, 2016.
- Christopher Kennedy and Beth Levin. Measure of change: The adjectival core of verbs of variable telicity. In Louise McNally and Christopher Kennedy, editors, *Adjectives and Adverbs: Syntax, Semantics, and Discourse*, pages 156–182. Oxford University Press, Oxford, 2008.
- Jean-Pierre Koenig and Nuttannart Muansuwan. How to end without ever finishing: Thai semi-perfectivity. *Journal of Semantics*, 17(2):147–182, 2000. DOI: 10.1093/jos/17.2.147.
- Irene Krämer. *Interpreting indefinites: An experimental study of children's language comprehension*. PhD thesis, Radboud University Nijmegen Nijmegen, 2000.
- Manfred Krifka. Pragmatic strengthening in plural predications and donkey sentences. In *Proceedings of Semantics and Linguistics Theory (SALT) 6*, 1996.
- Manuel Križ. Homogeneity, non-maximality and all. *Journal of Semantics*, 33, 2015.
- Peter Lasnik. Pragmatic halos. *Language*, 75(3):522–551, 1999.
- Sophia Malamud. The meaning of plural definites: A decision-theoretic approach. *Semantics & Pragmatics*, 5:1–58, 2012.
- Ira A Noveck. When children are more logical than adults: Experimental investigations of scalar implicature. *Cognition*, 78(2): 165–188, 2001.
- Erin O'Bryan. Event structure in language comprehension. Dissertation Abstracts International Section A: Humanities and Social Sciences, 64, 3666, 2004.
- Richard Oehrle. The Grammatical Status of the English Dative Alternation. PhD Thesis, MIT, 1976.
- Diane Ogiela. *Development of Telicity Interpretation: Sensitivity to Verb-Type and Determiner-Type*. PhD thesis, Michigan State University, 2007. Dissertation Draft.
- Diane Ogiela, Cristina Schmitt, and Michael Casby. Interpretation of verb phrase telicity: Sensitivity to verb type and determiner type. *Journal of Speech, Language, and Hearing Research*, 3(57):865–875, 2014.
- Christopher Piñón. Adverbs of completion with events and degrees. In Angeliek van Hout, Henriëtte de Swart, and Henk Verkuyl, editors, *Proceedings of Perspectives on Aspect*. Kluwer Academic Press, 2005.
- Christopher Piñón. A problem of aspectual composition. MS, 2006.
- Christopher Piñón. Incrementality by degrees. Plenary talk to *Chronos 9*, Paris, 2009.
- Gerhard Schaden. *La Sémantique du parfait. Etude des "temps surcomposés" dans un choix de langues germaniques et romanes*. PhD thesis, Paris 8, 2007.
- Gerhard Schaden. Present perfects compete. *Linguistics and Philosophy*, 32(2):115–141, 2009.
- Gerhard Schaden. An intersective account of localising temporal expressions. 2011.
- Mona Singh. *Perfectivity, definiteness, and specificity: A classification of verbal predicates in Hindi*. PhD thesis, University of Texas at Austin, 1994.
- Carlota Smith. *The Parameter of Aspect*. Kluwer Academic Publishers, Dordrecht, 1991.
- Mario Squartini and Pier Marco Bertinetto. The simple and compound past in romance languages. *Empirical Approaches to Language Typology*, (6):403–440, 2000.

- Sergei Tatevosov and Mihail Ivanov. Event structure of non-culminating accomplishments. In Helen de Hoop Hogeweg, Lotte and Andrej Malchukov, editors, *Cross-linguistic Semantics of Tense, Aspect, and Modality*, pages 83–130. Benjamins, The Hague, 2009.
- Lyn Tieu, Manuel Kriz, and Emmanuel Chemla. Children's acquisition of homogeneity in plural definite descriptions. *MS, ENS Paris*, 2015.
- Angeliek van Hout. On the role of direct objects and particles in learning telicity in Dutch and English. In *Proceedings of the 22nd Boston University Conference on Language Development 2*, pages 398–408. 1998.
- Angeliek Van Hout. Imperfect imperatives. In *Aspectual inquiries*, pages 317–343. Springer, Dordrecht, 2005.
- Angeliek van Hout. Acquiring perfectivity and telicity in dutch, italian and polish. *Lingua*, 118(11):1740–1765, 2008.
- Angeliek van Hout. On the acquisition of event culmination. In Sudha Arunachalam and Kristen Syrett, editors, *Semantics in Language Acquisition*, Trends in Language Acquisition Research series. John Benjamins, Amsterdam, submitted.
- Angeliek van Hout. On the acquisition of event culmination. In *Semantics in Language Acquisition*, Trends in Language Acquisition Research series. John Benjamins, Amsterdam, submitted.
- Angeliek van Hout, Natalia Gagarina, and Wolfgang Dressler. Learning to understand aspect across languages. Talk given to *BUCLD 2010*, 2010.
- Angeliek van Hout, Natalia Gagarina, Wolfgang Dressler, Ruggero Montalto, Katja Abrosova, Darinka Andjelković, Reili Argus, Fabrizio Arosio, Judith van Dijk, Marie-Jos?? Ezeizabarrena, Isabel Garcia del Real, Kleanthes Grohmann, Bart Hollebrandse, Gordana Hržica, Kristine Jensen-Lopez, Napoleon Katsos, Dorota Kiebzak-Mandera, Margreet van Koert, Katerina Konstantzou, Melita Kovačević, Jelena Kuvač, Lone Olsen, Masa Popić, Yolanda Rodriguez, Maja Savić, Vincenzo Tabacco, Eleni Theodorou, Heather van der Lely, and Alma Veenstra. Learning to understand aspect across languages. MS, in prep.
- Tony Allen Wright. *Strict vs. Flexible Accomplishment Predicates*. PhD thesis, University of Texas at Austin, 2014.
- Yae Il Yoon. Total and partial predicates and the weak strong interpretations. *Natural Language Semantics*, 4:217–236, 1996.

Appendix

10.1 Semantics of PFV_{EN} vs. PFV_{ROM}

PFV_{EN} and states. The most natural interpretation of (7) confirms the traditional view that the combination of SP_{EN} and a state may result in an imperfective reading. Consider the analysis of *Pierre was sick* in (7) (ignoring tense):

- [Pierre be- sick] $\Rightarrow \lambda s.sick(s, pierre)$
- IMPFV $\Rightarrow \lambda P\lambda t.\exists s(t \subseteq \tau(s) \wedge P(s))$
- [IMPFV [Pierre be- sick]] \Rightarrow
 $[\lambda P\lambda t.\exists s(t \subseteq \tau(s) \wedge P(s))](\lambda s'.sick(s', pierre)) =$
 $\lambda t.\exists s(t \subseteq \tau(s) \wedge sick(s, pierre))$

Also, this explains the fact that the cessation inference triggered in the first clause of (6) is defeasible.⁵³

PFV_{ROM} and states. How can we account for the contradiction of (13) and the interpretation of (14)? Does it suffice to assume that the PFV_{ROM} is a standard perfective?⁵⁴

$$(41) \llbracket PFV \rrbracket = \lambda P\lambda t\exists e[\tau(e) \subseteq t \wedge P(e)]$$

This would be too weak, for Definition (41) is, in fact, satisfied in (13) or (14): Given that states satisfy the subinterval property, in all

⁵³ Cf. Altshuler and Schwarzschild (2012) on the cessation implicature triggered by stative simple past sentences.

⁵⁴ This is Schaden's 2011 argument: since PFV_{ROM} encodes (41), a continuation stating that the state continues to occur at UT leads to a contradiction.

situations making (13) true, *there is* an eventuality satisfying (41).

Strictly speaking, (41) is, therefore, a perfective sentence.

Instead of (41, we would need something like the following for PFV_{ROM} (the new conjunct has a dotted underline):

- PFV $\Rightarrow \lambda P \lambda t. \exists s (\tau(s) \subseteq t \wedge P(s) \wedge \underbrace{\neg \exists s' (s \subset s' \wedge P(s') \wedge t \subset \tau(s'))}_{\dots\dots\dots})$

For example, the derivation of *Pierre a été malade* would be:

- [Pierre être- malade] $\Rightarrow \lambda s. \text{sick}(s, \text{pierre})$
- [PFV [Pierre être- malade]] \Rightarrow
 $[\lambda P \lambda t. \exists s (\tau(s) \subseteq t \wedge P(s) \wedge \underbrace{\neg \exists s' (s \subset s' \wedge P(s') \wedge t \subset \tau(s'))}_{\dots\dots\dots})](\lambda s''. \text{sick}(s'', \text{pierre}))$
 $=$
 $\lambda t. \exists s (\tau(s) \subseteq t \wedge \text{sick}(s, \text{pierre}) \wedge \underbrace{\neg \exists s' (s \subset s' \wedge \text{sick}(s', \text{pierre}) \wedge t \subset \tau(s'))}_{\dots\dots\dots})$

This analysis rules out the existence of a larger state s' of the same type P that properly includes the reference time t .

We can make a definition for the new conjunct:⁵⁵

- $\text{Maximal}(s, t, P) =_{\text{def}} \neg \exists s' (s \subset s' \wedge P(s') \wedge t \subset \tau(s'))$

⁵⁵ This is close in spirit from the maximality operator used by Koenig and Muansuwan (2000), Filip (2008), Altshuler (2014), etc.

Given this definition, we can revise the derivation above as follows:

- PFV $\Rightarrow \lambda P \lambda t. \exists s (\tau(s) \subseteq t \wedge P(s) \wedge \underbrace{\text{Maximal}(s, t, P)}_{\dots\dots\dots})$
- [PFV [Pierre être- malade]] \Rightarrow
 $[\lambda P \lambda t. \exists s (\tau(s) \subseteq t \wedge P(s) \wedge \underbrace{\text{Maximal}(s, t, P)}_{\dots\dots\dots})](\lambda s'. \text{sick}(s', \text{pierre})) =$
 $\lambda t. \exists s (\tau(s) \subseteq t \wedge \text{sick}(s, \text{pierre}) \wedge \underbrace{\text{Maximal}(s, t, \lambda s'. \text{sick}(s', \text{pierre}))}_{\dots\dots\dots})$

10.2 The English perfective is not Hindi like

Argument 1. The semantics Altshuler (2014) attributes to PFV_{HI} only requires that there be a proper initial part of a VP-event in w_0 , without specifying how large this initial part should have.

This seems correct: Hindi perfective sentences can describe incomplete events in which only a small part of the whole event has been realised.⁵⁶

⁵⁶ For instance, (42) or (43) are judged true even if John only reaped 10% of the crop, or erased 10% of the mural, R. Bhatt (p.c.).

- (42) John-ne fasal kaaT-ii. (Hindi)
 John-ERG crop cut-PFV.SG
 ‘John reaped the crop (partly)/entirely.’

- (43) John-ne drawing miTaa-yii. (Hindi)
 John-ERG drawing erase-PFV-SG
 ‘John erased the drawing.’

English is arguably different.⁵⁷

↪ This difference is expected if the non-culminating interpretation in English stems from the **non-maximal reading of the DP**, because the later often only permits *slight* deviation from strict maximality (see, e.g., Križ 2015).

Argument 2: Even when a definite DP is interpreted non-maximally, it is quite odd to mention the **exceptions** explicitly (see, e.g., Križ's 2015 example (44)).⁵⁸

(44) Although the professors are smiling, #one of them is not.

(45) Although the wall is painted red, #some of it is blue.

The same is true of singular definites in perfective sentences:

(46) We ate the cake yesterday. #We will eat the remaining part tomorrow.

(47) John cleaned the kitchen yesterday. #I will clean the rest of it this afternoon.

If PFV_{EN} were a partitive operator like PROG_{EN} or PFV_{HI}, this would be unexpected, for the latter **allow reference to the remaining part** of the incremental theme, see the Hindi example (??) in Part 1, and the following English PROG ones:

(48) When I entered, she was eating the cake and I took the remaining part.

(49) When I entered, John was cleaning the kitchen. I then cleaned the rest of it to let him rest.

Argument 3. Singh (1994, 38) mentions that for some non-gradual predicates (her Class 1), e.g. *tangnaa* 'hang', the non-culminating event interpretation is possible, but under a *try to* interpretation only (Tatevosov and Ivanov's 2009 failed-attempt reading), see (50).⁵⁹

(50) miiraa ne kamiiz **Taangii** par wo Tangii nahii (Hindi)
Mira ERG shirt hang-PFV but it hang NEG
'Mira tried to hang a shirt but could not.'

- Such failed-attempt readings are not available in English with the perfective form of non-incremental accomplishment verbs (*break*, *blow out*).⁶⁰
- This is unexpected if PFV_{EN} were a partitive operator like the PFV_{HI} or PROG_{EN}.

⁵⁷ We expect English-speaking adults to tend to reject the English counterparts of (42) or (43) with incomplete events that correspond to only 10% of the whole event (except, perhaps, if it sufficed to attain the relevant contextual goal).

Wright (2014) also notes that if John only ate one bit of a sandwich, many respondents would hesitate to judge the sentence John ate a sandwich true.

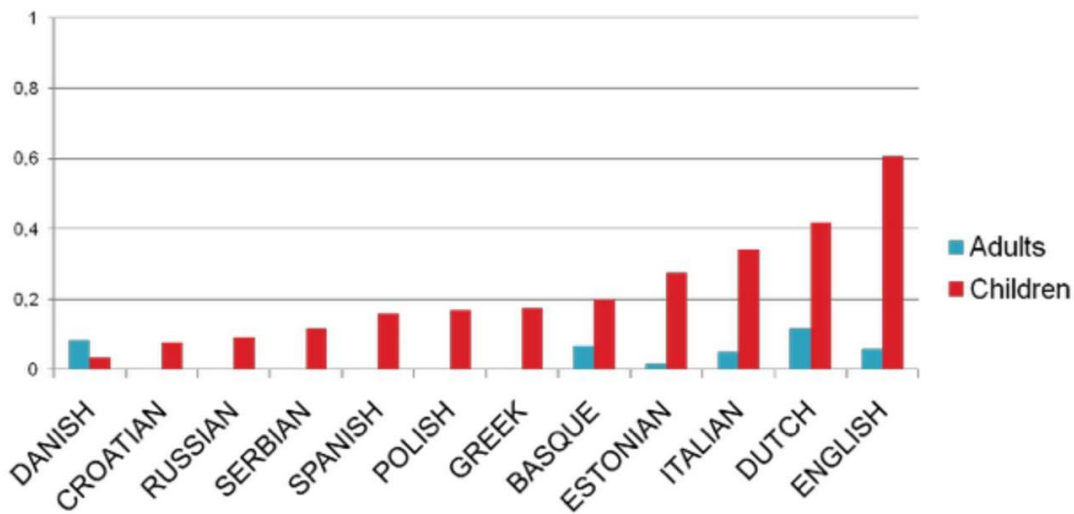
⁵⁸ This shows that non-maximal definite DPs should **not** be analyzed as *partitive* DPs, as Ogiela et al. 2014 suggest.

⁵⁹ Our sketchy account: differently from achievements, these verbs are accomplishments and describe a full causation event, of which the change-of-state component, however, is conceived of as atomic/indivisible. Therefore, the only available proper-part interpretation consists in negating the whole atomic-(like) change of state and focusing on the causal action, which ends up in a failed-attempt reading.

⁶⁰ See again van Hout et al. (2010; in prep.).

- But it can be accounted for once assumed that the non-culminating interpretation depends on the non-maximal reading of NPs, since this reading does not play a role in the complete event interpretation of non-incremental verbs.
- Conclusion: PFV_{EN} requires reference to not simply *maximal* parts like PFV_{HI}, but *complete* parts.

Children vs Adults – Incomplete perfective

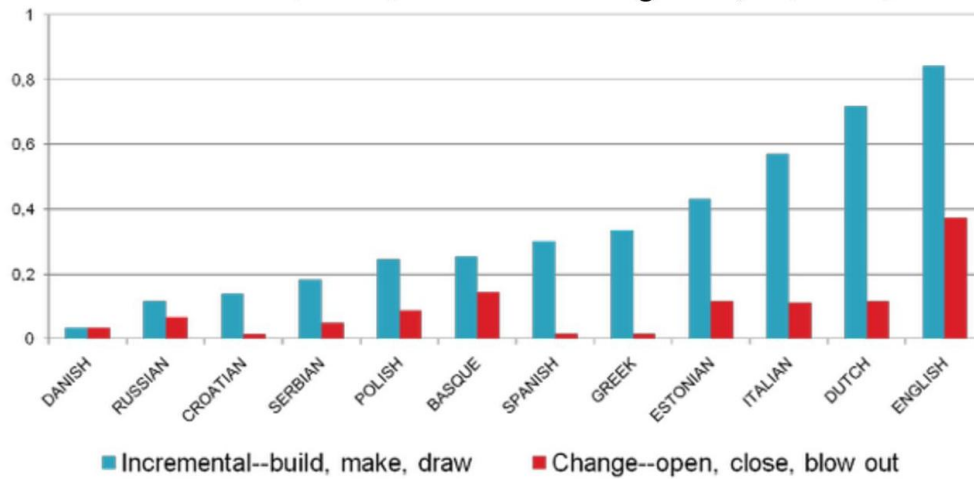


Across lgs: Aspect x Age: $p < .001$, Aspect x Age x Situation $p < .001$

Figure 2: Percentage of incomplete event interpretation for perfective telic sentences across all in child vs. adult languages, from van Hout et al, 2010, in prep.

Children – Incomplete perfective

Incremental -- *build, make, draw* vs Change -- *open, close, blow out*



Across lgs: Language x Aspectual class x Aspect: $p < .001$

Figure 3: Percentage of incomplete event interpretation for perfective telic sentences for incremental theme verbs vs. non incremental theme verbs across child languages, from van Hout et al, 2010, in prep.

LG	non-particle incremental theme verbs		Non-incremental theme verbs		studies
	Children	Adults	Children	Adults	
EN	84%	12%	37%	0%	Van Hout et al., 2010, in prep.
	<i>build, make, draw...the N</i>		<i>open, close, blow out</i>		
	48%	75%			van Hout 1998
	<i>eat his cheese, drink a glass</i>				
		35% <i>eat/drink two N</i> 62% <i>eat/drink the N</i> 0-10% <i>build two/the N</i>			Ogiela et al. 2014
	33%	51%			Jeschull 2007
	<i>eat, drink, fold, wrap the N</i>				
		54% <i>cover the N</i> 64% <i>draw the N</i> 67% <i>eat the N</i> 95% <i>fill the N</i>		13% <i>close the N</i>	Arunachalam and Kothari 2011
DU	71%	23%	11%	0%	van Hout et al. 2010, in prep.
IT	46% (y3) 32% (y4)	0%			van Hout & Hollebrandse 2001, van Hout 2008
	57%	6%	11%	3%	Van Hout et al. 2010, in prep.
SP	30%	0%	1%	1%	Van Hout et al. 2010
	48%	17%			Hodgson 2010
	25-30%	0%	2/3%	0%	Del Real 2015
RU	11%	0%	0%	0%	Van Hout et al. 2010, in prep.

Figure 4: Percentage of incomplete event interpretations for perfective among adults vs. children across verb types and languages

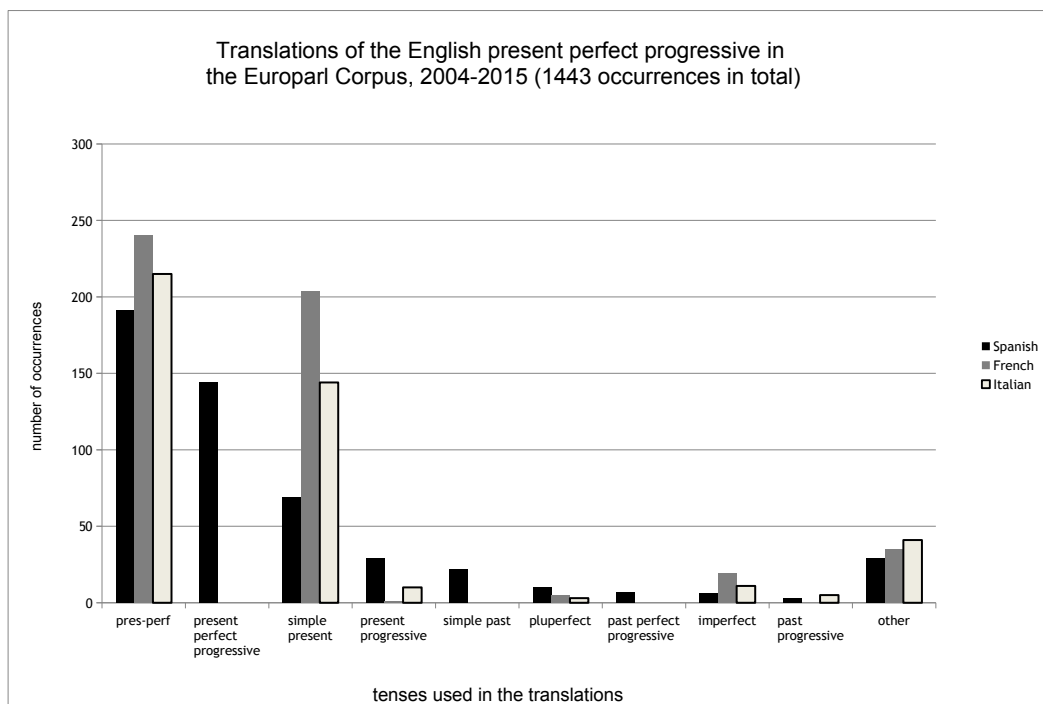


Figure 5: Translations of the English present perfect progressive occurrences in the Europarl Corpus in French, Italian and Spanish (2004-2015), From Martin, in prep.

Ability, causation and culmination in Malagasy

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1.0 Introduction

Puzzle about *maha-* :

- Malagasy is a language with non-culminating accomplishments (1)a.
- Voice prefix *maha-* entails culmination (1)b.

(1) a. Nisambotra alika io zaza io nefa faingana loatra ilay alika
PST-AT-catch dog DEM child DEM but fast too DEF dog
ka tsy azony.
COMP NEG do-3
'This child caught a dog #but it was too fast, so it didn't get caught by him.'

b. Nahasambotra alika io zaza io # nefa faingana loatra ilay alika
PST-AHA-catch dog DEM child DEM but fast too DEF dog
ka tsy azony.
COMP NEG do-3
'This child managed to catch a dog #but it was too fast, so it didn't get caught by him.'

- *maha-* is claimed to be ambiguous, and allow both an ability reading (2)a and a causative reading (2)b (adapted from Phillips 2000). Unintentionality is a third reading (see (14) below).

(2) a. Mahaongotra fantsika amin' ny tanana Rabe. [ability reading]
PRS-AHA-pull.out nail with DET hand Rabe
'Rabe can pull out nails with his hands.'

b. Mahafinaritra an' i Soa Rabe. [causative reading]
PRS-AHA-happy ACC DET Soa Rabe
'Rabe makes Soa happy.'

Central question: if we take non-culminating accomplishments to be the default case in Malagasy, what makes *maha-* sentences entail culmination? How does culmination relate to the different readings of *maha-* sentences?

Main aim: provide a syntax-semantics interface of *maha-* that accounts for the observations concerning culmination in (1) and ambiguity in (2).

Our hypothesis: *maha-* introduces a double prevention relation (Wolff 2007, 2014). Double prevention ensures culmination and accounts for the range of readings labeled enablement, causation and unintentionality in the literature.

- Organization of the paper:
 - Section 2: Background on Malagasy grammar
 - Section 3: Data on non-culminating accomplishments
 - Section 4: Our analysis
 - Section 5: Conclusion

2.0 Background on Malagasy

- Austronesian language spoken in Madagascar, fairly rigid VOS word order
- Rich voice system:
 - Actor Topic – agent as the subject, as in (3)a.
 - Theme Topic – theme subject, as in (3)b.
 - Circumstantial Topic – almost any other non-core argument can be the subject (in (3)c it is an instrument).

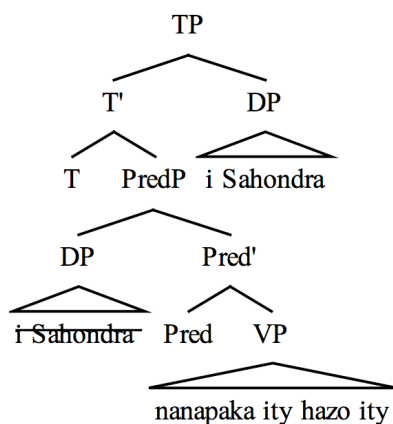
(3) a. Actor Topic (AT) – Subject is agent
 Nanapaka ity hazo ity tamin' ny antsy i Sahondra.
 PST-AT-cut DEM tree DEM PST-with DET knife DET Sahondra
 'Sahondra cut this tree with the knife.'

b. Theme Topic (TT) – Subject is theme
 Notapahin'i Sahondra tamin' ny antsy ity hazo ity.
 PST-TT-cut DET Sahondra PST-with DET knife DEM tree DEM
 'Sahondra cut this tree with the knife.'

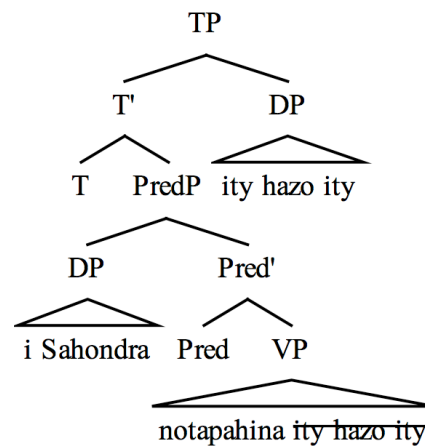
c. Circumstantial Topic (CT) – Subject has some other role
 Nanapahan'i Sahondra ity hazo ity ny antsy.
 PST-CT-cut DET Sahondra DEM tree DEM DET knife
 'Sahondra cut this tree with the knife.'

- Clause structure for (3)a and b:

(4) a.



b.



3.0 Non-culminating accomplishments

- Mandarin (Koenig and Chief 2008), Thai (Koenig and Muansuwan 2000), several Salish languages (Bar-el et al. 2005, Jacobs 2011), Tagalog (Dell 1983).
- English and French with certain verbs (Oehrle 1976, Martin and Schäfer 2012).

(5) a. Ivan taught me Russian, but I did not learn anything.

b. Marie lui enseigna les rudiments du russe en deux semaines, et pourtant il n'apprit rien du tout.

