

Presuppositions vs. Scalar Implicatures in Acquisition

Cory Bill, Jacopo Romoli, Florian Schwarz, and Stephen Crain



The overall project

Comparing processing and acquisition of:

- Implicatures
- Presuppositions

Introduction

Presuppositions

- (1) The bear didn't win the race
 \leadsto **The bear participated in the race**

Indirect scalar implicatures

- (2) Not all of the giraffes have scarves
 \leadsto **Some of the giraffes have scarves**

Direct scalar implicatures

- (3) Some of the giraffes have scarves
 \leadsto **Not all of the giraffes have scarves**

Presuppositions vs scalar implicatures

Traditionally:

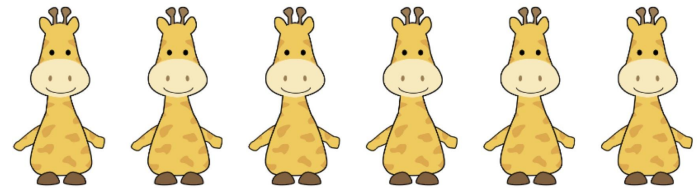
Presuppositions \neq Scalar Implicatures

Recently:

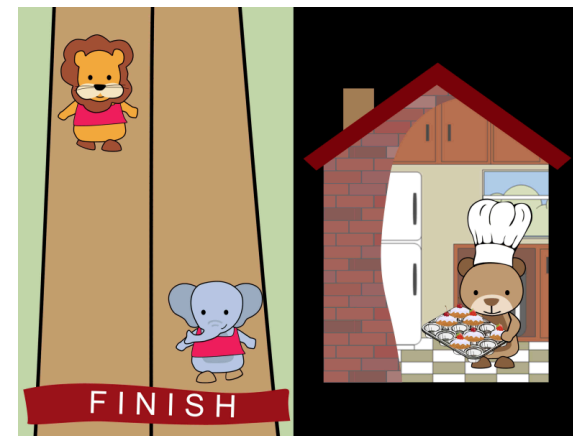
Presuppositions = Indirect SI (Chemla, 2009; Romoli, 2012, 2014)

'No inference' interpretations

ISI: Not all of the giraffes have scarves...in fact, none of them do



P: The bear didn't win the race...in fact, he didn't even participate



Our Question:

Are presuppositions and ISIs the same?

Do children's (and adults') behave uniformly with them?

Previous Results

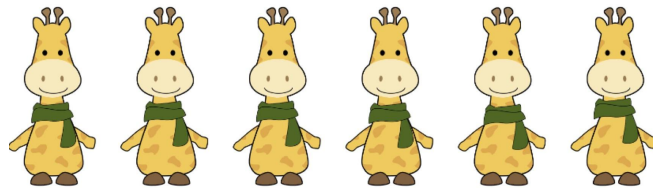
The acquisition of scalar implicatures

Children are less likely than adults to provide response based on an [+inf] interpretation of sentences like (4).

(stable across tasks & methodologies)

(Gualmini et al. 2001; Chierchia et al. 2001; Papafragou & Musolino, 2003 a.o)

(4) Some of the giraffes have scarves



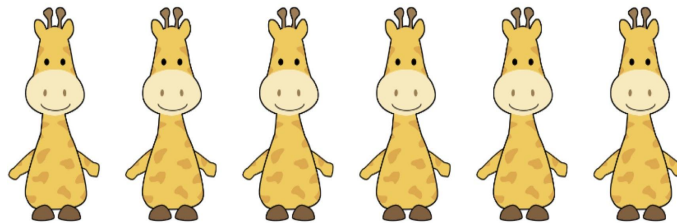
Adults: Reject

Children: Accept

The acquisition of scalar implicatures

- ISIs studied much less, but existing results are similar to DSIs
(Lidz & Musolino, 2006; Katsos et al., 2011).

(5) Not all giraffes have scarves

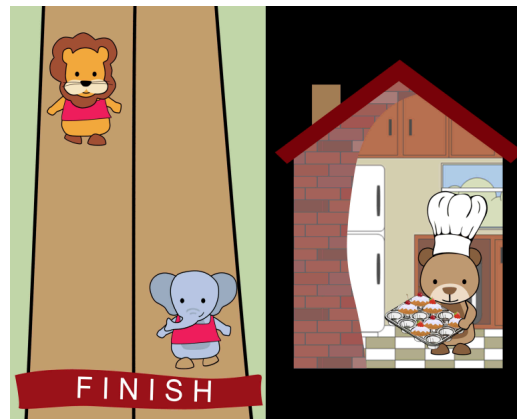


Adults: Reject
Children: Accept

The acquisition of presuppositions

- Very little research on acquisition (other than definite descriptions)
- **Predictions:** If presuppositions are on par with ISIs, each group should display a uniform pattern with these inferences

(7) The bear didn't win the race



Prediction

Adults: Reject

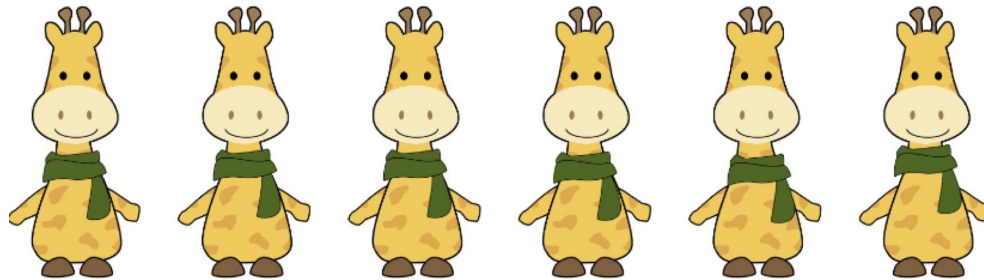
Children: Accept

Experiment

Participants

- 30 monolingual English speaking children
 - 16 age 4;6 (4;2-5;5)
 - 14 age 7;3 (7;0-7;11)
- 20 monolingual English speaking adults

Procedure



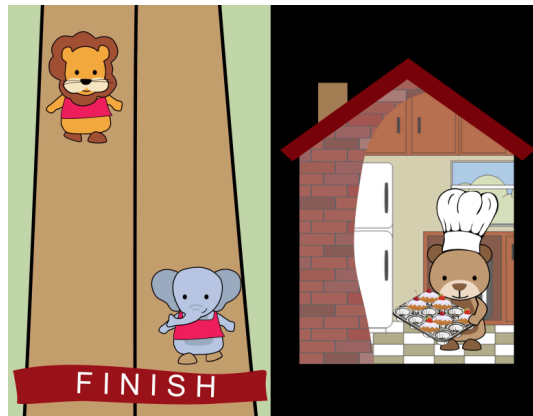
- Sentence picture matching task with one hidden picture

(Covered Box Paradigm, Huang et al. 2013)