'Marie taught him the basics of Russian in two weeks and yet he didn't learn anything at all.'

3.1 Failed attempt vs. partial success

- Tatevosov (2008): *failed attempt* (zero change of state), *partial success* (partial change of state).

(6) a. Namoha varavarana Rabao saingy tsy voavohany.
PST-AT-open door Rabao however NEG VOA-open-3
'Rabao opened a door but it didn't open.'

i. The door didn't even move.

ii. The door opened partially, but not completely.

b. Nandrava ny tranony Rabao fa tsy voaravany.
PST-AT-destroy DET house-3 Rabao COMP NEG VOA-destroy-3
'Rabao destroyed her house but it didn't get destroyed.'

i. She didn't even manage to remove a single brick.

ii. She removed the roof and a wall, but not everything.

- Verbs with *maha-* do not allow non-culminating readings, whether failed attempt (7)a or partial success (7)b.

(7) a. Naharava ny tranony Rabe #fa tsy voaravany mihitsy.
PST-AHA-destroy DET house-3 Rabe COMP NEG VOA-destroy-3 at.all
'Rabe was able to destroy his house but it didn't get destroyed at all.'

b. Naharava ny tranony Rabe #nefa tsy rava tanteraka.
PST-AHA-destroy DET house-3 Rabe but NEG destroy completely
'Rabe was able to destroy his house but it didn't get completely destroyed.'

3.2 Agent control hypothesis

- Demirdache & Martin (2015): non-culminating reading correlates with agency (8).

- (8) a. Marie lui expliqua le problème en une minute, et pourtant il ne le comprit pas.
 ‘Marie explained him the problem in one minute, and yet he didn’t understand.’
- b. Ce résultat lui expliqua le problème de l’analyse, #pourtant il ne le comprit pas.
 ‘This result explained him the problem of the analysis, #yet he didn’t understand.’

Agent Control Hypothesis (ACH):

- (9) a. S-ACH (strong version)
Zero result and partial result NC construals require the predicate’s external argument to be associated with ‘agenthood’ properties.
- b. W-ACH (weak version)
Zero result NC construals only require the predicate’s external argument to be associated with ‘agenthood’ properties.

- What is agency?
- Romance, Germanic and Mandarin: correlation with animacy.
- Salish: even animate/human subjects can be understood to be non-agentive (“limited-control” and “non control” (Jacobs 2011, Davis et al. 2009)).

- (10) Non-control (Thompson and Thompson 1992):
- events which are natural, spontaneous-happening without the intervention of any agent;
 - events which are unintentional, accidental acts;
 - limited control, which is intentional, premeditated events which are carried out to excess, or are accomplished only with difficulty, or by means of much time, special effort, and/or patience, and perhaps a little luck.

- Malagasy Actor Topic verbs: the non-culminating reading is always available, independent of the animacy of the subject.

- (11) Nandoro ny tranoko ny afo nefa tsy may tanteraka.
 PST-AT-burn DET house-1SG DET fire but NEG burned completely
 ‘The fire burned my house but it isn’t burned completely.’

- With culminating *maha-* animate/human subjects are possible (1)b and (7).
 → “Agenthood” cannot be fully identified with animacy.
- But *maha-* does impose some restrictions (Phillips 1996:45-46).

- (12) a. # Mahatsara ny trano Rabe.
 PRS-AHA-good DET house Rabe

- b. Mahatsara ny trano ny voninkazo.
 PRS-AHA-good DET house DET flowers
 ‘The flowers make the house beautiful.’

- Travis (2010): verbs with *maha-* are incompatible with agent-oriented adverbs.

- (13) a. Nanao fanahy iniana nameno tavoahangy Rakoto.
 PST-AT-do spirit TT-do PST-AT-fill bottle Rakoto
 ‘Rakoto deliberately filled bottles.’
- b. # Nanao fanahy iniana nahafeno tavoahangy Rakoto.
 PST-AT-do spirit TT-do PST-AHA-fill bottle Rakoto
 ‘Rakoto deliberately managed to fill bottles.’

→ The subject of a *maha-* sentence must be non-agentive.

- “Non control”: context makes salient “accidental” vs. “manage” readings.

- (14) a. Nahasotro poizina izy
 PST-AHA-drink poison 3
 ‘He managed to drink poison.’
 ‘He accidentally drank poison.’
- b. Nahatelina moka aho
 PST-AHA-swallow mosquito 1SG
 ‘I swallowed a mosquito.’
- c. Nahapetraka teo ambony tsilo i Soa
 PST-AHA-sit PST-LOC on thorn DET Soa
 ‘Soa sat on a thorn.’

3.3 The role of tense in triggering culmination

- *maha-* in past tense gives rises to an entailment of culmination.
- But present tense *maha-* does not entail a change of state (e.g. at least once in the past).

- (15) Mahafaty osivavy ny ambodia fa izy mbola tsy hamono fotsiny.
 PRS-AHA-dead goat DET wolf COMP 3 still NEG FUT-AT-kill yet
 ‘The wolf can kill a goat but it still hasn’t done so.’

- (16) Mahaleha 200 km/hre ity fiara ity.
 PRS-AHA-go 200 km/hr DEM car DEM
 ‘This car can go 200 km/hr.’

- *maha-* in the future entails culmination (17).

- (17) Hahatitra sakafy ho an' ny reniny i Be
 FUT-AHA-send food ACC DET mother.3 DET Be
 #fa tsy ho raisiny ilay sakafy.
 COMP NEG FUT receive-3 DEF food
 'Be will be able to send food to his mother but she won't receive the food.'

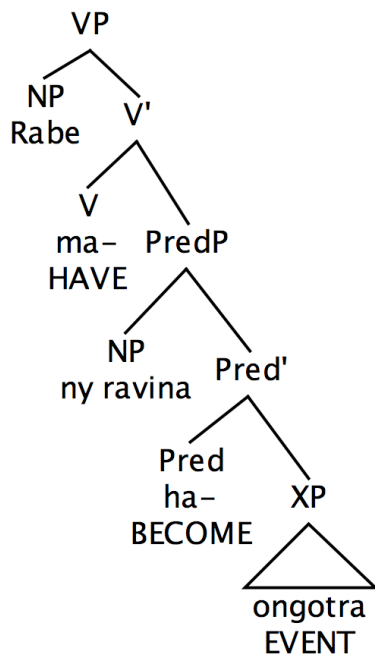
4.0 *Maha-* encodes double prevention

- Syntax: *maha-* is a morphologically complex functional predicate (Section 4.1).
- Semantics: *ma-* and *ha-* compose to encode double prevention in the conceptual framework of causation and enablement developed by Wolff (2007, 2014) and Wolff et al. (2010) (Section 4.2).

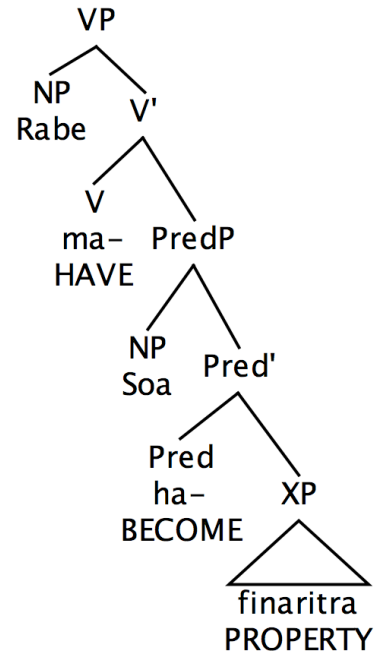
4.1 Syntax of *maha-*

- Phillips (1996, 2000) and Travis (2010): *maha-* is a functional predicate.
- (18) a. Mary had the students walk out on her.
 b. Mary had the students revise their papers twice.
- Phillips (1996:82, 92): the external argument is a stative cause.
 - Apparent ambiguity: eventive roots convey ability or unintentionality, stative roots convey enablement or causation.
- (19) a. Mahaongotra ravina amin' ny tanana Rabe.
 PRS-AHA-pull.out roots with DET hand Rabe
 'Rabe can pull out roots with his hands.
- b. Mahafinaritra an' i Soa Rabe.
 PRS-AHA-happy ACC DET Soa Rabe
 'Rabe makes Soa happy.'

(20) a.

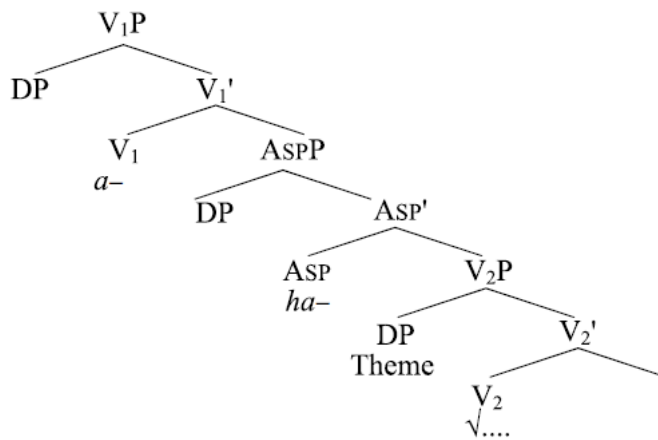


b.



Travis (2010: 224) *maha-* exceptionally assigns a theta role in Spec of AspP.

(21)



- The theta role assigned to the DP in Spec of AspP depends on the root:
 - States don't have argument structure, so stative roots discharge a default causative argument, which leads to the causative reading.
 - Eventive roots have argument structure and discharging the Agent role of eventive roots in Spec of AspP leads to the ability reading.
- We adopt Phillips and Travis and separate *maha-* into *ma-* and *ha-*.
- We follow Travis in having the theme argument of the root introduced low, below *ha-*.
- We follow Phillips in merging the external argument above *ma-*.

4.2 A more fine-grained theory of causation and its relevance for maha-

- Accomplishments imply a cause relation; causation requires agentivity.
- Some explanation required for inanimates in causative constructions:

- (22) a. John/The book had Mary laugh.
 b. The sidewalk was warm from the sun.

- But what about the inverse: causation with non-agentivity?

- (23) a. #Mahatsara ny trano Rabe.
 PRS-AHA-good DET house Rabe
 b. Mahatsara ny trano ny voninkazo.
 PRS-AHA-good DET house DET flowers
 ‘The flowers make the house beautiful.’

- More fine-grained analysis needed: *maha-* does not necessarily imply causation, but can also convey enablement or unintentionality.
- Wolff (2007, 2014) and Wolff et al. (2010): three main configurations, labeled CAUSE, HELP and PREVENT. Defined in terms of two-place relations between an affector (A) and a patient (P).
- CAUSE, HELP and PREVENT differ in the interactions between A and P, and thereby have an impact on the resultant vector R:
 - CAUSE: the patient P does not have a natural tendency towards the endstate E, the affector A opposes this tendency, and the resultant R points towards E.
 - PREVENT: the patient has a natural tendency towards the endstate E, the affector A opposes this tendency, and the resultant points away from E.
 - HELP configuration: the patient has a natural tendency towards the endstate E, the affector A concurs with this tendency, and the resultant is towards E. The HELP configuration also underlies ENABLE/ALLOW.

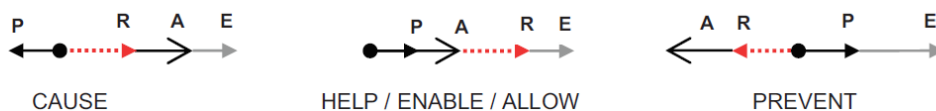


Figure 1. Configurations of forces associated with CAUSE, HELP/ENABLE/ALLOW, and PREVENT; A = the affector force; P = the patient force; R = the resultant force; E = endstate vector, which is a position vector, not a force.

4.3 Zooming in on double prevention

- Wolff et al. (2010): enablement or allow relations are often complex in that they rely on the composition of two prevention relations. A enables C is then modelled as A prevents B, B prevents C.
- Doesn't require events: the state of the plug being in the sink prevents the water from flowing down the drain, and no input of energy is needed.
- Double prevention relations are modeled in Figure 2 (from Wolff et al. 2010). Whether double prevention relations lead to enablement or causation depends on the strength of the patient tendencies in each of the prevention relations.

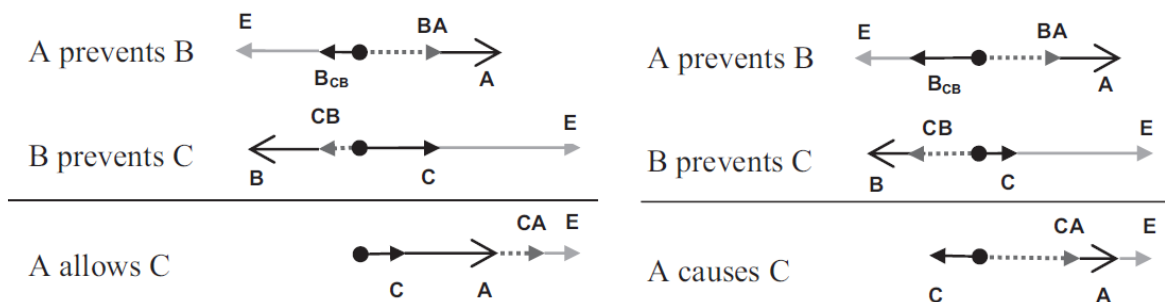


Figure 2: the composition of two prevent relations leads to an ALLOW (or ENABLE) conclusion (left part) or to a CAUSE conclusion (right part)

- Note: English lacks an expression specifically encoding double prevention.
- Our hypothesis: *maha-* encodes double prevention.
- Ambiguity: the 5 readings that have been associated with *maha-* in the literature are attempts to paraphrase the double prevent configuration.

- (24) a. Mahafaty osivavy ny ambodia. [general ability]
 PRS-AHA-dead goat DET wolf
 'The wolf can kill a goat.'
- b. Nahasambotra alika io zaza io. [manage to]
 PST-AHA-catch dog DEM child DEM
 'This child managed to catch a dog.'
- c. Nahapetraka teo ambony tsilo i Soa [unintentionality]
 PST-AHA-sit PST-LOC on thorn DET Soa
 'Soa sat on a thorn.'
- d. Mahatsara ny trano ny voninkazo. [enablement]
 PRS-AHA-good DET house DET flowers
 'The flowers make the house beautiful.'
- e. Mahafinaritra an' i Soa Rabe. [causation]
 PRS-AHA-happy ACC DET Soa Rabe
 'Rabe makes Soa happy.'

- Eventive roots: general ability, manage to and accidental readings.
- Stative roots: enablement and causative readings.

4.4 The syntax-semantics interface of maha- with stative roots

The conceptual structure of (24)d reads as:

- the flowers (A) prevent the absence of decoration (B);
- the absence of decoration (B) prevents the room from looking beautiful (C).

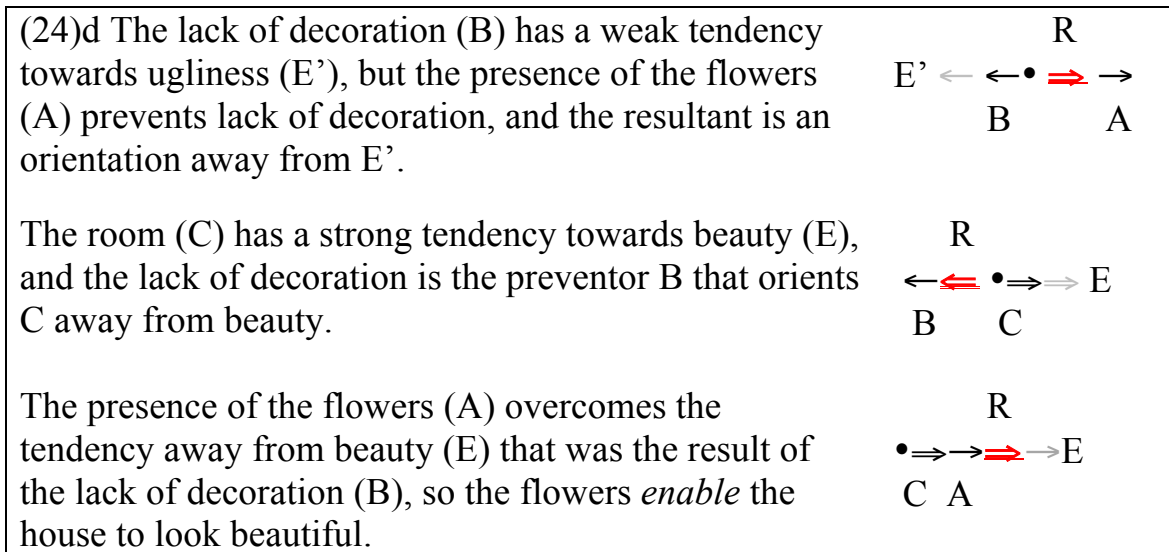


Figure 3: enablement with stative roots

- Conceptual structure of (24)e:
 - Rabe (A) prevents the absence of companionship (B);
 - the absence of companionship (B) prevents Soa from being happy (C).

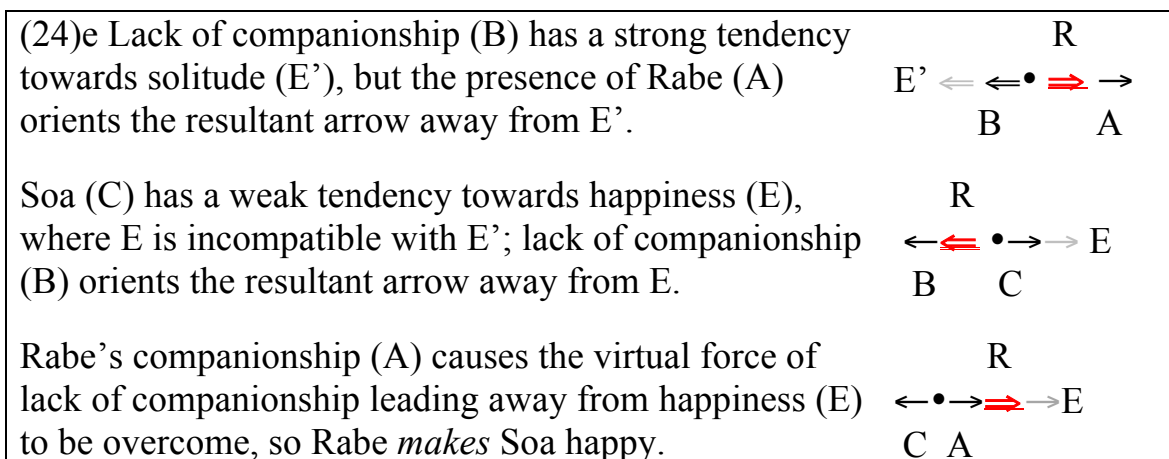
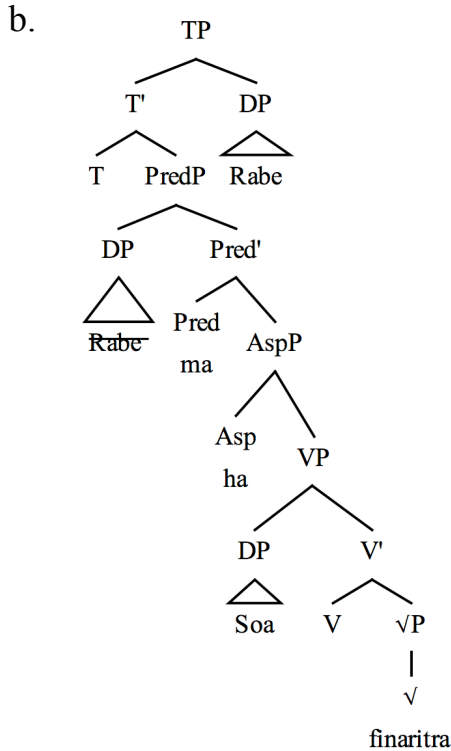


Figure 4: causation with stative roots

- Syntax-semantic interface:

(25) a. Mahafinaritra an' i Soa Rabe.
 PRS-AHA-happy ACC DET Soa Rabe
 'Rabe makes Soa happy.'



- Stative roots denote one-place predicates over states (26)b.
- *finaritra* combines with *Soa* to create a state of happiness with *Soa* as its theme (26)c.
- *Ha* contributes the lower prevent relation in (26)d.
- Application of *ha* to the VP leads to (26)e: some *z* prevents *Soa* from being happy, where *z* is typically construed as a virtual force.
- *ma* contributes the higher prevent relation in (26)f; implies a free choice quantifier (\forall_{FC}) (Dayal 1998).
- Application of *ma-* to the *ha*-predicate in (26)g and combination with the subject results in (26)h.

(26) Mahafinaritra an' i Soa Rabe.
 PRS-AHA-happy ACC DET Soa Rabe
 'Rabe makes Soa happy.'

- $[_{TP} [_{PredP} ma [_{AspP} ha [_{VP} [_{DP} Soa] [_{\check{V}} happy]]]] [_{DP} Rabe]]$
- $[[finaritra]] : \lambda y \lambda s [\mathbf{happy}(s) \ \& \ \mathbf{theme}(y,s)]$
- $[[finaritra \ Soa]] : \lambda s [\mathbf{happy}(s) \ \& \ \mathbf{theme}(Soa,s)]$
- $[[ha-]] : \lambda P \lambda s [P(s) \ \& \ \exists z. \mathbf{prevent}(z,s)]$
 (where *P* is a stative predicate)
- $[[ha-finaritra \ Soa]] : \lambda s [\mathbf{happy}(s) \ \& \ \mathbf{theme}(Soa,s) \ \& \ \exists z. \mathbf{prevent}(z,s)]$
- $[[ma-]] : \lambda P' \lambda x \lambda s [P'(s) \ \& \ \forall_{FCZ}' [\mathbf{prevent}(z',s) \ \rightarrow \ \mathbf{prevent}(x,z')]]$
 (where *P'* is a *ha*-predicate, with *ha-* as defined in d)
- $[[ma-ha-finaritra \ Soa]] : \lambda s [\mathbf{happy}(s) \ \& \ \mathbf{theme}(Soa,s) \ \& \ \exists z. \mathbf{prevent}(z,s) \ \& \ \forall_{FCZ}' [\mathbf{prevent}(z',s) \ \rightarrow \ \mathbf{prevent}(x,z')]]$
- $[[Ma-ha-finaritra \ an' \ i \ Soa \ Rabe]] :$
 $\lambda s [\mathbf{happy}(s) \ \& \ \mathbf{theme}(Soa,s) \ \& \ \exists z. \mathbf{prevent}(z,s) \ \& \ \forall_{FCZ}' [\mathbf{prevent}(z',s) \ \rightarrow \ \mathbf{prevent}(Rabe,z')]]$

(26)h: Rabe prevents whatever virtual force that might prevent *Soa* from being happy in situation *s*.

4.5 Syntax-semantics interface of maha- with eventive roots

- ‘Manage to’ reading:

(27) Nahasamboatra alika io zaza io.
 PST-AHA-catch dog DEM child DEM
 ‘This child managed to catch a dog.’

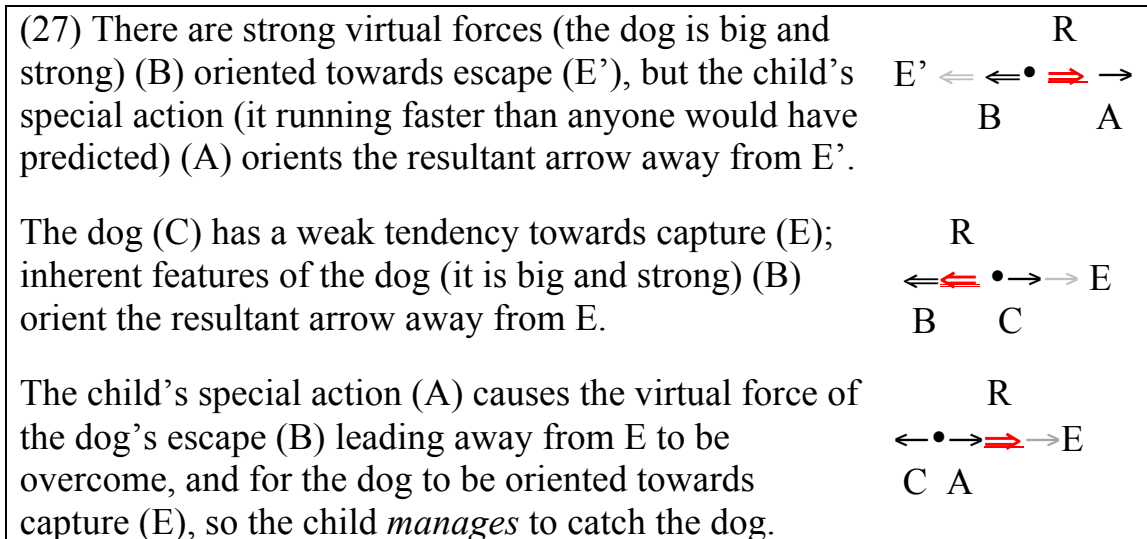


Figure 5: ‘manage to’ reading with eventive roots

- Malagasy lacks a verb ‘to be able to’, and uses *maha-* to report general ability.

(28) Mahafaty osivavy ny ambodia. [general ability]
 PRS-AHA-dead goat DET wolf
 ‘The wolf can kill a goat.’

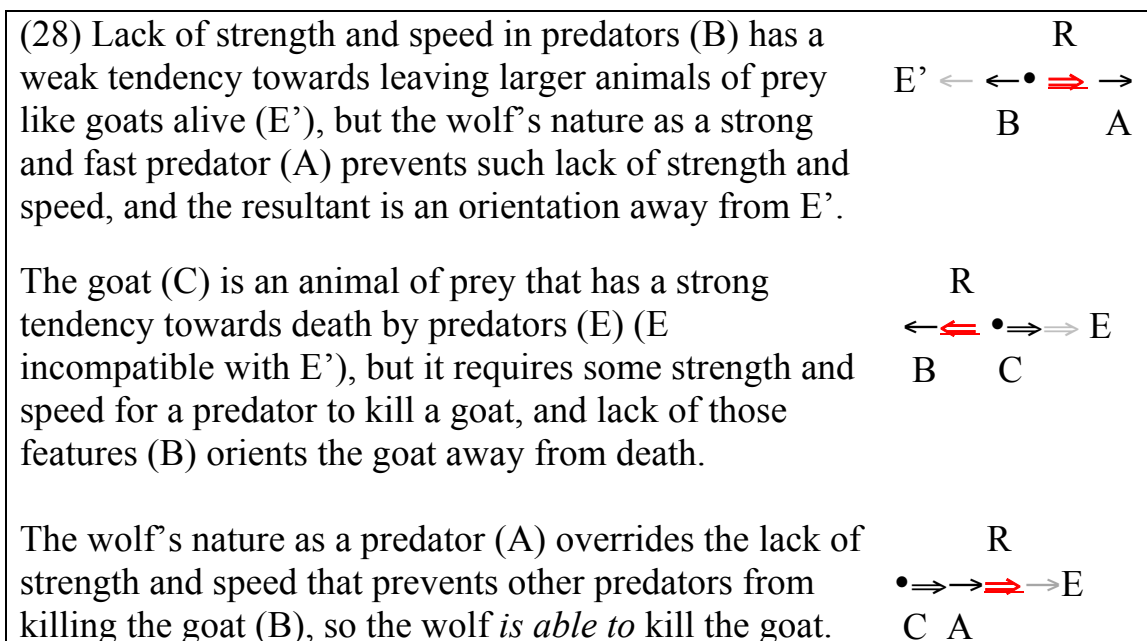


Figure 6: general ability with eventive roots

• Unintentionality/accidental reading:

(29) Nahapetraka teo ambony tsilo i Soa [unintentionality]
 PST-AHA-sit PST-LOC on thorn DET Soa
 ‘Soa sat on a thorn.’

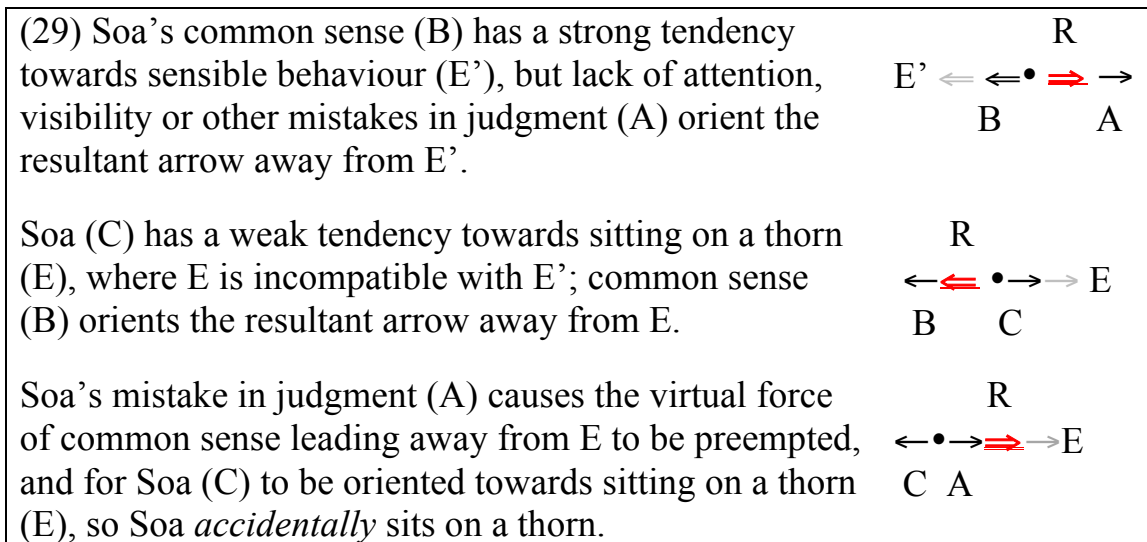
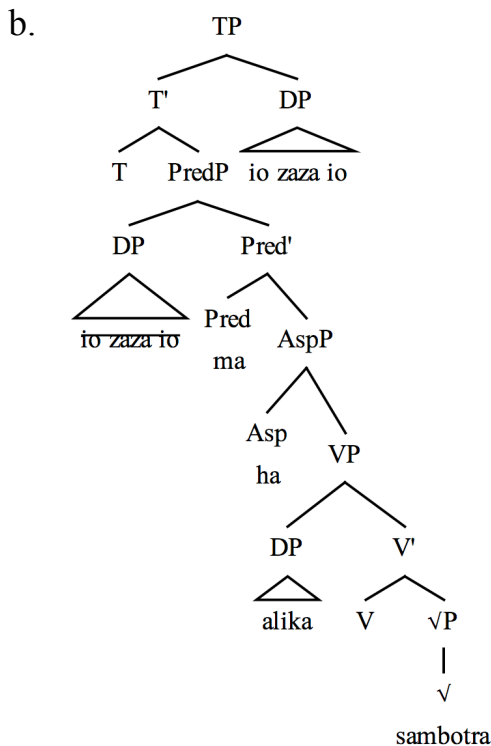


Figure 7: unintentionality with eventive roots

• Syntax-semantics interface:

(30) a. Nahasambotra alika io zaza io. [‘manage to’ reading]
 PST-AHA-catch dog DEM child DEM
 ‘This child managed to catch a dog.’



- Eventive roots denote two-place predicates (31b). But: *ha-* defined in (26)d operates on one-place predicates. Solution: quantifying-in.
- Create one-place predicate by replacing the Agent role with an indexed pronoun he_i (31) c.
- Combine predicate with object (31)d.
- With eventive roots, *ha-* prevents culmination of the event (31)e.
- Application of *ha-* to VP: something prevents he_i from catching the dog (31)f.
- *ma-* introduces higher prevent relation (31)g. Lambda abstraction over he_i identifies the Agent of *e* with the external argument of *maha-*. \forall_{FC} over virtual forces z' ensures culmination.

- (31) Nahasamboatra alika io zaza io.
 PST-AHA-catch dog DEM child DEM
 ‘This child managed to catch a dog.’
- a. [_S [_{PredP} ma [_{AspP} ha [_{VP} [_{DP} the dog] [_√ catch]]]] [_{DP} the child]]
 - b. [[*samboatra*]]: $\lambda x' \lambda y' \lambda e$ [catch(e) & theme(y',e) & agent(x',e)]
 - c. [[*samboatra*_{IV}]]: $\lambda y' \lambda e$ [catch(e) & theme(y',e) & agent(x_i,e)]
 - d. [[*samboatra*_{IV} alika]]: $\lambda e \iota y$ [catch(e) & theme(y,e) & dog(y) & agent(x_i,e)]
 - e. [[*ha-*]]: $\lambda P \lambda e$ [P(e) & $\exists z$.prevent(z,Cul(e))]
 (where P is intransitive counterpart of the eventive root)
 - f. [[*ha-samboatra alika*]]: $\lambda e \iota y$ [catch(e) & theme(y,e) & dog(y) & agent(x_i,e) & $\exists z$.prevent(z,Cul(e))]
 - g. [[*ma-*]]: $\lambda P \lambda x_i \lambda e$ [P(e) & $\forall_{FCZ'} [\text{prevent}(z',e) \rightarrow \text{prevent}(x_i,z')]$]
 (where P is a *ha*-predicate, with *ha-* as defined in e)
 - h. [[*ma-ha-samboatra alika*]]: $\lambda x_i \lambda e \iota y$ [catch(e) & theme(y,e) & dog(y) & agent(x_i,e) & $\exists z$.prevent(z,Cul(e)) & $\forall_{FCZ'} [\text{prevent}(z',e) \rightarrow \text{prevent}(x_i,z')]$]]
 - i. [[*ma-ha-samboatra alika io zaza io*]]: $\lambda e \iota x \iota y$ [catch(e) & theme(y,e) & dog(y) & agent(x,e) & child(x) & $\exists z$.prevent(z,Cul(e)) & $\forall_{FCZ'} [\text{prevent}(z',e) \rightarrow \text{prevent}(x,z')]$]]

(31)h, i: Quantifying in ensures that the child removes any virtual forces that prevent capture of the dog and achieves the catching.

- Conclusions about conceptual structure and syntax-semantics interface:
 - one morphologically complex *maha-* with the same syntax for *maha-* sentences with stative and eventive roots;
 - one conceptual semantics for *ma-* + *ha-* : double prevention;
 - PREVENT is a primitive relation, just like CAUSE;
 - different definitions of *ma-*, because of differences in argument structure, leading to quantifying-in for eventive roots, and identification of the external argument of *maha-* with the Agent of *e*;
 - 5 readings arise out of conceptual structures underlying double prevention, in which agent/patient vectors have variable orientation and strength;
 - readings correlate with stative/eventive nature of the root, through interaction of conceptual structure with the syntax-semantics interface;
 - eventive roots do not allow an enablement reading where the external argument of *maha-* enables the internal argument to be in a certain state (compare (24)d). Quantifying in explains why: enablement does not identify the affector of the higher prevent relation with the Agent of *e*.

4.6 Implications of double prevention for culmination

- *Maha-* is inherently modal:
 - The higher prevent relation implies a free choice universal quantifier, \forall_{FC} , that ranges over individuals across possible worlds ($\forall x \forall w$).
 - Free choice introduced by *maha-* relies on a circumstantial modal base: whether they report on actual or virtual forces, the two prevent relations imply possibilities that fit into the normal development of the real world.
- *Maha-* is not a modal verb.
- Just like its English counterpart, *tsy maintsy* ‘must’ varies in modal base depending on the conversational background relevant in the context (Rajaona 1972:322).

- (32) a. Tsy maintsy hajaina ny ray aman-dreny. [deontic]
 must TT-respect DET father with-mother.3
 ‘One’s parents must be respected.’
- b. Tsy maintsy mianjera io trano io fa mivava. [epistemic]
 must PRS-AT-fall DEM house DEM COMP PRS-AT-crack
 ‘This house must fall down because it is cracked.’

- Claim: inherently modal nature of *maha-* explains why sentences in the past tense entail culmination:

- (33) Nahasambotra alika io zaza io # nefa faingana loatra ilay alika
 PST-AHA-catch dog DEM child DEM but fast too DEF dog
 ka tsy azony.
 COMP NEG do-3
 ‘This child managed to catch a dog #but it was too fast, so it didn’t get caught by him.’

- Matthewson (2012), Martin & Schäfer (2012), Paul et al. (2015, 2016): if culmination with eventive roots holds in all possible worlds in the modal base, and the set of possible worlds quantified over includes the real world, as is the case with a circumstantial modal base, culmination is enforced by assertion of the event.
- Compositional semantics:
 - past tense operator introduces a reference interval r preceding the speech time now ($r < now$).
 - No grammatical aspect in Malagasy (Paul et al. 2015, 2016).
 - Lexical aspect: events are included in the reference time r ($e \subseteq r$), states include the reference time ($r \subseteq s$).

(34) Nahasambotra alika io zaza io.
 PST-AHA-catch dog DEM child DEM

‘This child managed to catch the dog.’

a. *[[ma-ha-sambotra alika io zaza io]]*: repeated from (31)i

$\lambda e_{t,x,y}[\text{catch}(e) \ \& \ \text{theme}(y,e) \ \& \ \text{dog}(y) \ \& \ \text{agent}(x,e) \ \& \ \text{child}(x) \ \& \ \exists z.\text{prevent}(z,\text{Cul}(e)) \ \& \ \forall_{\text{FCZ}'}[\text{prevent}(z',e) \ \rightarrow \ \text{prevent}(x,z')]]]$

b. *[[na-ha-sambotra alika io zaza io]]*: add past tense operator

$\exists e \exists r_{t,x,y}[\text{catch}(e) \ \& \ r < \text{now} \ \& \ e \subseteq r \ \& \ \text{theme}(y,e) \ \& \ \text{dog}(y) \ \& \ \text{agent}(x,e) \ \& \ \text{child}(x) \ \& \ \exists z.\text{prevent}(z,\text{Cul}(e)) \ \& \ \forall_{\text{FCZ}'}[\text{prevent}(z',e) \ \rightarrow \ \text{prevent}(x,z')]]]$

(34)b: existential closure over the event variable e , and placement of e at a time before the speech time. As a circumstantial modal base ranging over realistic possibilities underlies the double prevention configuration, culmination of e in the real world is entailed.

- *Maha-* sentences in future tense also entail culmination. Modulo epistemic fine-tuning, future tense leads to projection of r at a time later than the speech time.

(35) Hahatitra sakafo ho an’ny reniny i Be
 FUT-AHA-send food ACC DET mother.3 DET Be
 #fa tsy ho raisiny ilay sakafo.
 COMP NEG FUT receive-3 DEF food

‘Be will be able to send food to his mother but she won’t receive the food.’

a. *[[ha-ha-titra sakafo ho an’ny reniny i]]*:

$\lambda e \exists y[\text{send}(e) \ \& \ \text{theme}(y,e) \ \& \ \text{food}(y) \ \& \ \text{agent}(\text{Be},e) \ \& \ \exists z.\text{prevent}(z,\text{Cul}(e)) \ \& \ \forall_{\text{FCZ}'}[\text{prevent}(z',e) \ \rightarrow \ \text{prevent}(\text{Be},z')]]]$

b. *[[ha-ha-sambotra alika io zaza io]]*:

$\exists e \exists r_{t,x,y}[\text{catch}(e) \ \& \ \text{now} < r \ \& \ e \subseteq r \ \& \ \text{theme}(y,e) \ \& \ \text{dog}(y) \ \& \ \text{agent}(x,e) \ \& \ \text{child}(x) \ \& \ \exists z.\text{prevent}(z,\text{Cul}(e)) \ \& \ \forall_{\text{FCZ}'}[\text{prevent}(z',e) \ \rightarrow \ \text{prevent}(x,z')]]]$

- With stative roots, the endstate holds in the real world at the speech time.
- Present tense operator includes speech time in the reference interval ($\text{now} \subseteq r$).

(36) Mahafinaritra an’ i Soa Rabe.
 PRS-AHA-happy ACC DET Soa Rabe

‘Rabe makes Soa happy.’

a. *[[ma-hafinaritra an’i Soa Rabe]]*: repeated from (26)h

$\lambda s[\text{happy}(s) \ \& \ \text{theme}(\text{Soa},s) \ \& \ \exists z.\text{prevent}(z,s) \ \& \ \forall_{\text{FCZ}'}[\text{prevent}(z',s) \ \rightarrow \ \text{prevent}(\text{Rabe},z')]]]$

- b. $[[ma-hafinaritra\ an\ 'i\ Soa\ Rabe]]$: add present tense operator
 $\exists s \exists r [\text{happy}(s) \ \& \ now \subseteq r \ \& \ r \subseteq s \ \& \ \text{theme}(Soa,s) \ \& \ \exists z.\text{prevent}(z,s) \ \& \ \forall_{FCZ'}[\text{prevent}(z',s) \ \rightarrow \ \text{prevent}(Rabe,z')]]]$

(36)b: As s includes r , and r includes now , s holds at the speech time. *Maha-* does not play a role in inducing culmination, because states don't culminate.

- Lack of culmination with eventive roots in present tense *maha-* sentences:

(37) Mahasambotra alika io zaza io nefa
 PRS-AHA-catch dog DEM child DEM but
 faingana loatra ity alika ity ka tsy azony.
 fast too DEM dog DEM COMP NEG done-3
 'This child can catch a dog but this dog is too fast so he wasn't able to.'

- a. $[[ma-ha-sambotra\ alika\ io\ zaza\ io\ nefa]]$:
 $\lambda eix \exists y [\text{catch}(e) \ \& \ \text{theme}(y,e) \ \& \ \text{dog}(y) \ \& \ \text{agent}(x,e) \ \& \ \text{child}(x) \ \& \ \exists z [\text{prevent}(z,Cul(e)) \ \& \ \forall_{FCZ'} [\text{prevent}(z',e) \ \rightarrow \ \text{prevent}(x,z')]]]]]$

- Present tense cannot operate on (37)a: accomplishments and achievements cannot be located at the speech time, only states and processes can (Comrie 1976).
- Infelicity of English sentences like (38)a, vs. progressive (38)b or stative (38)c:

(38) a. #This child catches a dog.
 b. The child is catching a dog.
 c. The child is able to catch a dog.

- In languages without a grammaticalized progressive: aspectual shift towards process reading similar to (38)b (German, French).
- Malagasy: present tense sentences in AT or TT voice describe ongoing events (what Rajaona 1972 calls "durative"):

(39) Misambotra alika io zaza io.
 PRS-AT-catch dog DEM child DEM
 'This child is catching a dog.'

- With *maha-*: aspectual shift to stative reading (general ability or dispositional meaning), similar to (38)c, thanks to double prevention configuration.
- Dahl (1975), Menendez-Benito (2005): dispositional sentences imply existential quantification over possible worlds (\diamond). Circumstantial modal base takes into account inner dispositions or 'mental programming' of the subject rather than outside circumstances.

(40) Mahasambotra alika io zaza io nefa faingana loatra
 PRS-AHA-catch dog DEM child DEM but fast too
 ity alika ity ka tsy azony.
 DEM dog DEMCOMP NEG done-3
 ‘This child can catch a dog but this dog is too fast so he wasn’t able to.’

- a. $[[Ma-ha-sambotra\ alika\ io\ zaza\ io]]$:
 $\exists_{sUX} [now \subseteq r \ \& \ r \subseteq s \ \& \ \mathbf{child}(x) \ \& \$
 $s: \diamond \exists e \exists y [\mathbf{catch}(e) \ \& \ \mathbf{theme}(y,e) \ \& \ \mathbf{dog}(y) \ \& \ \mathbf{agent}(x,e) \ \& \$
 $\exists z [\mathbf{prevent}(z,Cul(e)) \ \& \ \forall_{FCZ'} [\mathbf{prevent}(z',e) \ \rightarrow \ \mathbf{prevent}(x,z')]]]$

(40)a: there is a possible world dependent on the child’s dispositions in which she removes whatever virtual forces that prevent her from successfully catching a dog. In this possible world, the event culminates (the dog is caught), but thanks to the embedding under \diamond , culmination is not entailed in the real world.

• Conclusions about culmination:

- Anchoring *maha-* to the time axis always leads to culmination in past and future tense sentences: the circumstantial modal base underlying double prevention ensures that the end state is reached in all worlds in the conversational background, which includes the real world.
- Present tense *maha-* sentences with stative roots assert that the state holds at the speech time;
- Present tense *maha-* sentences with eventive roots shift to a general ability or dispositional reading, asserting that there is a possible world compatible with the agent’s dispositions in which the event culminates.

5.0 General conclusion

- Malagasy is a language with non-culminating accomplishments by default;
- *ma-* and *ha-* each introduce a prevent relation;
- The PREVENT relation is a primitive, similar to CAUSE;
- Depending on the conceptual interaction of the affector and patient forces, double prevention leads to the enablement, causative, ‘manage to’, unintentional or general ability reading;
- Culmination arises from the association of the double prevention configuration with a circumstantial base;
- Many past approaches have attempted to link *maha-* to resultativity (Rajaona 1972) or telicity (Phillips 1996, 2000; Travis 2010);
- Does Malagasy provide support for the Agent Control Hypothesis of Demirdache and Martin (2015)?
 - Perhaps: culmination is so closely tied to the absence of agentivity.
- Whether agentivity is required for non-culmination remains to be determined;

- Future research: the other voice markers that entail culmination (e.g. the “passive” prefixes *voa-* and *tafa-* discussed by Travis 2010).

References

- Bar-el, Leora, Henry Davis, and Lisa Matthewson. 2005. On non-culminating accomplishments. In *Proceedings of NELS 35*:87-102. Amherst, MA: GLSA.
- Chierchia, Gennaro. 2006. Broaden your views. Implications of domain widening. *Linguistic Inquiry* 37:535-590.
- Chierchia, Gennaro. 2013. *Logic in grammar. Polarity, free choice, and intervention*. Oxford: Oxford University Press.
- Comrie, Bernard. 1976. *Aspect*. Cambridge: Cambridge University Press.
- Copley, Bridget and Phillip Wolff. 2014. Theories of causation should inform linguistic theory and vice versa. In *Causation in grammatical structures*, eds. Bridget Copley and Fabienne Martin, 11-57. Oxford: Oxford University Press.
- Dahl, Osten. 1975. On generics. In *Formal semantics of natural language*, ed. Ed Keenan, 99-112. London: Cambridge University Press.
- Davis, Henry, Lisa Matthewson, and Hotze Rullmann. 2009. “Out of control” marking as circumstantial modality in St’át’imcets. In *Cross-linguistic semantics of tense, aspect, and modality*, eds. Lotte Hogeweg, Helen de Hoop, and Andrej Malchukov, 205–244. Amsterdam: John Benjamins.
- Dayal, Veneeta. 1998. *Any* as inherently modal. *Linguistics and Philosophy* 21:433-476.
- Dell, François. 1983/1984. An aspectual distinction in Tagalog. *Oceanic Linguistics* 22/23:175-206.
- Demirdache, Hamida and Fabienne Martin. 2015. Agent control over non culminating events. In *Verb classes and aspect*, eds. Elisa Barrañón López, José Luis Cifuentes Honrubia and Susana Rodríguez Rosique, 185-217. Amsterdam: John Benjamins.
- Guilfoyle, Eithne, Henrietta Hung, and Lisa Travis. 1992. Spec of IP and Spec of VP: Two subjects in Austronesian languages. *Natural Language and Linguistic Theory* 10, 375–414.
- Jacobs, Peter. 2011. *Control in Skwxwú7mesh*. PhD thesis, UBC.
- Keenan, Edward. 1976. Remarkable subjects in Malagasy. In *Subject and topic*, ed. Charles Li, 249–301. New York: Academic Press.
- Koenig, Jean-Pierre and Lian-Cheng Chief. 2008. Scalarity and state-changes in Mandarin (and other languages). In *Empirical issues in syntax and semantics 7*, eds. Oliver Bonami and Patricia Cabredo Hofherr, 241-262. <http://www.cssp.cnrs.fr/eiss7/koenig-chief-eiss7.pdf>
- Koenig, Jean-Pierre and Nuttannart Muansuwan. 2001. How to end without ever finishing: Thai semi-perfectivity. *Journal of Semantics* 17:147-184.
- Kroeger, Paul. 1993. *Phrase Structure and Grammatical Relations in Tagalog*. Stanford: CSLI Publications.
- Martin, Fabienne and Florian Schäfer. 2012. The modality of *offer* and other defeasible causatives. In *Proceedings of WCCFL 30*:248-258.
- Matthewson, Lisa. 2012. On the (non)-future orientation of modals. In *Proceedings of Sinn und Bedeutung 16*:431–446.
- Menendez-Benito, Paula. 2005. *The grammar of choice*. PhD thesis, University of Massachusetts Amherst.
- Oehrle, Richard. 1976. *The grammatical status of the English dative alternation*. PhD thesis, MIT.
- Paul, Ileana, Baholisoa Simone Ralalaoherivony, Henriëtte de Swart. 2015. Aspect and modality in Malagasy *maha*. In *Proceedings of CLA*. <http://cla-acl.ca/actes-2015-proceedings/>
- Paul, Ileana, Baholisoa Simone Ralalaoherivony, Henriëtte de Swart. 2016. Malagasy *maha* at the crossroads of voice, causation and modality. In *Proceedings of the Forty-Second Meeting of the Berkeley Linguistics Society*. 353-368. http://linguistics.berkeley.edu/bls/previous_proceedings/bls42.pdf

- Pearson, Matt. 2005. The Malagasy subject/topic as an A-bar element. *Natural Language and Linguistic Theory* 23. 381-457.
- Phillips, Vivianne. 1996. *Up-rooting the prefix maha in Malagasy*. MA thesis, McGill.
- Phillips, Vivianne. 2000. The interaction between prefix and root: The case of *maha-* in Malagasy. In *Formal issues in Austronesian linguistics*, eds. Ileana Paul, Vivianne Phillips, and Lisa Travis, 85-104. Dordrecht: Kluwer.
- Rackowski, Andrea and Lisa Travis. 2000. V-initial languages: X or XP movement and adverbial placement. In Andrew Carnie and Eithne Guilfoyle (eds.), *The syntax of verb-initial languages*, 117-141. Oxford: Oxford University Press.
- Rajaona, Simeon. 1972. *Structure du malgache : Etude des formes prédicatives*. Fianarantsoa: Librairie Ambozontany.
- Talmy, Leonard. 1988. Force dynamics in language and cognition. *Cognitive Science* 12: 49-100.
- Talmy, Leonard. 2000. *Toward a cognitive semantics*, vols 1 and 2. Cambridge (MA): MIT Press.
- Tatevosov, Sergei. 2008. Subevental structure and non-culmination. In *Empirical issues in syntax and semantics* 7, eds. Olivier Bonami and Patricia Cabredo Hofherr, 393-422.
- Thompson, Laurence D. and M. Terry Thompson. 1992. *The Thompson language*. UMOPL 8. Missoula.
- Travis, Lisa. 2010. *Inner aspect: The articulation of VP*. Dordrecht: Springer.
- Travis, Lisa. 2016. The position of Out of Control morphemes in Malagasy and Tagalog. In *Proceedings of the Forty-Second Meeting of the Berkeley Linguistics Society*. 369-386. http://linguistics.berkeley.edu/bls/previous_proceedings/bls42.pdf
- Wolff, Phillip. 2007. Representing causation. *Journal of Experimental Psychology: General* 136:82-111.
- Wolff, Phillip. 2014. Causal pluralism and force dynamics. In *Causation in grammatical structures*, eds. Bridget Copley and Fabienne Martin, 100-119. Oxford: Oxford University Press.
- Wolff, Phillip, Aron Barbey, and Matthew Hausknecht. 2010. For want of a nail: how absences cause events. *Journal of Experimental Psychology: General* 139:191-211.

1 Introduction

1.1 Background: account

- the paper focuses on the German particles *auf* (up), *an* (at) and *ab* (down) in de-adjectival particle verbs, particle degree achievements (PDAs) and extends the analysis to force verbs (Goldschmidt and Zwarts [2016]).
- particle verbs are built compositionally (cf. Lechler and Roßdeutscher [2009], Springorum [2011], Kliche [2011]), pace Kratzer [2003]).
- the paper presents an account of root based word formation that combines principles of Minimalist Syntax (as in *Distributive Morphology* (cf. Halle and Marantz [1993])) with *Discourse Representation Theory*, (cf. Roßdeutscher and Kamp [2010], Rossdeutscher [2013], Rossdeutscher [2015], Pross and Roßdeutscher [2015], i.a.)

2 Particle Degree achievements (PDAs)

- the formation of PDAs — particle verbs built from the same roots as gradable adjectives is productive and their semantics to a large extent compositionally transparent.
- *an-*, *auf-* and *ab-* verbs with the scalar semantics considered here are also found in change-of-location verbs including force-verbs that describe of change in Perceptual Space, change in domains of abstract values, and in incremental theme verbs (not in the current talk).
- *an* contributes increase in spatial proximity, increase on a scale of values

- | | |
|---|--|
| (1) <i>die Feuerwehr rollte an</i>
the fire-brigade rolled at
the fire-brigade approached | (2) <i>die Preise anheben</i>
the prizes an.PRTC.lift
'raise the prices' |
|---|--|

- *ab* (down) contributes increase in downwards distance

- | |
|--|
| (3) <i>die Chemikalien haben das Öl absinken lassen</i>
the chemicals have the oil down.sink let
'the chemicals made the oil sink' |
|--|

- *auf* contributes increase (in upward direction) up to a maximum

- | |
|--|
| (4)
<i>eine Kiste aufheben</i>
a box auf.PRTC.lift
'lift a box' |
|--|

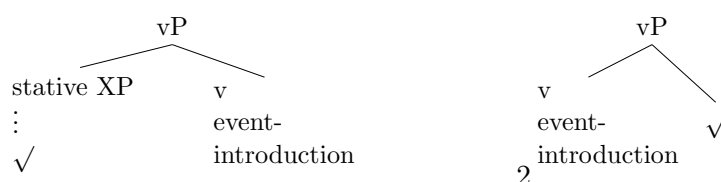
2.1 Scalar contribution of the particles in de-adjectival verbs (DAs)

- in all the PDAs considered in this talk, the particles *an*, *auf*, *ab* make the same purely scalar semantic contributions
- for a first example, take the root of the relative degree ADJ *warm* (warm): *die Suppe aufwärmen* (warm up the soup) means increasing the temperature of the soup up to some predetermined (desired) degree
 - *the Suppe ist aufgewärmt, aber nicht warm* (... but not warm) is unexpected
- *die Suppe anwärmen* (warm) means to increase the temperature of the soup, but only to a degree lower than what counts as 'warm' in a given context.
 - *the Suppe ist angewärmt, nicht aber richtig warm* (... but not really warm) is to be expected.
- *das Bier abkühlen* (cool down the beer) means decrease the temperature of the beer (or increase of its degree of coolness).
- For the purpose of this talk this is all that is needed for the semantics of *an-*, *auf-*, *ab-*: each of these particles describes a change along the dimension indicated by the adjectival root, to a degree that stands in a certain relation scalar relation to a contextually given standard.
- interest of a compositional account of PDAs for a general theory of constructions with a scale based semantics:
 - restrictions on possible combinations of particles and adjectival roots
 - the aspectual properties of PDAs:
 - * (i) PDAa with *an-* and *auf* are always telic
 - * (ii) *ab* doesn't change Aktionsart

2.2 The particular goals of this talks

- present the crucial steps of a compositional account of morpho-syntax and semantics of a number of construction patterns of certain particle and verbs (de-adjectival and force verbs).
 - Sketch of Architecture:
 - roots are syntactically categorised as n(oun), v(erb), a(djective), or P(reposition) in Bare Phrase Structure.
 - roots enter the structure as adjuncts to functional heads that contribute ontological building blocks of meaning, e.g.
 - * v(eralizer) → events;
 - * voice → (proto)-agents;
 - * Place → spatial regions; Path → spatial paths;
 - * a(adjective) → properties; a → measure-functions (cf. Kennedy [2007b])
 - * n → entities and **forces**;
 - * *p*'s modify or projects modifiers of phrases to which they are adjoint
 - vPs are constructed bi-eventively or mono-eventively (Marantz [2006])

(5)



- the general challenge presented by particle verbs: To identify (i) the semantics of the particles, (ii) the semantics of the verbal roots, (iii) the morpho-syntactic structure of the particle verbs and (iv) the principles of semantic composition so that everything fits.

3 From adjectives (ADJs) to Degree Achievement (DAs)

3.1 Common assumptions

- lexical Aspect of a DA is dependent on the scalar properties of its adjectival root.
- Kennedy [2007a], Kennedy [2007b] present a ternary scale based taxonomy of gradable adjectives (ADJs).
 - *total* ADJs. These have scales with (at least) a maximum. For such an adjective to count as true of an object the object must satisfy the adjective to this maximal degree. Examples: *trocken* (dry), *sauber* (clean)
 - *partial* ADJs. Scales have a minimal element (but no maximal element). Examples: *feucht* (wet, humid), *schmutzig* (dirty). For a partial adjective to be true of an object, the object has to satisfy it only to some non-minimal degree. (N.B. total and partial ADJs often come in pairs (Winter [2006]): e.g. 'dry' — 'wet'; 'clean' — 'dirty').
 - *relative* ADJs correspond to scales that are neither bottom- nor top-closed. Relative adjectives also often come in pairs: 'long' — 'short'; 'wide' — 'narrow'; 'high' — 'low' (cf. Winter [2006]), *stark* — *schwach* (strong — weak), *warm* — *kühl* ('warm' — 'cool').
- Table 1 from Pedersen [2015] gives English, German (italic) examples of total, partial and relative ADJs. The German relative ADJs are subdivided into positive ADJs (*italics*) and negative ADJs (**typewriter**)

gradable		
absolute		relative
total	partial	
dry, straight, empty... <i>trocken</i> (dry), <i>heil</i> (healthy); <i>sauber</i> (clean), ...	wet, blurry, dirty,... <i>feucht</i> (humid), <i>schmutzig</i> (dirty), ...	wide, tall, strong,... <i>heiß</i> (hot), <i>warm</i> (warm), <i>stark</i> (strong), <i>hell</i> (light), <i>kühl</i> (cool), schwach (weak), dunkel (dark), kurz (short),...

Table 1. Taxonomy of ADJs: Pedersen [2015]

- this classification of gradable adjectives gives a corresponding classification of DAs (Kennedy and Levin [2008], Kennedy [2012], Pedersen [2015], i.e.)

3.1.1 Aktionsart

- common view: (Kearns [2007], Winter [2006], Kennedy and Levin [2008], Kennedy [2012], Pedersen [2015], i.a.)
 - (simple, unmodified) DAs derived from total ADJs are telic;
 - (simple, unmodified) DAs derived from relative ADJs are atelic;
- less clear view, conjecture:
 - DAs derived from partial adjectival roots are telic (Pedersen [2015]). (Pedersen [2015]) assumes this and notes that this assumption is also needed, but not overtly made in earlier DA-accounts (in particular Kennedy and Levin [2008])

3.2 Restrictions on ADJ classes that *auf* (up), *an* (no Engl. equ.), and *ab* (down) combine with

- Table 2 exemplifies combinations of scalar readings of *auf* (up), *an* () and *ab* (down) with DAs derived from ADJs for the classes in Table 1.

total	partial	relative
<i>einen Patienten</i> (patient)	<i>e. Handtuch</i> (a towel)	<i>eine Suppe</i> (a soup)
* <i>aufheilen</i> ,	* <i>aufschmutzen</i> ,	√ <i>aufwärmen</i> ,
* <i>abheilen</i>	* <i>abschmutzen</i> ,	* <i>abwärmen</i>
* <i>absäubern</i> , * <i>absäubern</i> ,...	√ <i>anfeuchten</i> * <i>abfeuchten</i> , ...	* <i>aufkühlen</i> ,
		* <i>ankühlen</i> ,
		√ <i>abkühlen</i> , ...

Table 2: Formation restrictions for 'scalar' particles with gradable adjectival cores

- none of the three particles can combine with total ADJs;
- relative positive ADJs are found in constructions with both, *auf* (up) and *an*; relative negative ADJs only with *ab*
 - formation of PDAs with relative adjectival roots is strikingly productive. Many such formations can be produced ad hoc and are nevertheless well-formed and transparently interpretable.
- all partial ADJs in Table 1 combine with *an* but not with *auf*;
- *ab* (down) is exclusively found with relative negative ADJs.

3.3 Hypotheses about the compatibility of ADJ scales and *an*, *auf*, *ab*

- *an* selects for DAs derived from relative or partial scales.
 - When the scale is relative, the semantic contribution of *an* is that the degree d on the ADJ scale reached at the end of the process described by an *an*+DA falls below some independently determined threshold. The implication is that in the context invoked by the use of *an*+DA the degree d reached by the theme at the end of the process counts as threshold for the corresponding ADJ. *an*+DA presupposes a 'desired' or 'intended' threshold $d' > d$. By having the degree d the theme 'falls short' of the desired intended degree d' (s. *die Suppe ist angewärmt, aber nicht richtig warm* (but not really warm). d' must be provided by the context (as with *auf*+ relative DA).
 - When the scale is partial, the implication is that in the context invoked by the use of *an*+DA the degree d reached by the theme at the end of the process counts as threshold for the corresponding ADJ. Thus in contexts that *anschärfen* evokes, *das Messer ist angeschärft* (the knife has been 'an'-sharpened) entails *das Messer ist scharf* (the knife is sharp).
 - *an* does not combine with total adjectival roots. The reason is that it is part of the meaning that *an* has, when it combines with DAs that the degree reached at the end of the process described by *an*+DA must fall short for the indendently determined standard. With total adjectives the standard is the maximal degree of its scale. On the other hand the contribution made by the total adjectival root to the *an*-verb is precisely that this maximal degree is reached. So there is a conflict here between the contribution of *an* and the contribution of the adjectival root. Hence the derivation crashes. (For some reason reclassification of the root into a relative one is not possible in these cases.)
- *ab* only combines with negative adjectival roots.
 - *ab*'s semantics contribution is that the degee of the theme at the end of the process described by the verb is lower than at the start of the process.

- Since negative relative adjectives are the only class where scales are conceived as 'downwards' (e.g. when x is cooler than y it is lower on the temperature scale than y) negative relative adjectival roots are the only de-adjectival roots that can be combined with *ab* in PADS.
- *auf* (up) selects DAs derived from relative roots. It comes with the presupposition that the context determines a satisfaction threshold. This is possible only, when the adjectival root scale does not itself determine such a threshold, by virtue of having a maximum.
- *auf* neither goes with total nor with partial deadjectival roots. As far as I can see, the reasons are not the same.
 - *auf* does not combine with total adjectival roots because it cannot make the contribution that it is meant to make: *auf* says that the degree reached at the end of the process described by *auf*+DA exceeds some standard that is determined by context. But when the adjectival root is total the only possible standard is the maximal degree so there is no room for selecting such a context-dependent standard.
 - that *auf* is incompatible with partial scales, follows from another point not yet made explicit: Part of the semantic implications of scalar *auf*- is that in the context in which *auf*+DA is used degrees below the threshold determined by the context do not count as sufficient for satisfaction of the corresponding ADJ. But with partial scales every non-minimal degree counts as sufficient for satisfaction.

4 Some elements of semantics construction for DAs and PDAs

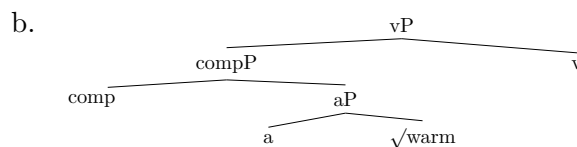
4.1 simple DAs (from relative ADJs)

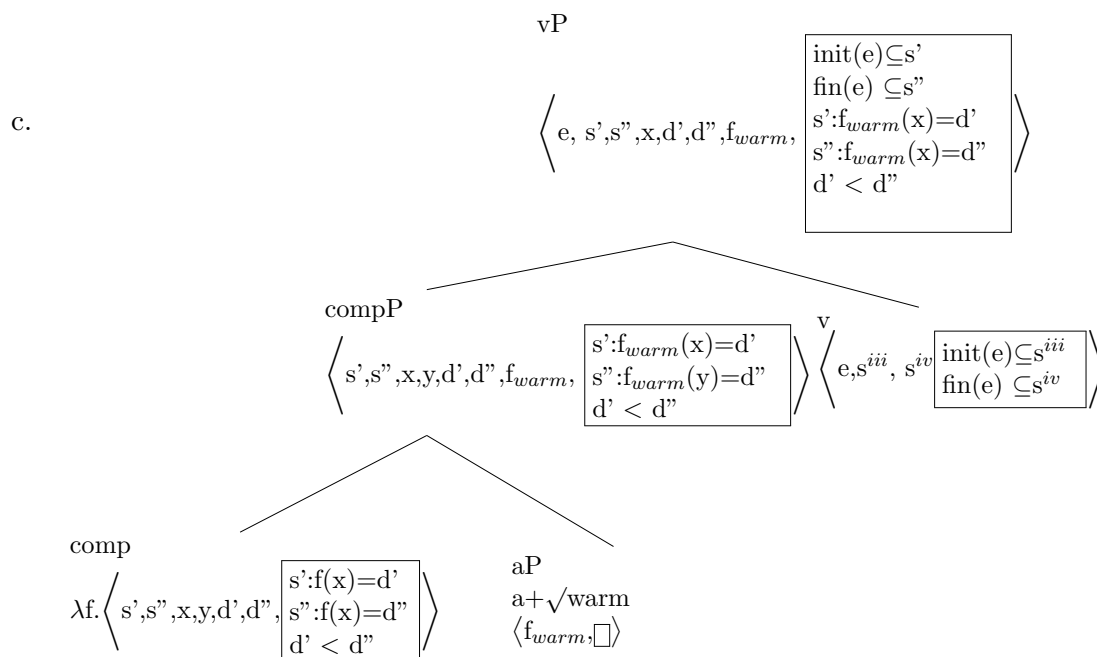
- below I show decisive steps in the composition of the semantics of DAs and PDAs that are built from roots with relative scales.

(6) a. simplified

(*eine Mischung*) *wärmen*
 a mixture warm

'to warm a mixture'



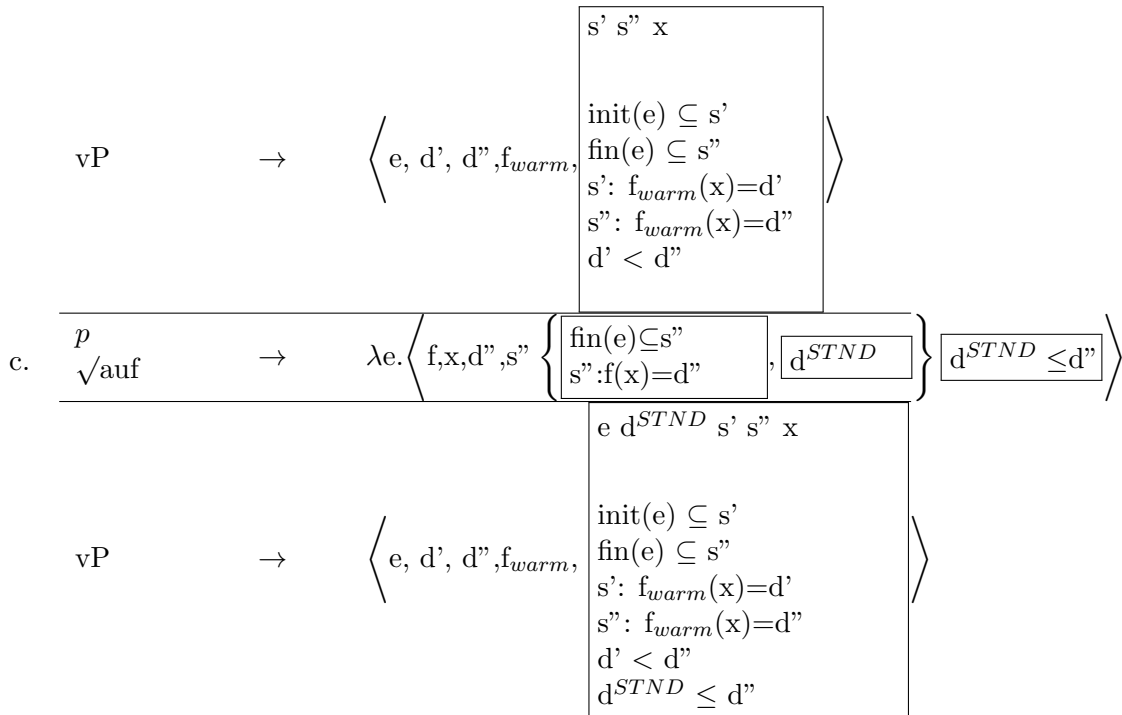
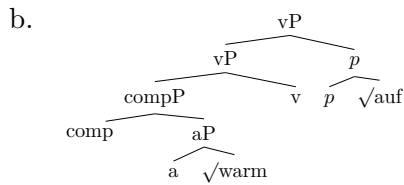


- the root $\sqrt{\text{warm}}$ is syntactically categorised as adjective, which according to Kennedy [2007b] introduces a measure function f_{warm} .
- the functional head $\text{comp}(\text{arative})$ selects this function and introduces state-dependent values d' and d'' for the predicate bearer x and an entity of comparison y . Paraphrasing the complexity: 'my mixture x was warmer at s' than your mixture y was at s'' '. In comparative adjectives and argument phrases which they select, y is described as argument of *als* (than).
- (6c) shows that the initial and final degrees d' and d'' can be made explicit in *von 20 Grad* (from 20 degrees) *auf 25 Grad* (to 25 degrees).
- verbalising the structure in $v(\text{verbaliser})$ has the effect that y and x are unified. What becomes compared are x 's values of the measure function at the beginning and the end of the event.
- the verb is constructed bi-eventively, compP containing the relative adjectival roots specified states where the theme has the property to a certain degree.
- Aktionsart: In unmodified phrases, e.g. in *die Mischung wärmen* (to heat the mixture) the event e doesn't have a finite Partition. All we know is that the degrees d' and d'' to which the mixture is warm at the beginning and at the end of e differ

4.2 Particle constructions (with relative DAs)

- the particles *an-*, *auf-*, *ab-* are syntactic adjuncts to process descriptions provided by vPs of the kind shown in (6c)
- the PDAs have *ung-* nominals (e.g. *Anwärmung*, *Aufwärmung*, *Abkühlung*), a property that they share with the simple DA; *Wärmung*, *Kühlung*, etc.
- Salient steps in the construction of PDAs with *auf-* and relative adjectives are displayed in (7)

- (7) a. (*eine Mischung*) *aufwärmen*
 (a mixture) *auf.prtc.warm.v*
 'to warm a mixture up'



- *an-* and *auf-* introduce presuppositions that (i) the context determines a measure-function f of an individual x with a degree d'' (within the range of f) at some state s'' (ii) some threshold degree (standard of comparison) d^{STND} and (iii) assert that the standard is met (or not met).

- \sqrt{auf} contributes the information that this standard is met ($d^{STND} \leq d''$).
- \sqrt{an} contributes the information that the standard is not met ($d'' < d^{STND}$).

- Aktionsart:

- that *auf*-PDAs are telic follows from the culmination character from their truth conditions: the theme must reach a degree $d'' \geq d^{STND}$.
- that *an*-PDAs are telic doesn't follow in this way; still the presupposition of a standard degree of comparison d^{STND} arguably imposes a point of culmination d'' even if the theme falls short of reaching d^{STND} .

- The predicted derived Aktionsart profiles of PDAs pass the evidence provided by 'standard tests', s. (8), (9).

- (8) a. *sie wärmten die Mischung drei Minuten lang / stundenlang*
 they heated the mixture three minutes long / hourslong
 they heated the mixture for three minutes / for hours

- b. *sie wärmten die Mischung # drei Minuten lang / # stundenlang / in*
 they warmed the mixture # three minutes long / # hourslong / in
drei Minuten ... an
 three minutes .. an.prtc.

'they warmed the mixture a little bit # for three minutes /in three minutes

- c. *sie wärmten die Mischung # drei Minuten lang / in drei Minuten*
 they warmed the mixture three minutes long / in three minutes
auf
 up.prtc.

'they warmed up the mixture for three minutes / in three minutes

- (9) a. *sie kühlten die Mischung drei Minuten lang / # in drei Minuten*
 they cooled the mixture drei minutes long / # in three minutes

'they cooled the mixture for three minutes / # in three minutes'

- b. *sie kühlten die Mischung drei Minuten lang / # in drei Minuten ... ab*
 c. *sie ließen die Mischung drei Minuten lang / # in drei Minuten abkühlen*
 d. *die Mischung kühlte drei Minuten lang / ? in drei Minuten ab*

(9d) has a special reading: reduce to stable temperature (cf. Kennedy and Levin [2008])

4.3 DAs derived from partial ADJs

- as it stands, Kennedy and Levin [2008]'s theory doesn't predict that DAs derived from partial ADJs are telic. In order to derive telicity, the initial degree d' must be identified with the minimum of the scale. (cf. Pedersen [2015]).
- every change from the minimal degree d' into non-minimal degree d'' counts as a transition from non-satisfaction (minimal degree) to satisfaction (non-minimal degree). This is a form of culmination: reaching a degree distinct from the minimal degree. This renders such DAs telic and with them the PDAs out of them with *an*.
- the corresponding predications in (10a), (10b), (10c) all have the same truth-conditions

- (10) a. *ein Messer schärfen*
 a knife sharp.v

'to sharpen a knife

- b. *ein Messer anschärfen; ein Handtuch anschmutzen / anfeuchten*
 a knife prtc.sharp.v; a towel prtc.dirty.v / partc.humid.v

'to sharpen a knife'; 'to dirty / wet a towel'

- c. *ein Messer scharf machen; ein Handtuch schmutzig / feucht machen*
 a knife sharp make; a towel dirty / wet make

'to make a knife sharp' 'to make a towel dirty / humid'

4.4 Intermediate summary

- A closer inspection of German PDAs sharpens our understanding of scale based semantics in general.
- in particular it confirms the vector-based approach of Pedersen [2015] contra the difference-based approach of Kennedy and Levin [2008]. Pedersen [2015]’s vectors are the pairs $\langle d', d'' \rangle$ shown in the semantics construction above. The approach of Kennedy and Levin [2008]’s amounts, (when translated into the architecture used here) to ’comp’-representations involving a simple ’difference degree’-discourse referent d equal to $d'' - d'$.
- Pedersen [2015] notes that this is not enough even in relation to DAs (e.g. to obtain the correct semantics built from roots with partial scales and to predict their Aktionsart.)
- But the observation made here about PDAs and their particles show that the initial degree d' and final degree d'' are also needed in other ways, i.e. in the presuppositional parts of the contributions that the particles make.

5 Scale based particles with force-verbs

5.1 Basics of force-verbs

- I focus here on verbs that are of interest because of the role that force dynamics (cf.(Talmy [1988])) play in their semantics. There is a considerable overlay with the verbs discussed by (Goldschmidt and Zwarts [2016]).
 - More specifically I focus here on verbs built from the roots $\sqrt{\text{zieh}}$ (pull), $\sqrt{\text{druck}}$ (press), $\sqrt{\text{heb}}$ (lift), $\sqrt{\text{schlag}}$ (hit), and a few more
- these roots can be categorised in different ways, as (i) a(djectiviser), (ii) v(verbaliser), (iii) n(nominaliser). The contribution that they make depend on these categorisations.
- In particular, these contributions are
 - (i) **a** — an (abstract) property; the theme’s having this property is a result of bi-eventive verbal construction (cf. (11a))
 - (ii) **v** — an event property of the ’manner of motion’ type (cf. (11b))
 - (iii) **n** — the introduction into the semantic representation of an entity of the ontological sort ’force’ (cf. (11c), (11d)).

- (11) a. Hebung / Anhebung der Preise
die Preise heben, die Preise anheben
the prizes lift, the prizes an.PRTC.lift
'the raise the charges'
- b. *Ziehung der Rübe (aus der Erde)
die Rübe aus der Erde ziehen / den Nagel in die Tür schlagen
the carrot out-of the soil pull / the nail into the door hit
'pull the carrot out of the soil' / 'hit the nail into the door'
- c. *Ziehung an der Rübe
an der Rübe ziehen / auf den Nagel schlagen
at the carrot pull / on the nail hit
'pull at the carrot' / 'hit on the nail'

- d. Anziehung der Bremse
die Bremse anziehen; eine schwere Last anheben
 the brakes an.PRTC.pull.v; a heavy weight an.PRTC.lift.v
 'pull the brakes'; 'lift a heavy weight'

- There is a considerable variety of types of verbs built from force-roots. Nevertheless they share enough between them to justify studying them as one distinctive subclass. Here are some of the features common to all or most members of the class.

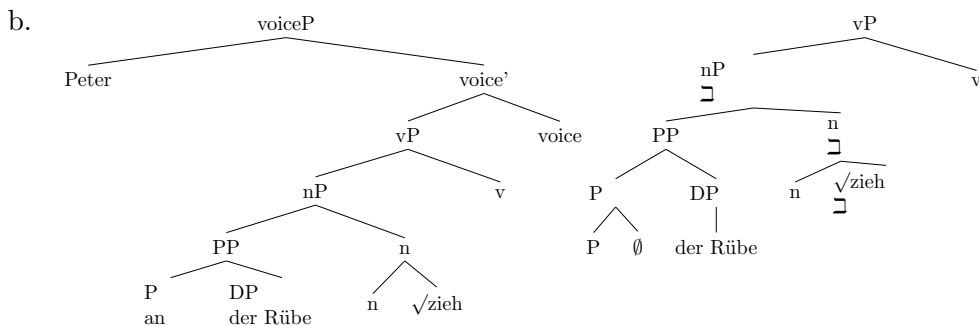
- They correspond to nominals that arguably denote forces: *Zug, Hub, Druck, Schlag*.
- They have intransitive uses with PP-constructions, known as conative constructions (cf. Levin [1993]), s. (11c)
- They combine with scalar particles (cf. (11d) (the semantics of *an* as in (11d) is scalar).
- Divisions within the class are revealed by the behaviour of some force-related adverbs such as *hart*, (hard) *schwach* (weak), that are related to particular force denoting roots.
- These modifiers are possible only with the 'conative' construction, i.e. (11c) and in constructions with scale based particles (e.g. (11d)).
 They are not possible with change of location descriptions like (11b), (compare (12c)), — a puzzle mentioned, but unsolved by Goldschmidt and Zwarts [2016].

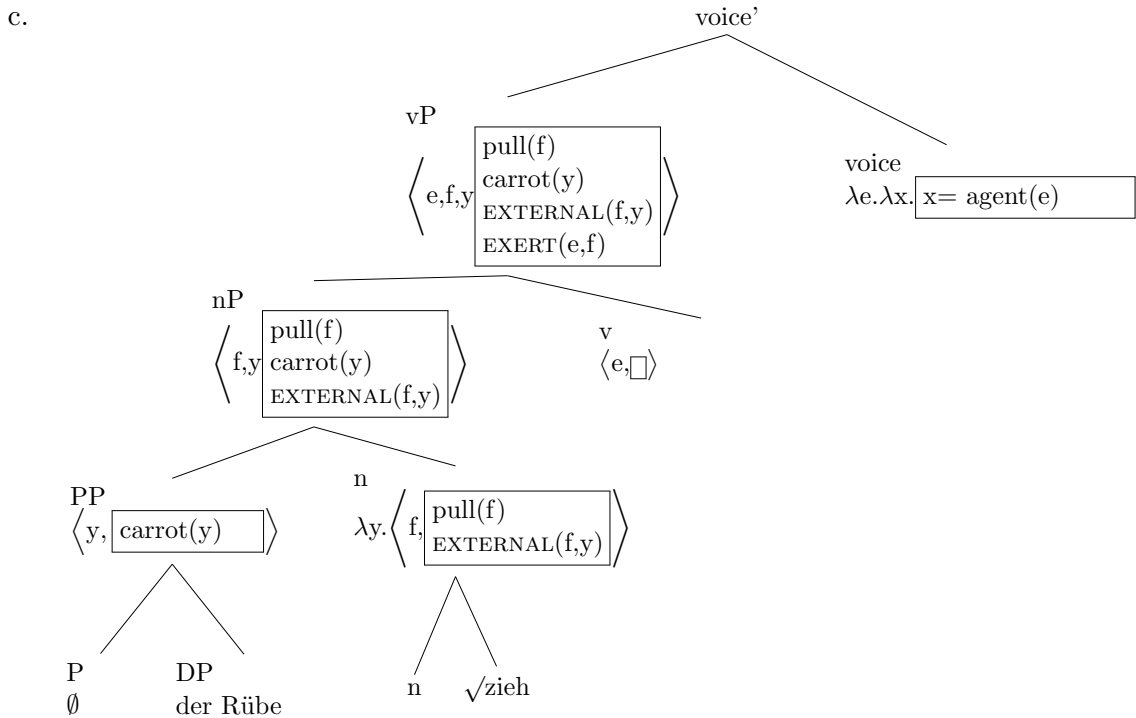
- (12) a. *er schlug hart auf den Nagel / er zog schwach an dem Seil*
 he hit hard on the nail / he pulled weakly at the rope
- b. *er zog das Seil schwach an*
 he pulled the rope weak an.PRTCL
 he slightly tightened the rope
- c. * *er schlug den Nagel *hart / *stark / *leicht / in die Tür*
 he hit the nail hard / strong / slightly / into the door

5.2 Analysing force-verbs

5.2.1 'Conative' constructions

- (13) a. *Peter zog an der Rübe, am Seil*
 Peter pulled at the carrot, at-the rope



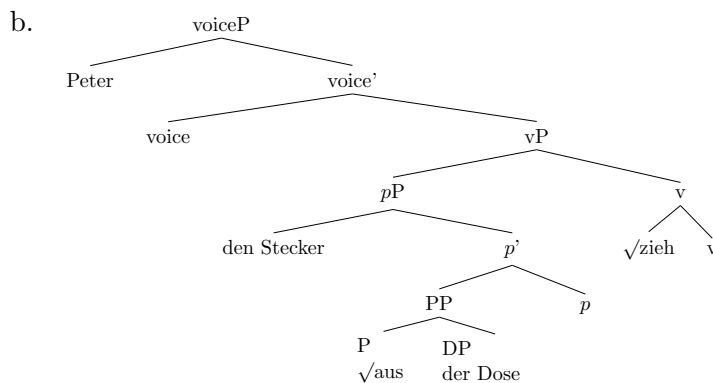


- The structure in (13c) is unfamiliar from the literature and it is also a novelty in our own work.
- the central idea is that a nominal phrase, consisting of a 'relational force noun' – here *Zug an der Rübe / am Seil* (lit: 'the pull at the rope') is the head of a nominal phrase (nP) which combines directly with the nominaliser *v*.
- the way in which this nP merges with *v* is the central novel part of the construction. Like 'manner' roots which merge with *v* in mono-eventive constructions proposed by (Marantz [2006]) the nP provides all the information there is about the event introduced by *v*. In the case of (13c) this information is to the effect that *e* is an event of exerting the force, denoted by the nP (the force on the argument of the nP (i.e. *die Rübe* (the carrot))).
- the vP resulting from this syntactic merge operation and its projection onto the semantics acquires its agentive subject at the level of voice.
- The right hand side of (13b) shows an analysis of PPs following Haselbach [2016]'s analysis of 'pseudo-geometric' prepositions, at a sub-lexical level. \sqsupset represents 'contiguity' (as opposed to \aleph as 'interior' and \sqsupset , 'support'). In the context of the feature \sqsupset in nP P has a morpho-phonological spell-out as /an/; the dative case on *der Rübe* is default prepositional case. The feature enters the structure with the force-root $\sqrt{\text{zieh}}$.
- Note that in the construction of the nP *an* is not a geometric preposition and not a constituent contributing a spatial region (the '*an*-region' of the carrot). In this the analysis differs from that of (Pross and Roßdeutscher [2015]).
- A reason for this change is that *an* of (13a) does not pass the test for region-denoting prepositions (s. (14a)) and cannot be chosen freely by the speaker (cf.(14b)).
- Importantly, the intuition that in the situations that are described in terms of intransitive force-description like (13a) the force points in an 'outwards' direction. I take this to be an important insight made available by Zwarts [2010] and Goldschmidt and Zwarts [2016];
- Among the force verbs whose contribution follows the pattern of (13a) are *ziehen* (pull) are *zerren*, *rühren* (stir) *rütteln* (vibrate);

- (14) a. *er zog an der Rübe *dran* / *zerrte* / *rüttelte* / *rührte*
 he pulled at the carrot dr.DEIC.an.PRTC / dragged / vibrated / stirred
*an der Kiste *dran,*
 at the box *dr.DEIC.an.PRTC
- b. *der Ohrring zog an / *in / *auf / dem Ohrläppchen*
 the earring.GEN pulled at / in / on the earlobe
 'the earring pulled at the earlobe'

5.2.2 Change of location descriptions built from force roots

- (15) a. *Peter zog den Stecker aus der Dose*
 Peter pulled the plug out the socket



- In (15b) $\sqrt{\text{zieh}}$ plays the part of a manner-root in the sense of an event-modifier. It combines with v and identifies the event e as a 'zieh'-event: the event is a pulling. (For semantics construction see (Rossdeutscher [2013],i.a.))
- No discourse referent of the sort 'force' enters the semantic representation in (15b), therefore no modification by adverbs such as *hart*, *leicht*, *schwach* is possible.

5.3 Scalar readings for *an-* *auf-* and *ab-* as parts of force-verbs

- scalar readings in the context of force verbs are best exemplified by their past participles. The events that bring about the state described by the particle are events of force application where the force has taken effect.
- (16) a. *angedrücktes Obst* (fruits with spots from pressure) (from *Druck* (pressure))
 b. *angezogene Bremse* (tightened brake) (from *Zug*, $\sqrt{\text{zieh}}$), *angezogene Schraube* (tightened screw)
 c. *angeschlagene Taste* (stricken key) (from $\sqrt{\text{schlag}}$ (strike))
- The fact, that *an-* has scalar readings, but neither *auf-* nor *ab-* do can be demonstrated by looking at combinations of these particles with the root $\sqrt{\text{heb}}$ (lift).

- (17) a. *eine Kiste # vom Boden anheben*
 a box from-the ground an.PRTC.lift
- b. * *eine Kiste um 30 cm aufheben*
 a box about 30 cm up.lift.v
- c. *eine Kiste 30 cm hoch aufheben / vom Boden aufheben*
 a box 30 cm high up.lift / from the ground
 'lift up a box 30 cm / from the ground
- d. *eine Kiste leicht / ein bißchen anheben*
 a box slightly / a little-bit an.PRTC.lift;
 'lift a box slightly'
- e. * *eine Kiste leicht / * ein bißchen aufheben*
 a box slightly / a little-bit up.lift

- **an**-particle verbs with $\sqrt{\text{heb}}$ don't license source-phrases (cf. (17a)), but license measure of difference phrases (cf. (17d))
- **auf**-particle verbs with $\sqrt{\text{heb}}$ do license measure phrase with dimensional adjectives or goal-phrases (cf. (17c), but don't license measure-of-difference phrases (cf. (17b) (17e))).
- **ab**- has only spatial readings in context of $\sqrt{\text{heb}}$ (cf. (19) in the sense of 'away').

The contribution of *ab* in these verbs is that of spatial separation or reduction of proximity from some explicitly or implicitly given 'reference object'. The lack of scalar readings for *ab* in these verbs is because they all express exertion and never reduction of force. This contradicts the possible interpretation of *ab* as indicating downwards movement along a scale of force or force exertion. (Note that *abschwächen* ('ab-weakens') which does denote some force-reduction, *ab* does contribute a connotation of of downward movement along a force scale. But *abschwächen* (from *schwach* (weak) is clearly de-adjectival).¹

- (19) *ein Flugzeug hob vom Boden / # ein bißchen ab.PRTC.*
 a plane lifted from-the ground / a little-bit off
 'a plane was air-borne'

¹With other force verbs roots the connotation that the described events serve to remove the theme away from a real or potential danger see the examples in (18a) (Pross and Roßdeutscher [2015])).

- (18) a. *einen Dachstuhl abstützen / einen Stoß abfedern / Lärm abdämpfen*
 a truss ab.PRTC.stilt.v / a bump ab.PRTC.spring.v / noise ab.PRTC.damp.v
 'to support a truss'; 'cushion a bump'; 'cushion noise'
- b. *einen Dachstuhl leicht abstützen / einen Stoß um einiges abfedern / Lärm um einiges abdämpfen*

The roots of the verbs in (18a) denote things that counteract the forces that would precipitate a calamity if they wouldn't be kept in check. *Stützen* seems to keep things from collapsing or falling down, *Feder* (spring) serves to prevent things from the impact of shocks that would damage or destroy them; *Dampf* (damp) presumably denotes material used to help against noise.

5.3.1 Analysis of particle verbs with scalar $\sqrt{\text{an}}$ and force-roots

- An important guideline in our work in detecting the structure of different verbs is the possibility of forming *ung*-nouns. The central principle we assume is that *ung*-noun formation is possible for bi-eventive verbs, For our assumption of verbs being divisible into two classes — verbs with the bi-eventive structure which allows *ung*-nominals and those with mono-eventive structure which do not, force verbs with *an*- present a special challenge.
- Intuition tells us that abstract readings of force-verbs typically allow for *ung*-nominalisation (cf.(20a). This holds both for force verbs without particles and for particle force verbs, among them particular those with the particle *an*
- With concrete readings, which interpret them as about the application of force in physical space this seems less reliable, but the descriptions allow for *ung*-nouns nevertheless; again this can hold for both, without particle and with particle (cf. 20b)) 20c),

- (20) a. *Preise heben* — *Hebung der Preise*; *Preise anheben* —
 Prizes lift.v — Lift.ung.n the prizes; Prizes an.PRTC.lift.v —
Anhebung der Preise
 An.PRTC.lift.ung.n of-the prizes
 'raise charges', 'raising of the charges'
- b. *eine Last heben* — *Hebung einer Last*; *eine Last anheben* —
 a load lift — lifting a weight; a load an.PRTC.lift —
Anhebung einer Last
 An.PRTC.lift.ung.n of-a weight
 'lift a load' — 'lifting of a load'; 'lift a load to a sufficient extent'
- c. *eine Wunde an.PRTC.rühren* — *Anrührung einer Wunde*
 a wound an.PRTC.lift — An.PRTC.stir.ung.n of-a wound
 'touch a wound'

- In (20a) the contribution root $\sqrt{\text{heb}}$ is the property 'high'.² The construction follows the one presented in (6) and (7).
- More examples following the pattern of (20a) are listed in (22)

²Indeed this property shows in a construction that have the form of a past participle, but truly are like positive relative adjectives speaking of contextually given standard values of evaluation.

- (21) a. *gehobene Preise*
 POS.PRTCP.heb.v prizes
 'be of high prize category'
- b. *gehobenere Preise / gehobenere Ansprüche*
 COMP.PRTCP.heb.v prizes / demands
 'be of upper prize category' / 'more ambitious demands'
- c. *(für) gehobenste Ansprüche*
 (for) SUPERL.PRTCP.heb.v prizes
 '(for) most ambitious demands'

- (22) *das Publikum rühren / anrühren* ; *die Stimmung heben / anheben*
 the audience stir / an.PRTC.stir ; the mood lift / an.PRTC.lift
 'to touch the audience' ; 'to raise the atmosphere'

- Here is a conjecture why these verbs should permit *ung*-nominalisations more reliable on an abstract than on a concrete reading: On their concrete readings the verbs are naturally conceived as describing motions in physical space. On these conceptualisations they are like typical motion verbs like *fahren* (ride, drive), *rennen* (run), *bringen* (bring, carry), and so on, verbs that notoriously do not allow for *ung*-nominalisations and that according to sub-lexical analysis we endorse are mono-eventive (cf. Roßdeutscher and Kamp [2010]). I conjecture that when the force verbs in question are interpreted as describing physical motion, the interpretation in fact assigns a mono-eventive structure to them, in analogy with the motion verbs of which I just listed a few examples. But on an abstract reading these same verbs are naturally conceived as describing events that lead to the theme having a certain property that it didn't have at the outset of the event. Such a construal is bi-eventive in spirit, and I conjecture that the interpreter who assigns such an abstract meaning to a verb can assign a bi-eventive structure to the verb in the specific morpho-syntactic sense (cf. (5)).
- A good illustration of what I have in mind is the pair in (23a), (23b) (= (20b))

- (23) a. *eine Kiste anheben* — ?? *die Anhebung* *einer Kiste*
 a box an.PRTC.lift — the An.PRTC.lift.ung.n of-a box
- b. *eine Last anheben* — √ *die Anhebung* *einer Last*
 a load an.PRTC.lift — the An.PRTC.lift.ung.n of-a load

- The two verb phrases in (23a) and (23b) describe the same kind of event: the moving upwards in physical space of a box in (23a) or a physical load (23b). The latter context highlights a force and counterforce relation, and the root √heb is conceptualised as contributing a force.
- In (24) it is the particle *an* itself that helps evoking an interpretation of the root as contributing force. The particle is justified only, if *an* measures the magnitude of the applied force.

- (24) *die Bremse ziehen* — ?? *Ziehung* *der Bremse*; *die Bremse anziehen*
 the brake pull.v — pull.ung.v of-the brakes; a brake an.PRTC.pull.v
 — √ *Anziehung* *der Bremse*
 — An.PRTC.pull.ung.n of-the brakes
 'pull the brakes'

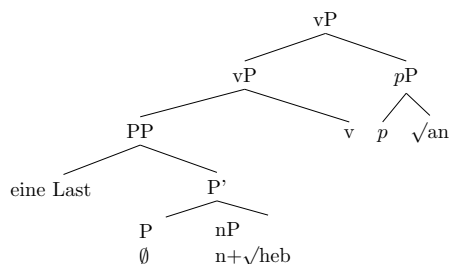
- In (20b) a conceptualisation of the root's contribution as counterforce to the load is possible (though not coming to mind for most people). Only under this conceptualisation of the root √heb contributing force, *heben* (to lift) has an *ung*-noun *Hebung*.
- There is another restriction on the conceptualisation of the situations: applying force takes immediate effect and brings about a change in the properties of the force recipient: the brake is in the appropriate position to take effect, the load is above the ground. The changes are instantaneous.

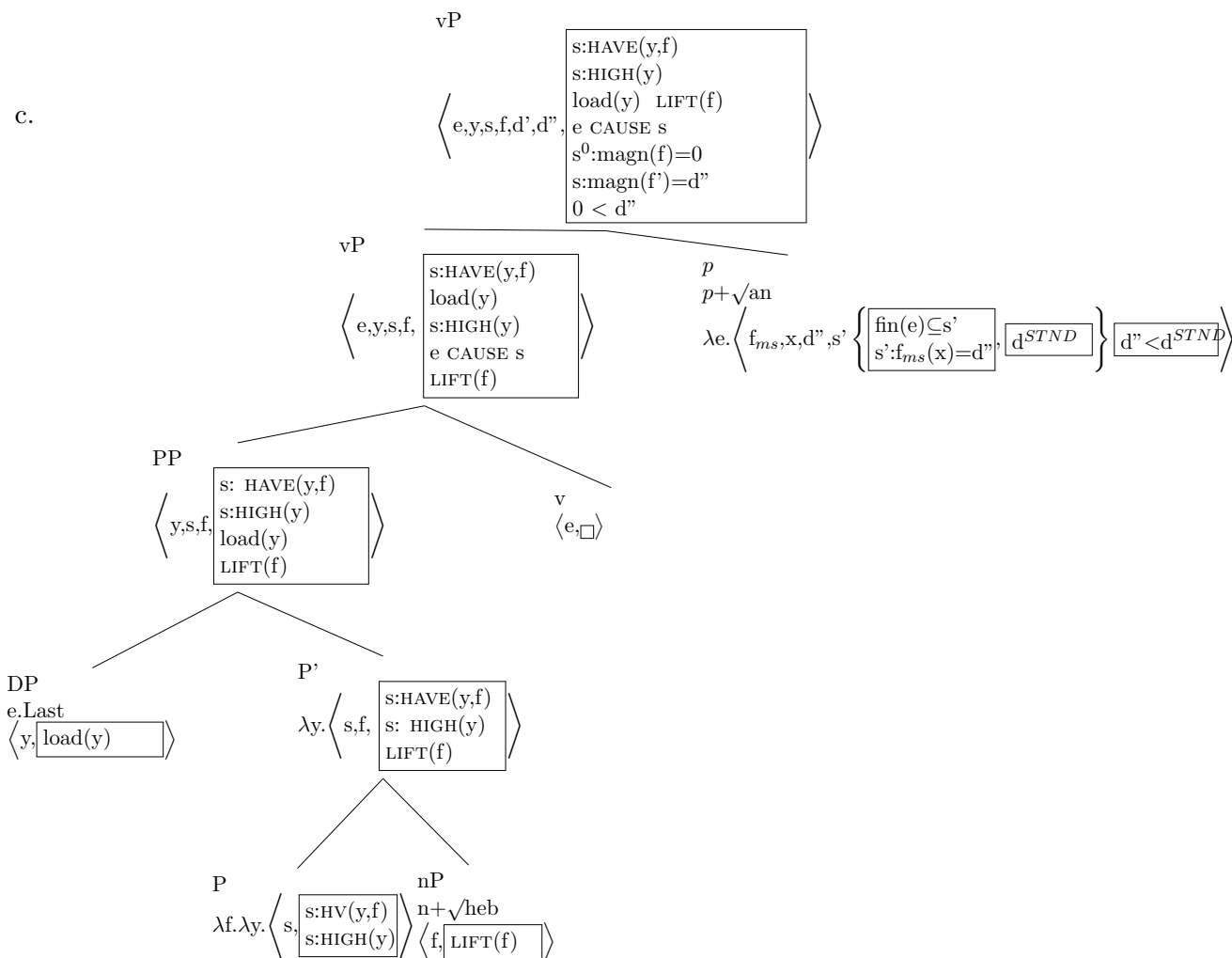
5.4 Some Details of Semantics Construction

- in (25) I propose a construction of the conceptualisation of the verb phrase as describing an event of application of force.
- To keep things simple the construction follows an early simple solution or representing de-nominal prefix verbs like *be-stuhlen* (to furnish something with chairs) in (Roßdeutscher and Kamp [2010], Roßdeutscher [2010]). In this simple version, the XP merged with the empty verbaliser (cf. (5)) building a bi-eventive construction is a PP. (see (Pross [2016]) for refinements)
- A (a silent) P(prepositional) head establishes a relation between an entity, the direct object y and a lift-force f , leading to the result state s in which y has been subjected to the force f . Crucially, the application has the effect that y acquires a new property, here represented as HIGH, and the verb is analysed as describing an event e that is characterised as resultant state s of being HIGH ('s: HIGH(y)'), in the particular way that makes it a bi-eventive verb.
- The contribution of the particle *an* is represented as with PDAs. It consists of two presuppositions, (i) a selection restriction that requires of its adjunction site that it make available a structure involving an event e , a measure function f_{ms} , an individual x , a degree d , and a e -final state s connected as displayed by the representation of *an* in (25c), and (ii) the presupposition of a 'standard degree' within the range of the function f_{ms} . In addition *an-* makes the non-presuppositional contribution that the final degree d mentioned in the selections restriction is less than the standard degree from its second presupposition.
- Here, as with the PDAs considered in the first part of the talk, *an* conveys that the degree to which the theme y is lifted falls short of a contextually given standard d^{STND} . That this is the contribution of *an* can be appreciated by comparing *eine Last heben* and *eine Last anheben*: the former means change of location along the vertical, the latter means 'apply as much force as to get the weight off the ground'.

(25) a. eine Last anheben

b.





6 Conclusion

- The present case study explores the syntax and semantics of a small number of particle verbs with the particle *an*, *auf*, *ab*, formed from a handful of verbal roots.
- Largely the study confirms the general principles of the syntax and semantics of verb constructions which we and others have found confirmed in earlier studies. Among them
 - Merge in Bare Phrase Structure and Merge in DRS-constructions are parallel
 - Building blocks of meaning enter the semantic representation at functional heads *n*, *a*, *v* and *P*
 - Aktionsart of the verbal constructions has been accounted for by the particular semantic contribution of the roots in their syntactic positions.
- New is the suggestion that for some verbs the structure we assign to them may depend on various conceptual and contextual factors.

References

Anja Goldschmidt and Joost Zwarts. Hitting the nail on the head. Paper presented at SALT 26, Semantics and Linguistic Theory, Austin, May 2016.

Morris Halle and Alec Marantz. Distributed morphology and the pieces of inflection. In Kenneth Hale and Samuel Jay Kaiser, editors, *View from Building 20. Essays in Linguistics in Honor to Sylvian Bromberger*, pages 111–176. MIT Press, 1993.

- Boris Haselbach. Ps at the interfaces. Dissertation at the University of Stuttgart. forthcoming, 2016.
- Kate Kearns. Telic senses of deadjectival verbs. *Lingua*, 117:26 – 66, 2007.
- C. Kennedy and B. Levin. Measure of change: The adjectival core of degree achievements. In L. McNally and C. Kennedy, editors, *Adjectives and Adverbs: Syntax, Semantics and Discourse*, pages 156–182. Oxford University Press, Oxford, UK, 2008.
- Christopher Kennedy. *Projecting the adjective. The syntax and semantics of gradability and comparison*. PhD thesis, UCSC, New York:Garland, 2007a.
- Christopher Kennedy. Vagueness and grammar: the semantics of relative and absolute gradable adjectives. *Linguistic and Philosophy*, (30):1–45, 2007b.
- Christopher Kennedy. The composition of incremental change. In Violetta Demonte and Louise McNally, editors, *Telicity, change, state: A cross-categorical view of event structure*, pages 156–182. Oxford. Oxford University Press, 2012.
- Fritz Kliche. Semantic variants of German particle verbs with *ab*. *Leuvense Bijdragen*, 97: 3–27, 2011.
- Angelika Kratzer. The event argument and the semantics of verbs. Technical report, University of Massachusetts, Amherst, 2003. Book manuscript.
- Andrea Lechler and Antje Roßdeutscher. German particle verbs with *auf*. Reconstructing their composition in a DRT-based framework. *Linguistische Berichte*, 220:439–478, 2009.
- Beth Levin. *English Verb Classes and Alternations. A preliminary Investigation*. University Chicago Press, 1993.
- Alec Marantz. Phases and words. Technical report, MS, NYU, 2006.
- Walter Pedersen. A scalar analysis of *again*-ambiguity. *Journal of Semantics*, 32:373–424, 2015.
- Tillmann Pross. What if word formation is entirely syntactic? a case study on the meaning of bi-eventive constructions in German. unpublished manuscript, May 2016.
- Tillmann Pross and Antje Roßdeutscher. Measuring out the relation between conceptual structures and truth-conditional semantics. In Kata Balogh, editor, *Selected papers from the Workshop "Bridging Formal and Conceptual Semantics"*, Düsseldorf, 2015. Düsseldorf University Press.
- Antje Roßdeutscher. German *-ung*-formation. An explanation of formation and interpretation in a root-based account. In Susan Olsen, editor, *New Impulses in Word-Formation*, Special issue of *Linguistische Berichte*, pages 101–132. Buske Verlag, 2010.
- Antje Rossdeutscher. A syntax-semantics-interface for verbs with p-elements in German. In Antje Rossdeutscher, editor, *Sub-lexical investigations: German particles, prefixes and prepositions*, volume 11 of *SinSpec (Working Papers of the SFB 732)*, pages 1–57. University of Stuttgart, 2013.
- Antje Rossdeutscher. Hidden universal quantification and change of argument structure in particle-verb constructions. In *Proceedings of Sinn und Bedeutung 19*, 2015.
- Antje Roßdeutscher and Hans Kamp. Syntactic and Semantic Constraints in the Formation and Interpretation of *ung*-Nouns. In A. Alexiadou and M. Rathert, editors, *The Semantics of Nominalisations across Languages and Frameworks*, Interface Explorations 22, pages 169–214. Mouton de Gruyter, Berlin, 2010.
- Sylvia Springorum. DRT-based analysis of German particle verbs with *a n*. *Leuvense Bijdragen* 97, 2011.

- Leonard Talmy. Force dynamics in language and cognition. *Cognitive Science*, 1988. 49-100.
- Yoad Winter. Closure and telicity across categories. In Christopher Tancredi, Makoto Kanazawa, Ikumi Imani, and Kiyomi Kusumoto, editors, *Proceedings of Semantics and Linguistic Theory, SALT16*, 2006.
- Joost Zwarts. Forceful prepositions. In Vyvyan Evans and Paul Chilton, editors, *Language, Cognition and Space: The State of the Art and New Directions*, pages 193–214. Equinox Publishing, 2010.

Moving towards an event: the Romanian Prepositional Supine construction

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1. Introduction.

- Just like Latin, Romanian has a nominal-verbal construction traditionally called ‘supine’ appearing, among others, as goal of motion, with the locative preposition *la* ‘at’ replacing the case marking on the supine cf. (1a-b).

(1)	a.	abiit piscatum went fishing ‘He went fishing’	Latin	(1)b	merge la pescuit goes at fishing ‘He is going fishing’	Romanian
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1. Introduction.

- Locative (and other) prepositions are followed by bare nouns in Romanian. *La* ‘at’ also introduces Dative arguments; in accomplishments, it has the property of undoing the telos of the main predicate. The question is how to account for the contribution of the lexical preposition in a unified manner in the supine goal of motion construction, the defeasible accomplishment context and the Dative.
- (2)
- a. a citit la roman (dar nu l-a terminat)
has read at novel (but not it-has finished)
‘He read at the novel (but didn’t finish it)’
 - b. am dat de mâncare la copii (dar n-au mâncat)
have given of food to children (but they-not-have eaten)
‘I gave food to the children (but they didn’t eat)’
 - c. sunt la pescuit (dar nu am început să pescuiesc)
am at fishing (but not have started to fish)
‘I’m out for fishing (but didn’t start to fish)’



1. Introduction

- In this talk, I will investigate the properties of the genuine prepositional supine adjuncts and show
 - (i) that the supine in these cases is not verbal but a bare noun
 - (ii) that the lexical preposition with the bare noun contributes the goal of motion meaning and introduces the idea that the event goal is not reached.
- Structure of the talk
 - Types of supine constructions
 - Contribution of the lexical preposition

2. Types of supine constructions

2.1 Clausal and prepositional supine

- A first thing to observe is that the participial form showing up in Romanian sentences like (1b) is preceded by the preposition *la* 'at'; in other constructions, it can take various other prepositions. Being preceded by prepositions is a property of what traditional grammars label as the 'verbal supine'. Traditional grammars distinguish between a nominal supine, a nominalization taking the definite determiner, and the verbal supine preceded by prepositions, as in (3)a-b respectively:

- (3) a. Fumatul este periculos pentru sănătate.
smoking.the is dangerous for health
'Smoking is dangerous for health'
- b. Trebuie să mă las de fumat.
have to me quit de smoking
'I have to quit smoking'

2.1. Clausal and prepositional

supine

- However, there are two different contexts which are not distinguished by traditional grammars: the supine may be built with a genuine, lexical preposition, or with a functional particle delimiting a clausal domain. To distinguish between the two, note that extraction is possible out of clausal supines but not out of prepositional supines.
- (4)
- a. E politicos de condus pe invitați la gară
is polite to walk obj guests at station
'It is polite to walk the guests to the station'
 - b. Pe cine e politicos de condus la gară ?
obj who is polite to walk to station
'Who is it polite to walk to the station?'
- (5)
- a. Mașina e pentru condus invitații la gară
Car-the is for walk guests-the to station
'The car is for walking the guests to the station'
 - b. *Pe cine e mașina pentru condus la gară ?
obj who is car-the for walk to station
'Who is the car for walking to the station?'

2.1. Clausal and prepositional

supine

- The clausal supine appears in the following contexts: reduced relatives (6)a; periphrases (6)b; Tough constructions (6)c, where it is preceded by a functional particle *de*, which cannot alternate with anything else:
 - a. exemple de reținut
examples de remember
'examples to remember'
 - b. am de citit
(I) have de read
'I have to read'
 - c. romanul este greu de citit
the novel is tough to read
'the novel is tough to read'

2.1. Clausal and prepositional

supine

- On the other hand, the prepositional supine is preceded by lexical prepositions, subcategorized by the main predicate, showing up especially as goal PP:

- (7) a. am plecat la pescuit
have gone at fishing
'I'm out for fishing'
- b. undiță pentru pescuit
rod for fishing
'(a) rod for fishing'

2.1. Clausal and prepositional

supine

- The contrast in (8-9) shows that the preposition is selected by the main verb in (9), but not in (8). *A avea* 'to have' and *a termina* 'to finish' select for the clausal supine but do not accept a PP; *a se apuca* 'to start' selects a prepositional supine or a PP with a nominal.

- (8) a. am de citit vs. *de carte
have de reading vs. de book
'I have de read vs. de book'
- b. a terminat de citit vs. (*de) carte(a)
has finished de reading vs. (*de) book(the)
'(s)he has finished reading vs (*de) (the) book'
- (9) s-a apucat de citit vs. de carte
se-has taken de reading vs. de book
'(s)he has started reading vs. the book'

2. Types of supine constructions

2.2. Verbal and nominal supine

- There is an empirical generalization for Romanian stating that in prepositional contexts and by default, the nominal complements have to be bare.
- This is true for locative prepositions:

- (10) a. Am plecat la școală / la spital vs. *la școală, *la spitalul
have gone to school / to hospital to school.the, to hospital.the
'I am going to (*the) school / to (*the) hospital
- b. Școala este lângă / aproape de spital vs. *spitalul
school-the is next-to / near hospital hospital.the
'The school is next to / near (*the) hospital'
- c. Casa este pe deal vs. *pe dealul
house-the is on hill on hill-the
'The house is on (*the) hill'

2.2. Verbal and nominal supine

- However, this is not true for comitative, associative or instrumental prepositions: in this case the determiner is obligatory:
 - (11) a. Am rămas acasă cu profesorul / cu mama (vs. *cu profesor, *cu mamă)
have stayed home with teacher.the / with mother.the (vs. with professor, with mother)
 - b. Am subliniat cifrele cu stiloul (vs. *cu stilou)
have highlighted numbers.the with pen.the (vs. with pen)
 - c. Am plecat la plimbare cu vaporul / cu bicicleta (vs. *cu vapor, *cu bicicletă)
have gone at strolling with boat.the / with bicycle.the (vs. with boat, with bicycle)

2.2. Verbal and nominal supine

- The same situation arises in the case of bare prepositional supine constructions, Ps obeying the same selectional restrictions as for regular nouns:

- (12) a. m-am apucat de citit (cartea)
me-have started of reading book.the
'I have started reading (the book)
- b. am terminat cu cititul (cărții)
have finished with reading.the book.the
'I'm done with the reading (of the book)

2.2. Verbal and nominal supine

- Here is a list of verbs that select a prepositional construction:

(13) a se apuca (de) ‘to start’, a se ține (de) ‘to keep doing something’, a se lăsa (de) ‘to stop, quit’, a merge (la) ‘to go to’

Verbs that select a functional de-supine construction are:

(14) a avea ‘to have’, a fi ‘to be’, a termina ‘to finish’

2.2. Verbal and nominal supine

- In combination with verbs such as those listed in (14) above, the supine enters a restructuring construction through complex-predicate formation and amounts to a truncated clause with no subject position. The upper layers (e.g. the tense projection and the subject position) are contributed by the first verb which restructures with the truncated supine clause, in turn responsible for lexical aspect and the introduction of the internal argument. The supine with a functional *de* is also present in Tough-constructions and reduced relatives, where I assume it is also a truncated clause.

2.2. Verbal and nominal supine

- From an external-distributional point of view then, we must assume a tripartite classification of supine constructions: (i) definite supine nominal – (15) ; (ii) ‘prepositional’ bare supine nominal (16); (iii) verbal supine (17).
- (15) fumatul trabucurilor i-a ruinat sănătatea
smoking.the cigars-Gen him-has ruined health-the
‘Smoking cigars ruined his health’
- (16) s-a lăsat de fumat (trabucuri)
se-has left of smoking (cigars)
‘he has quit smoking (cigars)’
- (17) are de citit douăzeci de cărți
has of reading twenty of books
‘He has to read twenty books’

2.2. Verbal and nominal supine

- The verbal supine in class 3 constructions allows clitics to be hosted by the first verb, which the bare nominal supine in class 2 does not accept: this is the reason for the ungrammaticality of (18b) below. This proves that the two constructions are fundamentally different, and that the supine in the verbal class 3 constructions is a truncated clause involving complex predicate formation with the first verb.

- (18) a. I-am terminat/avut de citit
it-has finished/had to read-Sup
'I finished/had to read/ing it'
- b. *I-am apucat de citit
it-has started to read-Sup
'I started to read it'

2.2. Verbal and nominal supine

- The prepositional supine has peculiar properties when it comes to the licensing of the internal argument. More particularly, the object cannot be differentially marked by *pe* and (as a consequence) cannot be a personal pronoun. This indicates that the supine in (19a) is not able to assign structural case to the object, while when in the fully verbal construction, it is (19b).

- (19) a. *s-a apucat de criticat pe Ion / pe el
se-has taken of criticizing pe Ion / pe him
'(s)he has started criticizing Ion/him'
- b. îl mai am de ascultat pe Nică
him still have of listening pe Nică
'I still have to listen to Nică'

2.2. Verbal and nominal supine

- The object is not normally separable from the prepositional supine, while in a fully verbal construction it is:

- (20) a. *s-a apucat de cules azi porumb
se-has taken of harvesting today maize
intended: ‘(s)he has started harvesting maize today’
- b. are de cules azi porumb
has of harvesting today maize
‘(s)he has to harvest maize today’

2.2. Verbal and nominal supine

- In support of the view that the supine's object in the prepositional construction is a 'weak' incorporated object, Soare (2002) notes the fact that the most natural object of this kind of supine construction is a bare noun:

(21) s-a apucat de cules porumb
se-has taken of harvesting maize
'he has started harvesting maize'

- Given the strict parallelism between regular prepositional phrases with nouns and prepositional phrases with the supine, and the fact that the prepositional supine incorporates the object and does not assign it regular case, I conclude that the supine in the prepositional construction is a bare eventive noun.

2. Types of supine constructions

2.3. Definite and bare supine

- In work by Alexiadou et al (2010) among others the definite nominal supine is considered to be inflected for imperfective aspect and introduce pluractionality in the context of the definite determiner. I assume that the structure of the prepositional supine is that of a bare eventive noun, but is more reduced than the one of the definite supine.

2.3. Definite and bare supine

- In the definite supine nominal, which has been the object of detailed scrutiny in Lordăchioaia & Soare (2009, 2011, 2015), the definite determiner meets an outer Aspect projection, resulting in a pluractional meaning. This is visible in (23) and (24) respectively by the fact that the supine involves distributivity effects with plurals and in the case of unbounded predicates like states it requires a bounding function, in order to further apply the pluractional operator. The semantic plurality of events introduced by the supine through the contribution of a pluractional operator located in an AspP projection induces ungrammaticality with a singular object in the case of one-time events like kill in (23):

- (23) ucisul *unui jurnalist / jurnaliștilor
killing.the a-Gen journalist /journalists-Gen
'killing a journalist/ journalists'

2.3. Definite and bare supine

- Moreover, with stative predicates (which are unbounded) the supine is ungrammatical. However, when bounded by a bounding function ‘until’, it becomes grammatical and denotes a habit. These facts diagnose pluractionality. In support of this analysis, one can also note that the definite supine always shifts the aspectual value of the verbal basis into a plurality of events. For more details, see Lordăchioaia & Soare (2009, 2011, 2015).

- (24) *statul lui Ion la Maria (până dimineața târziu)
staying-the of Ion at Mary until morning late
‘John’s staying at Mary’s until late in the morning’

2.3. Definite and bare supine

- Unlike the definite supine nominal, the bare supine nominal does not force the pluractional reading, which, when present, is contributed by the main verb. So, (25)a has an episodic one-event reading, while (25)b has a habitual reading, showing that the aspectual value is determined by the first verb (inchoative with *a se apuca* ‘to begin’ and habitual with *a se ține* ‘to keep ...-ing’) and not by the supine.

- (25) a. abia s-a apucat de mâncat carnea
 hardly se-has taken of eating meet.the
 ‘He hardly started to eat the meat’
- b. se ține de vânat rațe
 se keeps of hunting ducks
 ‘he keeps hunting ducks’

2.3. Definite and bare supine

- I thus conclude that unlike the definite supine nominal, the bare supine nominal only presents inner-aspectual (atelic) specifications. It is not clear that the bare supine nominal presents an AspP layer; the fact that the presence of adverbs and prepositional adjuncts is questionable seems to indicate that such a projection is absent in the bare prepositional supine. In (26)b, the PP *în cinci minute* ‘in five minutes’ cannot be interpreted as modifying the supine but only the main verb. As an indication, we can note that it is only possible to question the main verb and not the supine, as indicated in (26)c:

- (26) a. ??s-a apucat de mâncat imediat carnea
 se-has started of eating immediately meat-the
 b. ??s-a apucat de mâncat carnea în cinci minute
 se-has started of eating meat-the in five minutes
 c. Când s-a apucat de mâncat ? vs. #Când a mâncat ?
 when se-has started of eating vs. when has eaten
 ‘When did he started to eat’ vs. ‘When did he eat’?
- (27) s-a apucat de corectat teze timp de ore în șir
 se-has started to grade assignments time of hours in row
 ‘She started to grade assignments for hours’



2. Types of supine constructions

- Summary: three supine constructions with (i) the definite determiner; (ii) the bare prepositional supine; (iii) the clausal supine.
- The prepositional supine construction involves a bare nominal supine with lexical-aspectual specifications (it is atelic).
- The absence of the determiner is an important factor in the make-up of the goal-of-motion construction, either with the supine or with other nouns and I will return to it in section 3.

3. The contribution of the lexical preposition

3.1 The conative construction and the defeasible telos

- Certain lexical (locative) prepositions with bare nouns yield defeasible accomplishments (Bar-el et al 2004 among others) in what is commonly called the conative construction (Levin 1993):

- (28)
- a. A citit romanul (*dar nu l-a terminat)
has read novel-the (but not it-has finished)
He read the novel (*but didn't finish it)
 - b. a citit la roman (dar nu l-a terminat)
has read at novel (but not it-has finished)
He read at the novel (but didn't finish it)

These lexical prepositions have a decisive contribution undoing the telos of the main predicate. The question is what exactly they contribute in a goal-of-motion construction and in the defeasible accomplishment.

3.1 The conative construction and the defeasible telos

- Note that the same preposition is used to mark Dative in colloquial Romanian, with the possible continuation implying that the Theme did not reach the Goal. When the verb entails that the Theme reaches the Goal, the *la*-dative is ungrammatical (30c-d):

- (29)
- a. *am dat de mâncare la copii* (dar n-au mâncat)
have given of food at children (but they didn't eat)
 - b. *am trimis scrisoarea la asociație* (dar n-au primit-o)
have sent letter.the to association (but didn't receive it)
- (30)
- a. *am dat de mâncare copiilor* (?dar n-au mâncat)
have given of food children.Dat (but they didn't eat)
 - b. *am trimis scrisoarea asociației* (?dar n-au primit-o)
have sent letter.the association.Dat (but didn't receive it)
 - c. **am înmânat diploma la elevi*
have handed diploma to pupils
 - d. *am înmânat diploma elevilor* (*dar n-au primit-o)
have handed diploma pupils.Dat (*but they didn't receive it)

There seems to be an alternation between a structure with a full DP in an object position involving culmination, and a P+bare NP construction in which the telos is not reached. The question is how this difference is achieved.

3.2 The prepositional supine and the unachieved goal

- The non-culmination continuation appears in a large number of prepositional constructions, introducing Goal bare nouns, including the prepositional supine.

(31)

- a. Sunt la fumat
am at smoking
'I'm out for smoking'
- b. Mașina e pentru condus invitații la gară
car-the is for accompany guests-the to station
'the car is to accompany guests to the station'
- c. Mașina e pentru plimbare
car-the is for going-out
'the car is to go out'

(32)

- a. Sunt la fumat dar încă nu am început să fumez
am at smoking but yet not have started to smoke
'I'm out for smoking but didn't start smoking yet'
- b. Mașina e pentru condus invitații la gara dar încă nu i-am condus niciodată
car-the is for drive guests-the to station but yet not them-have driven never
'the car is to drive guests to the station but we never driven them yet'
- c. Mașina e pentru plimbare dar nu ne-am plimbat încă cu ea
car-the is for strolling but not us-have strolled yet with it
'the car is to go out but we didn't go out with it yet'

- There is a contrast with the definite supine, which does not admit the non-culmination continuation:

(33)

- *am început cititul dar încă nu citesc
I have started reading but am not reading yet

3.2 The prepositional supine and the unachieved goal

- Article drop: the preposition replaces case marking, which in Romanian depends on the Determiner. There is alternation between a genuine case (Dative, for instance) and the Prep+bare NP construction. I assume certain locative Prepositions select for an NP – the construction is not always definite contra Mardale (2008) and Dobrovie-Sorin & Giurgea (2013).

- (34) a. Casa e pe deal. *Acesta este lângă o pădure.
House.the is on hill. That is near a forest.
- b. Am plecat la pescuit. *Acesta e o activitate foarte plăcută.
have gone at fishing this/that is an activity very pleasant
- (35) a. M-am așezat lângă profesor/ (Acesta) era beat.
me-have sitten near professor/ (this one) was drunk
- b. Se îndreaptă spre școală/ (Aceasta) e deschisă.
se directs toward school/ (this one) is opened

3.3. Unfolding the unachieved

goal meaning

- The alternation between a definite DP object and a PP+bare noun brings about the distinction between the achieved and the unachieved goal meaning. A definite DP is merged in an argument position of the main predicate (in terms of Borer 2005, in SpecAspQ), yielding the telic interpretation. A PP+bare noun is not inserted in this position, but rather in an adjunct position, and does not yield a telic interpretation. The unachieved goal meaning involves a couple of ingredients, more precisely the meaning of the preposition ('at') and article drop.

3.3. Unfolding the unachieved

goal meaning

- I claim that a goal-of-motion component is contributed to the main predicate by the lexical preposition in the shape of a PathP (36), signifying that the (event) goal denoted by the bare noun is not achieved. This happens for the goal-of-motion bare supine examples above, and is also true in the case of *pentru* 'for' with ordinary nouns and with bare supines.

(36)

	PathP	
Path	NP	
la/pentru	plimbare / pescuit	
at/for	walk / fishing	

3.3. Unfolding the unachieved

goal meaning

- Inside the PathP, the locative Preposition marks case on the bare NP. The absence of the article is an important ingredient in the non-achieved goal meaning. I assume that the article is completely missing and is not incorporated into the Preposition (the nominal is not a covert definite cf. above). Article drop in the supine amounts to its truncated structure. D selects AspP in the plural supine but is absent here, so the supine does not project AspP, but only encodes lexical atelic aspect. This is turn is also an important component of the unachieved goal meaning (a-telos).
- Combining this PathP construction with a verbal predicate amounts to the absence of a result state in the construal.
- This analysis could be extended to the colloquial Dative and the conative construction, which involve the same ingredients: a PathP with a bare (atelic) noun which is inserted in an adjunct position and not in the direct argument position, cancelling the result state, and yielding the unachieved goal meaning. If this is correct, the pattern *la* 'at' + bare NP would have a unified contribution to the verbal predicate, which one could label the unachieved goal construal.



4. Conclusion

- The supine in the goal-of-motion construction is a bare noun.
- The goal-of-motion construction involves locative prepositions undoing the telos.
- This construction comes with a Path component inducing the goal of motion and canceling the result state. Article drop participates the non-achieved goal meaning.
- The analysis can be extended to the colloquial Dative and the conative construction.

References

- Alexiadou, Artemis, Gianina Iordăchioaia & Elena Soare. 2010. Number/Aspect interactions in the syntax of nominalizations: a distributed Morphology approach. *Journal of Linguistics* 46: 537-574.
- Bar-el, Leora, Henry Davis, and Lisa Matthewson. 2005. Non-culminating Accomplishments. In *Proceedings of NELS 35*: 79–92.
- Borer, H. 2005. *Structuring sense, vol II The normal course of Events*. Oxford University Press.
- Dobrovie-Sorin, Carmen, Giurgea, Ion (eds.). 2013. *A Reference Grammar of Romanian: The noun phrase. – Vol.1. – Amsterdam* : John Benjamins.
- Iordăchioaia, Gianina & Elena Soare. 2009. Structural patterns for plural blocking in Romance nominalizations. In Enoch Aboh, Elisabeth Van der Linden, Josep Quer & Petra Sleeman (eds.), *Romance Languages and Linguistic Theory. Selected papers from "Going Romance" 2007*, 145–160. John Benjamins.
- Iordăchioaia, Gianina & Elena Soare. 2011. A Further Insight into the syntax-semantics of pluractionality, *Proceedings of SALT*: 95-114.
- <http://elanguage.net/journals/index.php/salt/article/view/21.95>
- Iordăchioaia, Gianina & Elena Soare. 2015. Pluractionality with Lexically Cumulative Verbs: The Supine Nominalization in Romanian. *Natural Language Semantics*.
- Levin, B. 1993. *English Verb Classes and Alternations. A Preliminary Investigation*. Chicago/Londres: University of Chicago Press.
- Mardale, A. 2008. « Prépositions et article défini en roumain », in Adèle de Saint-Pierre & Mélanie Thibeault (éd.), *Actes des 21èmes Journées de Linguistique, Québec, Centre interdisciplinaire de recherche sur les activités langagières, Universitaire de Laval*, pp. 78-93.
- Soare, Elena. 2002. *Le supin roumain et la théorie des catégories mixtes*, PhD, University of Paris 7.
- Talmay, Leonard. 2000. *Toward a cognitive semantics, vol. 2*. Cambridge, MA: MIT Press.

Non-culmination and the structure of activities

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Overview

- The goal of this presentation is to offer a few observations that can provide a hint as to how to approach what may eventually develop into a reasonable way of thinking about a possible answer to the following question:
- Why do some but not all accomplishment predicates allow for non-culminating interpretations?



Overview

- **A culminating accomplishment (Mishar Tatar)**

(1) daut bala-sı-na zadača-nı aɲnat-tı.

D. son-3SG-DAT puzzle-ACC explain-PST

‘Daut explained the puzzle to his son’.

- **A non-culminating accomplishment**

(2) daut kırık minut bala-sı-na zadača-nı aɲnat-tı.

D. 40 minute son-3SG-DAT puzzle-ACC explain-PST

‘Daut spent forty minutes explaining the puzzle to his son (and did not succeed)’.

Lit: ‘Daut explained the puzzle for forty minutes.’



Overview

- In many languages, perfective sentences based on accomplishment event descriptions do not entail culmination.
- There are several analyses of this phenomenon (Koenig & Muansuwan 2000, Bar-el et al. 2005, Tatevosov & Ivanov 2009, Martin & Schäfer 2012, 2014, Altshuler 2013, 2014, Demirdache & Martin 2015, Martin 2015).
- However, most semanticists preoccupied themselves with what happens when you have a non-culminating accomplishment (NCA).
- The question of what happens when you cannot have it has not been sufficiently addressed.

Overview

- How are NCAs constrained?
- For example, why is the NC interpretation available for ‘open the door’, (4), but for ‘put the shirt on’, (5)?

(4) kerim eki minut ešik-ne ač-ti.
K. 2 minute door-ACC open-PST

{Context: the lock in the door is broken; Kerim tries to get in.} ‘Kerim spent (two minutes) trying to open the door (and gave up)’.

(5) ?? Kerim ike minut külmäk kij-de.
K. 2 minute shirt put.on-PST
‘Kerim spent two minutes trying to put on his shirt.’

Overview

- NCAs are typically perfective

(3) Marat kil-gen-dä... ‘when Marat came...’

a. ... kerim ešik-ne ač-ti.

K. door-ACC open-PST

‘Kerim opened the door’; **opening** »_T **coming**

b. kerim eki minut ešik-ne ač-ti.

K. 2 minute door-ACC open-PST

‘Kerim tried to open the door for two minutes’

the agent’s activity »_T **coming**

c. kerim ešik-ne ača ide.

K. door-ACC open-IPFV AUX:PST

‘Kerim was opening the door.’ **opening** \supset **coming**

Overview

- We are looking at episodic sentences on the non-iterative construal.

(6) ?? Kerim **jartı** **minut** daru-nu **eĉä-de**
K. half minute medicine-ACC drink-PST
'Kerim spent half a minute trying to take a medicine (and gave up).'

(7) Kerim **eki** **aj** daru-nu **eĉä-de**
K. two months medicine-ACC drink-PST
'Kerim spent two months taking a medicine (and felt better).'

Constraints on NCAs

- Availability of NC readings with accomplishment predicates can be restricted contextually:

(8) **Scenario 1.** The lock in the door is broken. The agent tries to open the door with the key, then applies a picklock, then uses a crowbar, then tries to disassemble the lock, etc. At some point, he gives up.

***Scenario 2.** The door is opened by typing a code that consists of a sequence of numbers, e.g., 2-5-9-6. After typing “5”, the agent stops.

kerim eki minut ešik-ne ač-ti

K. two minute door open-PST

‘Kerim spent two minutes trying to open the door’

Constraints on NCAs

- Acceptability an NCA can be determined by the characteristics of the internal argument

(9) Kerim eki minut / sekunt ^{OK}roman-ni / ^{OK}mäkalä-ne /
K. two minute second novel-ACC article-ACC
OK? [?]xat-ni / ^{??}jazu-nu / ^{??}abzac / ^{??}žemlä-ne /
letter-ACC note-ACC paragraph-ACC sentence-ACC
?? ^{??}süz-nu / *^{??}xäref-ni uki-di.
word-ACC symbol-ACC read-PST

‘Kerim spent two minutes/seconds reading a novel/article/
letter/ note/ paragraph/ sentence/ word/ symbol’

Constraints on NCAs

- NCAs can be constrained by the properties of the external argument. The majority of NCAs that are licit if the external argument is the agent, are extremely awkward with non-agentive causers (events, natural forces, etc.; Martin & Schafer 2012, 2014, Martin 2015, i.a.):

(10) ??**žil** eki minut ešik-ne ač-ti
 wind two minute door open-PST

‘The wind spent two minutes trying to open the door’

Constraints on NCAs

- NCAs can be constrained lexically. For a class of verbs, the NC reading seems to be unavailable in any context no matter what the properties of its arguments are.

(11) ?? Kerim ike minut külmäk **kij-de.**
K. 2 minute shirt put.on-PST
'Kerim spent two minutes trying to put on his shirt.'



Constraints on NCAs

- Same or similar pattern:
 - in a number of Turkic languages
 - Karachay-Balkar (Lytikova *et al.* 2006)
 - Chuvash (Pazelskaya 2001)
 - Tuba Altai (Tatevosov 2009)
 - Crimean Tatar (Kavitskaya, p.c.)
 - in a few North-Caucasian languages
 - in some Uralic languages
 - in Russian



Outline of the idea

- I want to explore whether it is possible to account for the constraints on NCAs relying on the following working hypothesis
- At the point where “a non-culminating accomplishment” combines with aspectual operators, it denotes a predicate of activities.



Outline of the idea

- Perfective non-culminating accomplishments we saw above are essentially perfective activities.
- (12) John walked for two hours.
- To produce a non-culminating reading, an accomplishment eventuality description has to be converted (by whatever available means) into an activity description.
 - Restrictions on NCAs can thus be thought of as restrictions on this conversion.

Outline of the idea

- The hope is to relate unavailability of non-culminating readings to the inability of an accomplishment description to be re-interpreted as an activity.
- (13) Kerim eki sekunt *xäref-ni uki-di.
K. two second symbol-ACC read-PST
'Kerim spent two seconds reading a symbol'
- Infelicity/ungrammaticality we observe in (9), for example, can be attributed to the failure of 'read a symbol' and similar predicates to present themselves as an activity.



Outline of the idea

- ‘Read a novel’ does allow for such a re-interpretation, hence is licensed under the non-culminating construal.

(14) Kerim eki saxat roman-ni uki-di.
K. two hour novel-ACC read-PST
‘Kerim spent two hours reading a novel.’



Outline of the idea

- Two questions appear immediately:
- Is there any empirical evidence that non-culminating perfective accomplishments are perfective activities?
- How does the reinterpretation mechanism work?
- Russian delimitative



Russian delimitative

- Russian is a language where perfective telic and perfective atelic clauses are morphologically distinct
- Perfective atelic clauses are distinguished by the prefix *po-* with the “delimitative” meaning
- Perfective telic clauses comprise all other prefixed verbs and a few morphologically simplex verbs
 - Perfective telic verbs undergo “secondary imperfectivization”

Russian delimitative

Aspectual morphology:

“Simplex Imperfective”	“(Telic) Perfective”	“Secondary Imperfective”
pisa-t’ ‘write’	da-t’ ‘give’	da-va-t’
čita-t’ ‘read’	na-pisa-t’	[za-pis]-yva-t’
	za-pisa-t’ ‘record’	[u-bi]-va-t’
	u-bi-t’ ‘kill’	[pro-čit]-yva-t’
	pro-čita-t’	

Russian delimitative

- Perfective telic sentences

(15) Volodja [ot-kry]^{PFV}-I okno
V. open-PST.M window.ACC
‘Volodja opened a/the window.’

(16) Volodja [resi]^{PFV}-I zadaču
V. solve-PST.M puzzle.ACC
‘Volodja solved the puzzle.’



Russian delimitative

- Perfective atelic sentences; a lexical activity:

(17) Volodja [po-gulja]^{PFV}-I
V. walk-PST.M
'Volodja walked.'

Russian delimitative

- NCAs
- (18) Volodja [po-[[ot-kry]-va]]^{PFV-I} okno
V. PO-open-VA-PST.M window.ACC
'Volodja spent some time trying to open a/the window.'
- (19) Volodja [po-[reš-a]]^{PFV-I} zadaču
V. PO-solve-VA-PST.M puzzle.ACC
'Volodja spent some time trying to solve the puzzle.'
- NCAs share the delimitative *po-* with perfective lexical activities.

Russian delimitative

- Moreover, delimitative NCAs in Russian exhibit the same type of restrictions as, e.g., NCAs in Turkic.

(20) Vasja **po-otkr-yva-l** dver'
V. PO-open-VA-PST door.ACC
(p'jat' minut i brosi-l).

{Context: the lock in the door is broken; Vasja tries to get in.} Vasja spent (five minutes) trying to open the door (and gave up.)

(21) ?? Vasja **po-rasstrel-iva-l** plenn-ogo.
V. PO-shoot-VA-PST captive-ACC

'Vasja spent some time executing the captive by shooting'.



Russian delimitative

- Does *po-* only apply to activities?
- There is a bunch of work that offers the positive answer to that question.
- Dickey 2005 (and elsewhere):
“*Po-* delimitatives perform a crucial systemic function in the Russian aspectual system — the extension of the aspect opposition to atelic activity predicates... Without *po-* delimitatives, the Russian aspect opposition would be restricted to telic predicates (accomplishments and achievements) and thus be a much more lexical category.” (Dickey 2005)



Russian delimitative

- Mehlig 2003, 2006
- For Mehlig, the delimitative is the perfective whose distribution is restricted by certain characteristics of a predicate it combines with.
- A property that constrains application of *po-* is **homogeneity**. Delimitatives can only be derived from predicates that refer to homogeneous situations in which «activity directed towards a goal can be interrupted and resumed arbitrarily many times; phases of a situation are conceptualized as identical».

Russian delimitative

- Piñon's (1994) idea: the delimitative (perfective, in his original terminology) prefix *po-* has the meaning of a **durative adverbial underspecified** for duration ('for some contextually salient time that falls below the expectations').

$$(22) \quad \lambda P.\lambda e.[P(e) \wedge \mu(\tau(e)) = r \wedge r < \text{Exp}(\mu(\tau(e)) \wedge \dots)]$$

τ is the temporal trace function (of type $\langle v, i \rangle$),
 μ is a contextually determined additive measure function (of type $\langle i, n \rangle$),
 r is a contextually determined (small) number;
 $\text{Exp}(\dots)$ is a contextually determined expectation value.

- Crucially, Piñon suggests that the event variable should **range over processes**

Russian delimitative

- What does that mean exactly that a complement of *po-* has to be a “homogeneous” predicate or a predicate of activities/processes?

(23) Vasja **po-otkr-yva-l** dver'
V. PO-open-PART-PST door.ACC
(pjat' minut i brosi-l).

{Context: the lock in the door is broken; Vasja tries to get in.} Vasja spent (five minutes) trying to open the door (and gave up.)

- At this point we need to take a closer look at the composition of NCAs



Composition

- Three steps
 - Denotation of an uninflected vP
 - Partitive operator (covert in some languages, overt in others)
 - Perfective operator (part of the denotation of all perfective past sentences)

Composition

- Russian looks like a language where all the three steps are morphologically overt

- (24) Vasja **po-otkr-yva-l** dver'
V. **PFV**-open-**PART**-**PST** door.ACC
'Vasja spent some time opening the door (and gave up)' .
- (25) ?? Vasja **po-nade-va-l** rubašk-u.
V. **PFV**-put.on-**PART**-**PST** shirt-ACC
'Vasja spent some time putting the shirt on' .



Composition

- We start with the denotation of a non-inflected vP

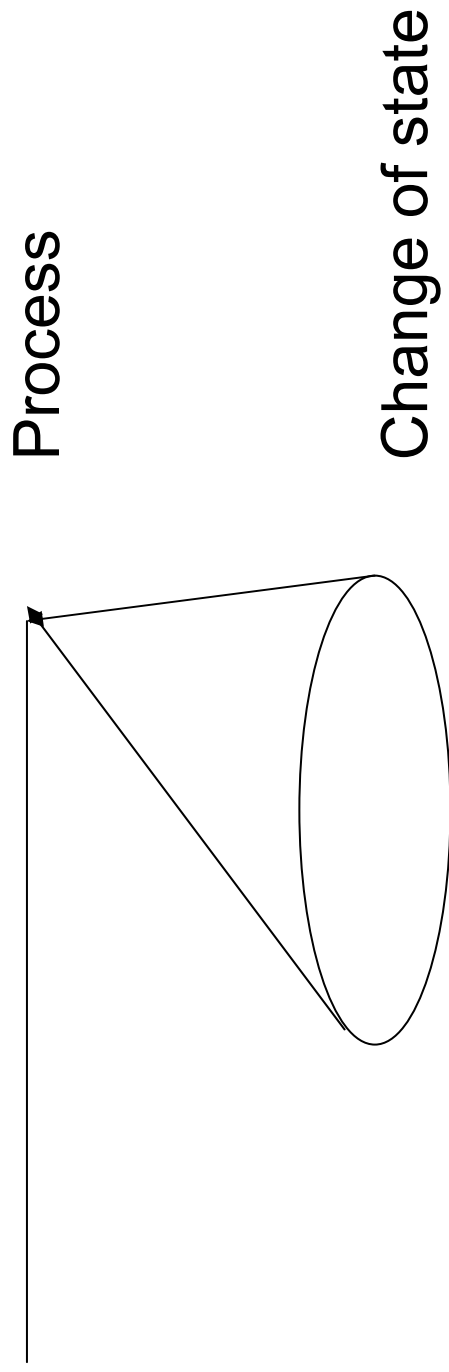
$$(26) \quad \llbracket \text{Volodja open the door} \rrbracket = \lambda e. \exists e' [\text{open}_P(\text{Volodja})(e) \wedge \text{open}_{CS}(\text{door})(e') \wedge \text{cause}(e')(e)],$$

where the relations open_P and open_{CS} are process and change of state components of event structure.

- Predicate decomposition: Dowty 1979, Rappaport Hovav, Levin 1998 and elsewhere, Kratzer 2000, 2005, Pylkkänen 2000, Folli 2002, Rothstein 2004, Ramchand 2008, Lyutikova, Tatevosov 2014, and many others.

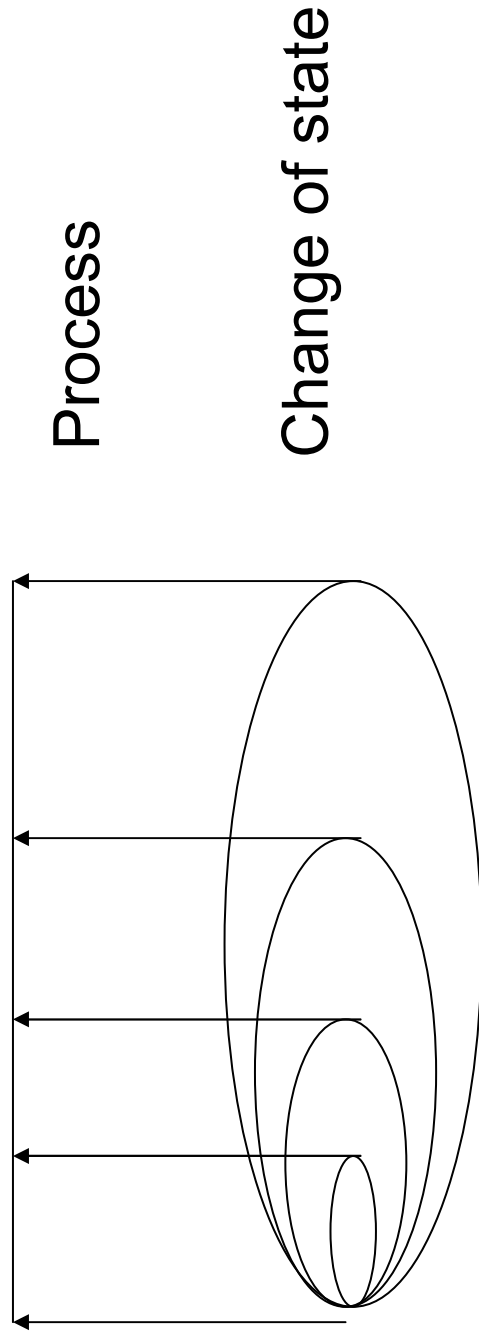
Composition

- 'Open a/the door' represents one type of accomplishment: change of state occurs at the minimal final part (MFP) of the process in which the Agent is involved.



Composition

- Another type: incremental accomplishments (Rothstein 2004)



- What I say about MFP predicates, extends to incremental predicates with minor technical adjustments

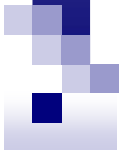
Composition

- The verb stem from (11) merges with the morpheme glossed as PART (= the (secondary) imperfective in the traditional terminology)

(27) otkry → otkry-**va**-

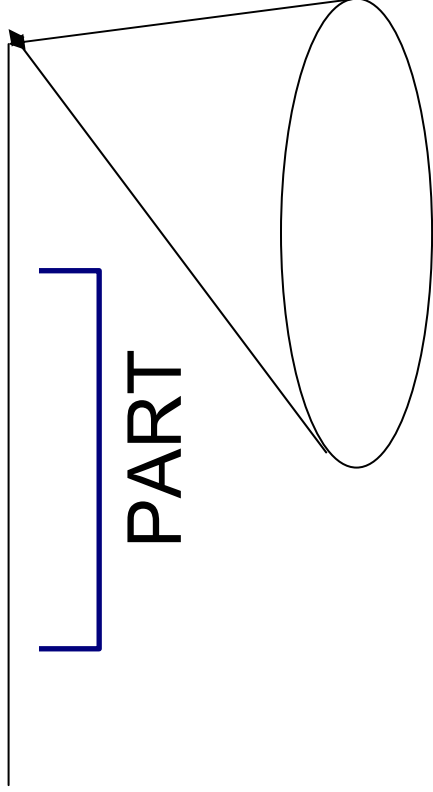
(28) $\| \text{PART} \| = \lambda P. \lambda e. \exists e' [e \subset e' \wedge P(e') \wedge \neg \text{FIN}(e')(e)]$

- The PART operator extracts proper non-final parts of an event from the extension of an event predicate.
- PART is phonologically silent in languages like Turkic



Composition

‘Open a/the door’ plus PART



Process in which
the agent is involved

The door attaining a
state of being open



Composition

- PART makes the analysis a version of a partitive theory of non-culmination (e.g., Koenig and Muansuwan 2001 and subsequent literature)
- I ignore issues surrounding the Imperfective Paradox; the full version of the analysis is to be couched in modal terms (Dowty 1979, Landman 1992, Portner 1998 a.o.; see the recent discussion in Altshuler 2013).
- I follow Bar-el et al. 2005 and Tatevosov & Ivanov 2009 in assuming that PART by itself is neutral wrt to the viewpoint aspect (cf. Bar-el et al's "inertia modality" operator).

Composition

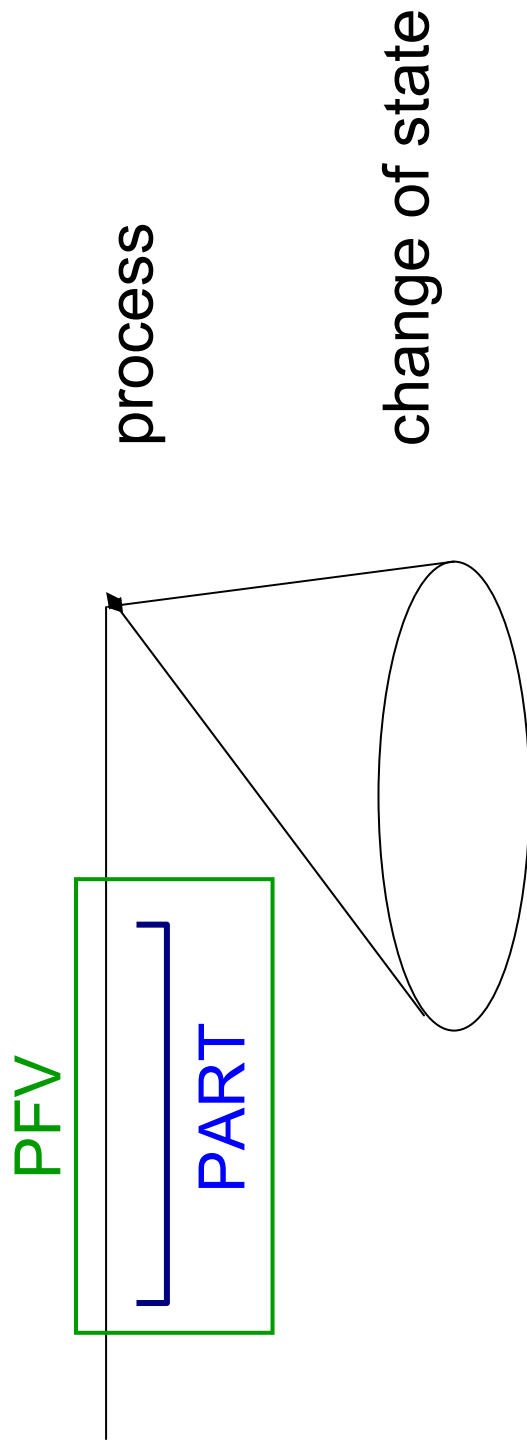
- The combination of PART and the vP predicate denotes non-final parts of a process that leads to the culmination where the door gets open.

$$(29) \quad \parallel \text{PART [V. open the door]} \parallel = \lambda e. \exists e' \exists e'' [e \subset e' \wedge \neg \text{FIN}(e')(e) \wedge \text{open}_P(\text{Volodja})(e') \wedge \text{open}_{CS}(\text{door})(e'') \wedge \text{cause}(e'')(e')]$$

- For 'put the shirt on', a parallel representation obtains:

$$(30) \quad \parallel \text{PART [V. put the shirt on]} \parallel = \lambda e. \exists e' \exists e'' [e \subset e' \wedge \neg \text{FIN}(e')(e) \wedge \text{put.on}_P(\text{Volodja})(e') \wedge \text{put.on}_{CS}(\text{shirt})(e'') \wedge \text{cause}(e'')(e')]$$

- At the next stage, the perfective enters the derivation and is combined with the output of PART:





Composition

- At the point where PFV applies, PART has already extracted a part of the process component of an accomplishment eventuality description.
- If the perfective can successfully combine with [PART-[open the door]], we have to figure out what prevents its application to [PART-[put the shirt on]].
- If [PART-[open the door]] is an activity in some sense, why is [PART-[put the shirt on]] not?

Composition

- Mehlig 2003 and elsewhere: an argument of the delimitative must be homogeneous / undergo homogenization
 - Mehlig's homogeneity cannot be mereological homogeneity
- (31) Mereological homogeneity (Rothstein 2004, among others)
- $$\forall P[\text{HOM}(P) \leftrightarrow \forall x \forall x' [P(x) \wedge x' < x \rightarrow P(x')]]$$
- Both [PART-[open the door]] and [PART-[put the shirt on]] are mereologically homogeneous (down to contextually relevant atomic parts).



Composition

- How is [PART-[open the door]] different from [PART-[put the shirt on]]?
- **The hypothesis:**
The activity subevent of [put the shirt on] and similar accomplishments is structured in a way the activity subevent of [open the door] is not.
- For predicates like ‘put the shirt on’, contextually salient subevents making up an activity part of the description show **unique temporal arrangement**.

Structure of the process component

- To see what unique temporal arrangement is, consider (32) again:
 - (32) Scenario 1. The lock in the door is broken. The agent tries to open the door with the key, then applies a picklock, then uses a crowbar, then tries to disassemble the lock, etc. At some point, he gives up.
**Scenario 2. The door is opened by typing a code that consists of a sequence of numbers, e.g., 2-5-6-9. After typing “6”, the agent stops.*
- Vasja **po-otkr-yva-l** dver’
V. PO-open-PART-PST door
‘Vasja spent some time opening the door’

Structure of the process component

- Scenario 2. The door is opened by typing a code that consists of a sequence of numbers, e.g., 2-5-6-9.
- A process component e_A of 'open the door' consists, on this scenario, of four subevents arranged in a specific order:

e_2 : typing of 2

e_5 : typing of 5

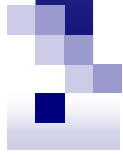
e_6 : typing of 6

e_9 : typing of 9

$$e_A = e_2 \oplus e_5 \oplus e_6 \oplus e_9$$

$$e_2 \ll_T e_5 \ll_T e_6 \ll_T e_9$$

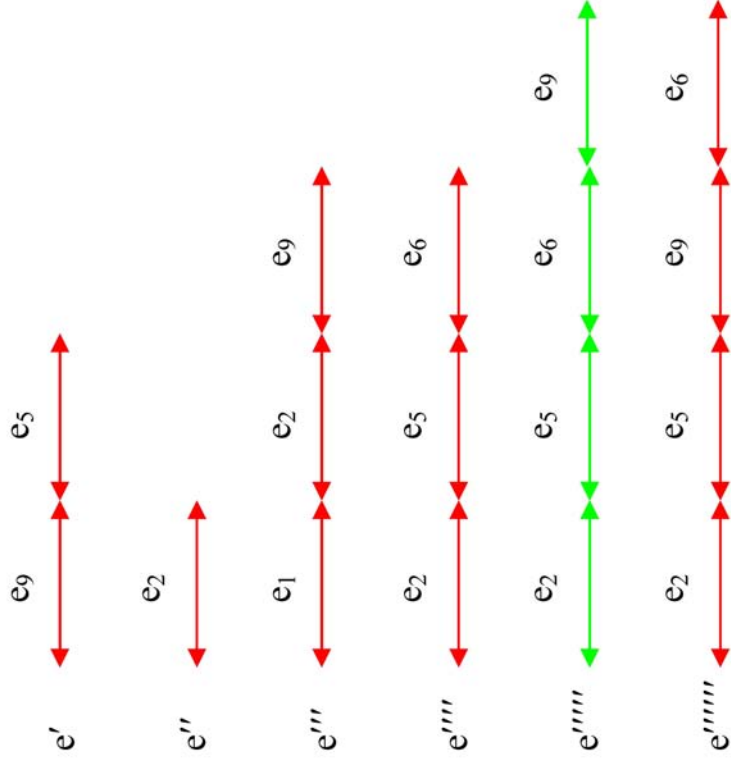
- If subevents are arranged in a different order, some of them are skipped, etc., their sum is no longer an activity that opens the door.



Structure of the process component

In a world where e_A opens the door, any process composed of typing numbers is only in the extension of \parallel K. open the door \parallel if it is identical to e_A .

A similar point can be made about the process part of 'put the shirt on', 'take a medicine', 'execute the captive by shooting' etc.



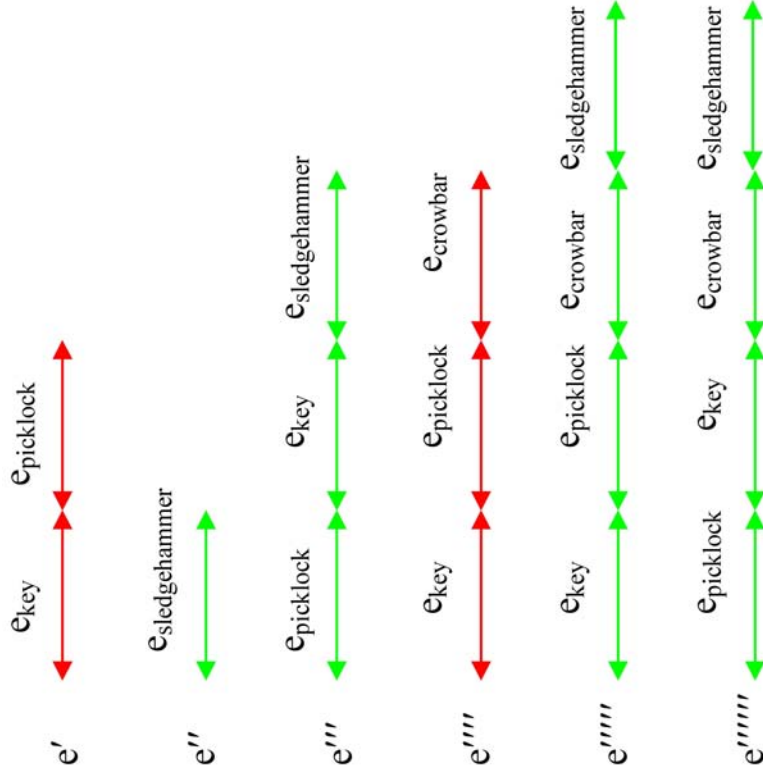
Structure of the process component

- Opening the door on the Scenario 1 (“broken lock”). The lock is broken. The agent tries to open the door with the key, then applies a picklock, then uses a crowbar. When he finally hits the door with a sledgehammer, it opens.
- Relevant subevents are now (33):

(33) $e_{\text{key}} = \text{using a key}$
 $e_{\text{picklock}} = \text{using a picklock}$
 $e_{\text{crowbar}} = \text{using a crowbar}$
 $e_{\text{sledgehammer}} = \text{using a sledgehammer}$

Structure of the process component

- There is no unique arrangement of subevents into an activity.
- As long as a sledgehammer opens the door, all that matters is that $e_{\text{sledgehammer}}$ is the final subevent in the activity. Other subevents can be absent or occur in whatever order, since they make no causal contribution to opening of the door.
- e'' , e''' , e'''' , e'''''' are all activities that fall under the extension of \parallel K. opened the door \parallel



Structure of the process component

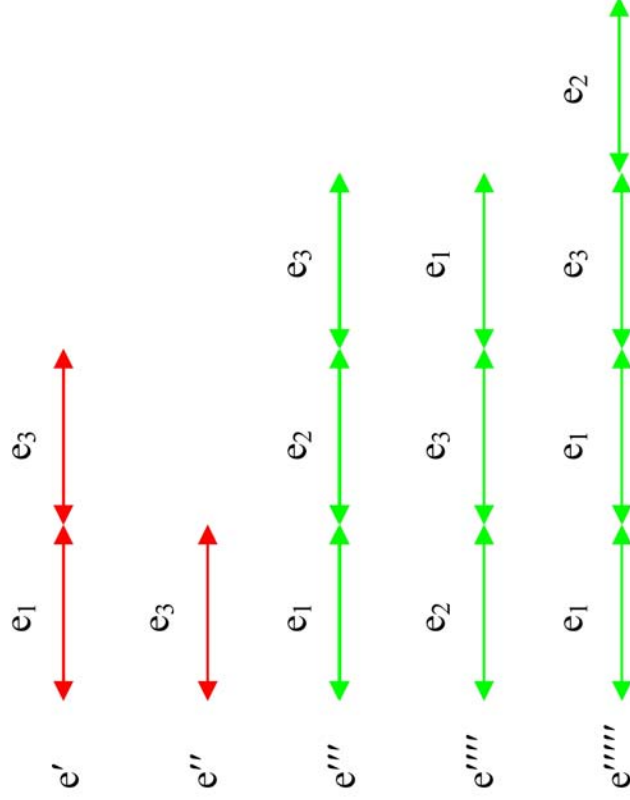
- Consider an incremental accomplishment (Rothstein 2004) like ‘plow a field’ (the reasoning extends to other incremental accomplishments as well). Such accomplishments do license the NC reading: :

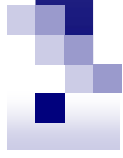
(34) Vasja popaxal pole
V. PO-plow.PART-PST field.ACC
‘Vasja spent some time plowing the field’

- The process component of such event descriptions does not require unique arrangement either.
- Assume, for example, that the activity consists of plowings e_1 , e_2 and e_3 of three portions of the field.

Structure of the process component

- For an event e to count as an process component of 'plow the field', it is essential that e_1, e_2, e_3 , are all part of e . Their temporal arrangement is irrelevant.
- Therefore, e''' , e'''' , and e'''''' can all be an element of the extension of || Kerim plow the field||





Structure of the process component

- **Generalization**

If the process component of an event description is arranged by temporal precedence in the unique way, NCAs are not licensed.

Structure of the process component

- **Unique temporal arrangement**
- Whenever an event e falls under P , there is exactly one way for e to start, there is exactly one way for e to finish, and for any non-final part of e there is exactly one follow-up.
- A predicate of events shows unique temporal arrangement, $UTA(P)$, iff
$$\forall e[P(e) \rightarrow \exists! e' [e' \in \mu_c(e) \wedge \text{INI}(e)(e')] \wedge \exists! e'' [e' \in \mu_c(e) \rightarrow \text{FIN}(e)(e')] \wedge \forall e' [e' \in \mu_c(e) \wedge \neg \text{FIN}(e)(e') \rightarrow \exists! e'' [e'' \in \mu_c(e) \wedge e' \ll_T e'']]$$
where $\mu_c(e)$ is the contextually salient set of non-overlapping parts of e such that $\oplus \mu_c(e) = e$



Structure of the process component

- «Activity directed towards a goal can be interrupted and resumed arbitrarily many times; phases of a situation are conceptualized as identical» (Mehlig 2006)
- With the notion of UTA, Mehlig-homogeneity (MH) can be given more content:

$$(35) \quad \forall P[\text{MH}(P) \leftrightarrow \neg \text{UTA}(P)]$$

Structure of the process component

- The prefix *po-* wants its complement to be an activity.

$$(36) \quad || \textit{po-} || = \lambda P \dots [\dots \wedge \textit{Activity}(P) \wedge \dots]$$

- Now we can give the notion of activity some more content:

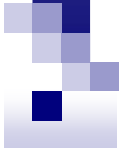
Activities are Mehlignomogeneous

- We apply PART to an accomplishment
- If what the predicate that PART returns is Mehlignomogeneous, it is a predicate of activities
- If it is a predicate of activities, *po-* is happy.



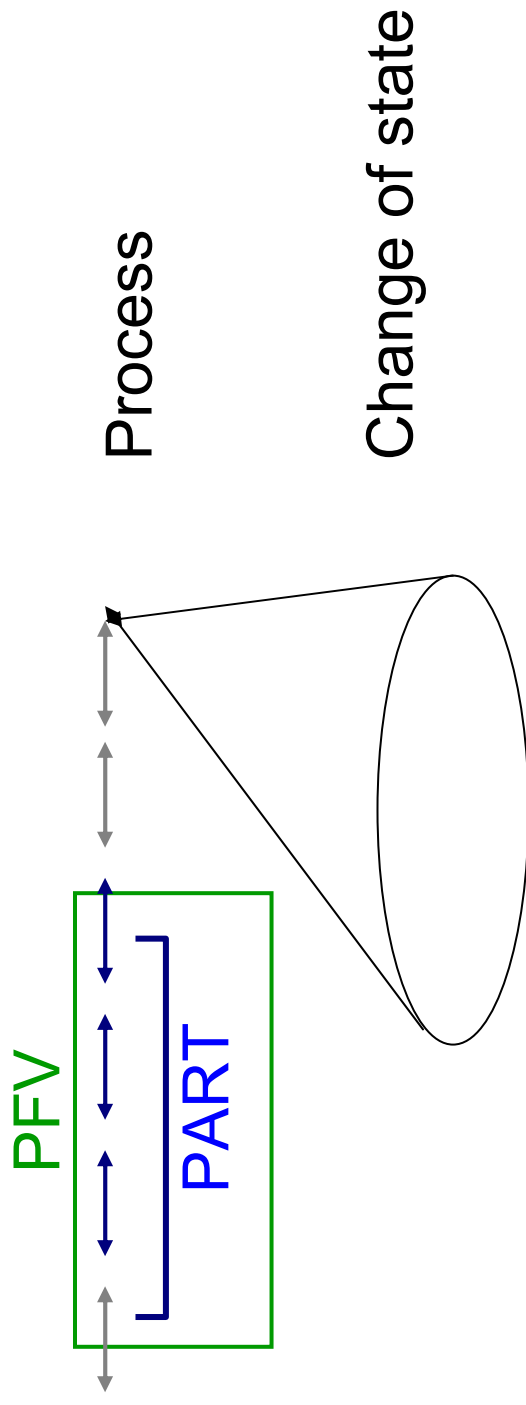
Structure of the process component

- By hypothesis, the delimitative is an instance of an NCA; the only difference is that it shows more overt morphology.
- If NCAs in languages like Tatar involve the same steps of derivation, they are associated with the same restrictions, and being an activity is one of them



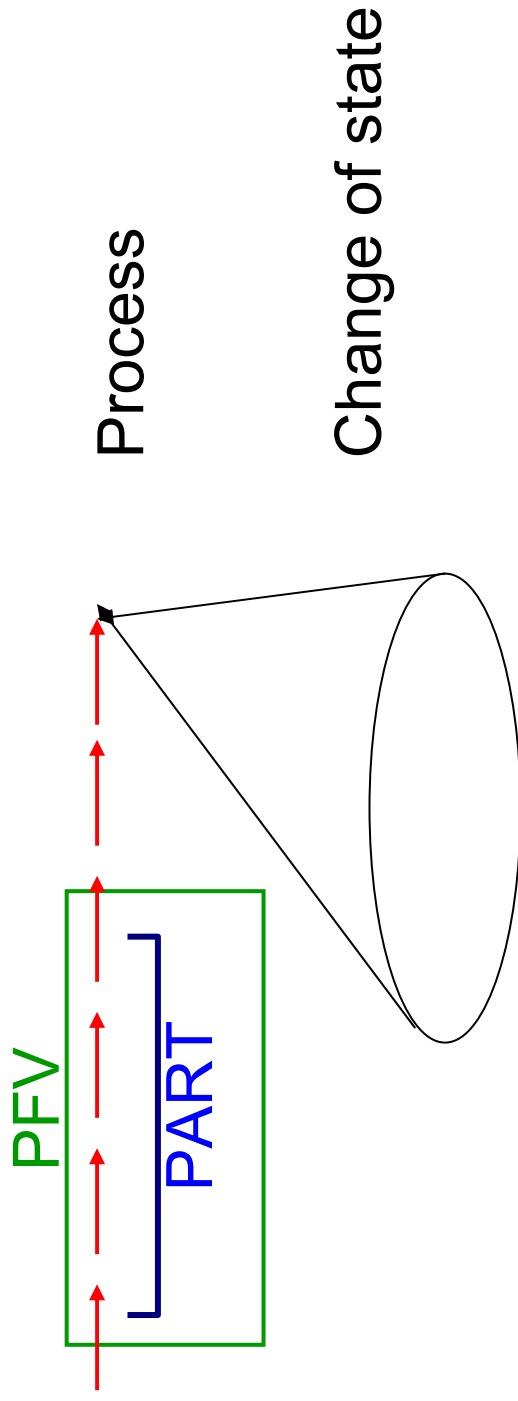
Structure of the process component

- $PART(\lambda e.P(e))$ is an activity:



Structure of the process component

- $\text{PART}(\lambda e.P(e))$ is not an activity:



- An interesting open question: is there any principle of lexical semantics that would predict that a non-Mehlig homogeneous $\text{PART}(\lambda e.P(e))$ is an impossible denotation?

Structure of the process component

- A potential problem.

(32) *Scenario 3 (due to Wayles Browne, p.c). The door is opened by typing a sequence of numbers 2 and 5 in whatever order. The agent types “2” and stops.

Vasja **po-otkr-yva-l** dver’

V. PO-open-PART-PST door

‘Vasja spent some time opening the door’



Structure of the process component

- A possible fix
- The amount of contextually salient subevents the process component consists of may have to be above a certain contextual determined threshold.
- $|\mu_c(e)| > r_c$
- **OKScenario 4.** The door is opened by typing a sequence of any 50 numbers in whatever order. After typing first 20 numbers the agent stops.

Back to the restrictions

- MH gives hope to account for the restrictions we have seen before

(37) ?? Vasja **po-zapi-va-l** tabletk-u.

V. PO-ZA.drink-PART-PST pill-ACC

‘Vasja spent some time washing the pill down.’

- Accomplishments like *zapivat* ‘wash down (of food, medicine, etc.)’ are lexical UTA predicates.

(38) $\forall x \forall y [\text{UTA}(\lambda e. \parallel \text{zapivat} \parallel)(x)(y)(e)]$

- Any activity part of events from its extension consists of subevents whose temporal order is fixed.

Back to the restrictions

- In (39), on the scenario 2 the UTA character of the activity is contextually entailed
- (39) *Scenario 2. The door is opened by typing a code that consists of a sequence of numbers, e.g., 2-5-9-9. After typing “5”, the agent stops.
- | | | |
|-------|----------------------|-------|
| Vasja | po-otkr-yva-l | dver' |
| V. | PO-open-PART-PST | door |
- ‘Vasja spent some time opening the door’
- (40) $\forall x \forall y [UTA(\{e: \text{||otkryvat' ||}(x)(y)(e)\} \cap C(e))]$
- Lexically, however, ‘open the door’ is not an UTA predicate, since it is compatible with non-UTA scenarios like the broken lock scenario.

Back to the restrictions

In (41), acceptability decreases with the “size” of the internal argument.

- (41) Vasja **po-čita-l** OKroman / OK/?pis'mo / letter
V. PO-read.PART-PST novel
?zapisku / ??predloženie / ???slovo / *bukvu
note sentence word symbol
'Vasja spent some time reading a novel/ letter/ note/
sentence/ word/ symbol'

Back to the restrictions

- The smaller the size of an argument is, the more difficult it is to come with a partition $\mu_c(e)$ of an event e into subparts that can be arranged in a non-unique way (see Rothstein 2004: 111-112 for related observations).
- In a limiting case like ‘read a symbol’, $\mu_c(e)$ is a set only containing an original (atomic) event itself, and the predicate comes out as trivially having the UTA property.

$$(42) \quad \forall x [UTA(\{e: \text{read } \|(x)(\text{symbol})(e)\})]$$

Back to the restrictions

- Whether the restriction on agentivity reduces to UTA may look somewhat less clear.

(43) ***Veter** **po-otkr-yva-l** dver'
wind PO-open-PART-PST door
'The wind spent some time opening the door'

- The question is whether restrictions like (33)
 - directly follow from non-agentivity of the causer or
 - have to do with temporal structure of processes (normally) brought about by non-agentive causers.
- There is evidence suggesting that the latter may be the right answer.



Back to the restrictions

- Acceptability of an NCA depends on whether an entity should be capable of goal-oriented behavior for an activity to be temporally arranged in a non-unique way.
- This seems to be the case with 'open'. There are verbs, however, that do license the delimitative with non-agentive causers.

Back to the restrictions

- (44) V ozere on **po-isper-ja-l** vodičku,
in lake it PO-evaporate-PART-PST water-ACC
poka ostyval
while cool-PST
(About a meteorite that fell down into a lake:) ‘In the
lake, while it was cooling down, it evaporated the
water for a while’.
- (45) Solntse liš’ nemnogo **po-gre-l-o** peremet,
sun just for.a.while PO-heat-PST snow.pile.ACC
kak vdruk on obvalilsja.
as suddenly it collapsed
‘The sun just heated the snow pile for a little, and it
suddenly collapsed.’



Back to the restrictions

- Evaporating and heating processes do not require a unique temporal arrangement, and the an NCA is licit even though the external argument is a natural force.
- I conclude, tentatively, that the UTA analysis can be extended to the case of non-agentive causers as well.
- What we need, then, is a better understanding of the relationship between (non-)agentivity and constraints on the temporal structure of processes in which agents and natural forces participate.



Summary

- The formation of NCAs is constrained by the temporal structure of the activity subevent in a complex event description.
- Whenever this subevent shows unique temporal arrangement, an NCA is out, and the culmination has to be attained in the actual world.
- In a broader perspective, we can benefit from studying restrictions on NCAs in two ways.
- First, we can find out what aspects of the internal structure of accomplishments favor their reinterpretation as activities and how exactly.
- Secondly, we can better understand what it means for an eventuality description to be a predicate of activities.



Thank you!

Agent Control and the Acquisition of Event Culmination

in Basque, Dutch, English, Spanish and
Mandarin

Angeliek van Hout, University of Groningen, CLCG; **Oana Lungu**, University of Nantes;

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Isabel García del Real, University of the Basque Country; **Ainara García Sanz**, University of the Basque Country;

Anna Gavarró, Universitat Autònoma de Barcelona; **Lucía Gómez Marzo**, Universitat Autònoma de Barcelona;

Saar Hommes, University of Groningen; **Nina Kazanina**, University of Bristol; **Jinhong Liu**, University of Nantes;

Fabienne Martin, University of Stuttgart; **Iris M. Strangmann**, University of Groningen & CUNY

Acquisition of Event Culmination

- Phenomenon
 - Children sometimes accept incomplete events for telic-perfective clauses
- Dutch, English, German, Greek, Italian, Mandarin, Polish, Russian, Spanish
- Variations depending on language, design, materials, task, verb type, object type

Grammar of Event Culmination

Traditional semantic theory

- Verb meaning: telic V culmination point; atelic V not.
- Other elements in VP: Germanic particles, Mandarin resultative VV compounds.
- Tense-aspect marking interaction
 - Telic V + perfective entails culmination
 - Telic V + imperfective no entailment

Novel developments in semantic theory

- Incomplete event interpretations of telic-perfective sentences
 - With change-of-state verbs: Mandarin, Hindi, Thai, Salish languages.
- Situations with partial result; in Mandarin even for no result
 - 1 Zhangsan guan-le na shan men, dan men hai kai-zhe
Zhangsan close-PERF that CLF door but door still open-DUR
"Zhangsan closed the door, but the door was still open."
- Type of subject plays a role (Liu, in prep.)
 - 2 #Yi zhen da feng guan-le na shan men, dan men hai kai-zhe
One CLF strong wind close-PERF that CLF door but door still open-DUR
Intended: "The strong wind closed the door, but the door was still open."

Novel developments in semantic theory

- Agent Control hypothesis Demirdache & Martin 2015: 201
“Zero-result non-culminating construals require the predicate's external argument to be associated with 'agenthood' properties.”

Research question & predictions

Do incomplete event interpretations in children have the same source as adults' non-culminating construals in languages like Mandarin?

Hypothesis: Children mistake their Ig as Mandarin, as a Ig that allows non-culminating construals

Prediction: Child language reflects ACH: More acceptance of incomplete situations for Agent than Cause subjects

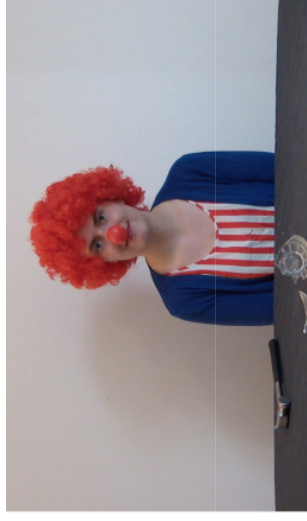
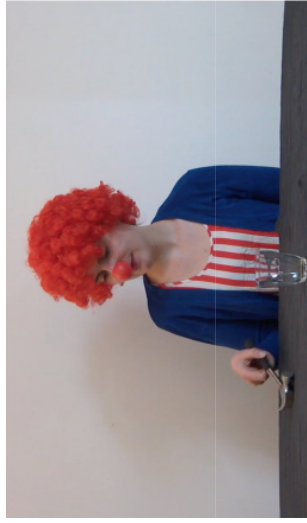
- Telic-perfective sentences
- Subject type: *Agent vs Cause*

Participants

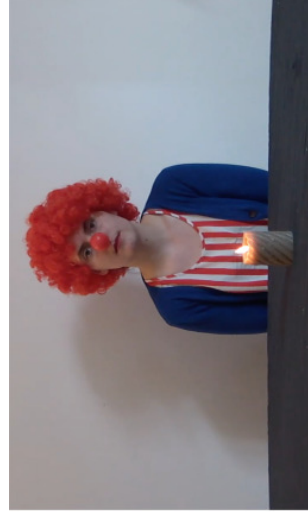
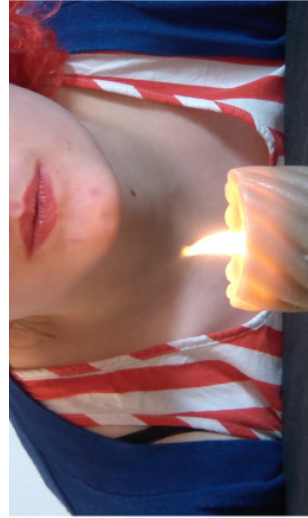
	3-yr-olds	5-yr-olds	Adults
Basque	-	20 (5;8)	14 (30;0)
Dutch	20 (3;6)	20 (5;9)	10 (22;6)
English	-	23 (4;9)	10 (23;4)
Spanish	20 (3;4)	20 (5;4)	10 (n/a)
Mandarin mono	20 (3;4)	20 (5;6)	30 (33;6)
Mandarin W	20 (3;2)	20 (5;3)	20 (33;5)

Design & Materials

- **Agent--Full result (destroy)**

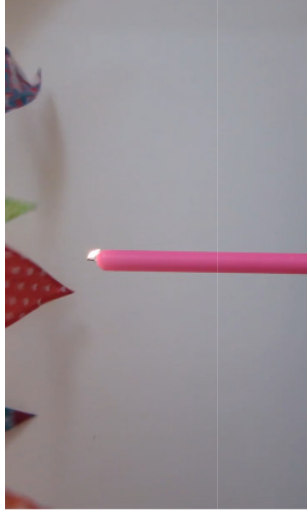


- **Agent--Zero result (blow out)**



Design & Materials

- **Cause--Full result (blow out)**



- **Cause--Zero result (destroy)**



Test sentences

English

Did the clown destroy the glass?

Did the explosion destroy the glass?

Basque

Pailazoak edalontzia puskatu al du?
clown-ERG glass.ABS break.PF INT have.PRES

Eztandak edalontzia puskatu al du?
explosion-ERG glass.ABS break.PF INT have.PRES

Dutch

Heeft de clown het glas kapotgemaakt?
has the clown the glass broken

Heeft de explosie het glas kapotgemaakt?
Has the explosion the glass broken

Spanish

¿El payaso ha roto el vaso?
the clown has broken the glass

¿La explosión ha roto el vaso?
the explosion has broken the glass

Mandarin Mono

Xiaochou sui-le na-ge bolibei ma?
clown break-PERF that-CLF glass INT

Baozha sui-le na-ge bolibei ma?
explosion break-PERF that-CLF glass INT

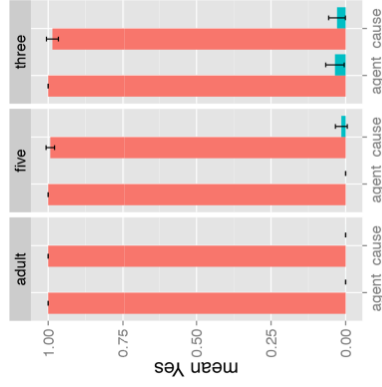
Mandarin VW

Xiaochou qiao-sui le na-ge bolibei ma?
clown hit-break PERF that-CLF glass INT

Baozha zha-sui le na-ge bolibei ma?
explosion explode-break PERF that-CLF glass INT

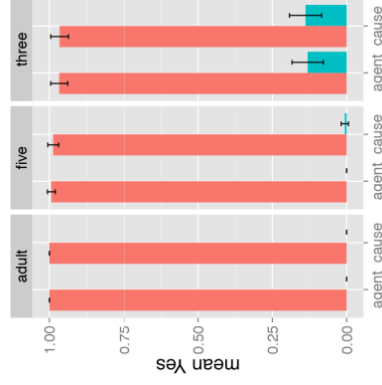
Results

Basque



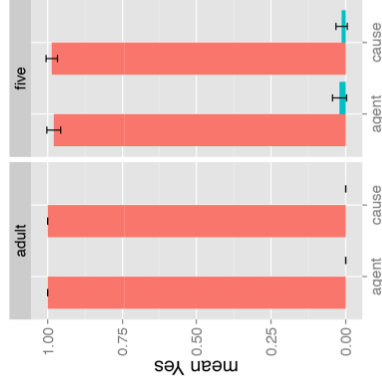
Main effect group and a situation-by-group interaction

Dutch



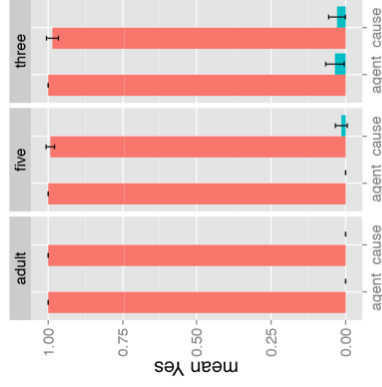
Main effect situation

English



Main effect situation

Spanish



Main effect of situation, group and a group and a situation-by-group interaction

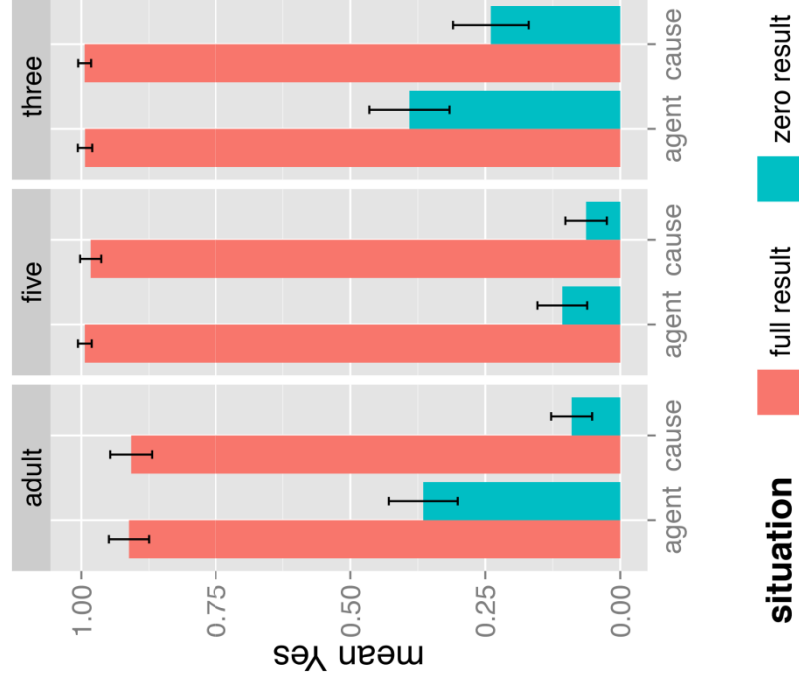
Results

in prep.

Liu,

Mandarin monomorphemic Vs

Mandarin mono



Main effects Subject type

- Adults
beta= -0.604 (0.13), z= -4.4***
- 3-year-olds
beta= -0.118 (0.75), z= -2.4*

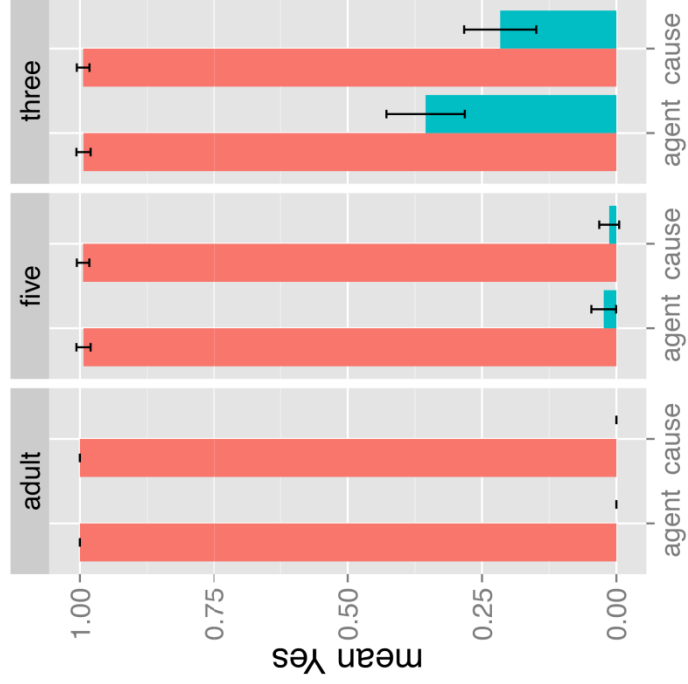
Mixed effects logistic regression using glmer() function of the lme4 package (Bates et al, 2015) in R was applied. We fit a model with a random intercept for participant as random factor with Subject_type (Agent versus Cause) as predictor.

Results

in prep.

Liu,

Mandarin VW



Mandarin VW compounds

No significant effects for any age group

Mixed effects logistic regression using glmer() function of the lme4 package (Bates et al, 2015) in R was applied. We fit a model with a random intercept for participant as random factor with Subject_type (Agent versus Cause) as predictor.

situation ■ full result ■ zero result

Discussion

RQ: Do incomplete event interpretations in children have the same source as adults' non-culminating construals in languages like Mandarin?

Hypothesis: Children mistake their lg as Mandarin, as a lg that allows non-culminating construals

Prediction: Child language reflects ACH: More acceptance of incomplete situations for Agent than Cause subjects

Results: No support in Basque, Dutch, English, Spanish

Conclusions

- Novel angle on acquisition of event culmination: Agent control
- First time experimental support for ACH in Mandarin adults
- Support for ACH only in Mandarin children.
 - No support in other child languages

Conclusions

- Basque, Dutch, English, Spanish, Mandarin 5-year-olds know
 - Perfective sentences with change-of-state verbs cannot describe zero-result situations.
- Source for children's non-culminating interpretations in previous research not the same as adult's non-culminating construals in languages like Mandarin.

Questions for further research

Why did L1 learners in previous studies allow perfective-telic sentences for non-culminating events?

- ❖ Mostly tested for partial results
 - ❖ Why is acceptance of partial higher than for zero result?
- ❖ Misrepresentation verb meanings
 - ❖ V lacks culmination component
- ❖ Failure to draw conversational implicature
 - ❖ Assumption: Event culmination is an implicature, not entailment, for certain types of verbs

Questions for further research

How do L1 learners find out whether or not their Ig allows non-culminating construals?

Why are they initially overly liberal in Igs that do not allow such construals?

- ❖ For certain verb types
- ❖ For partial results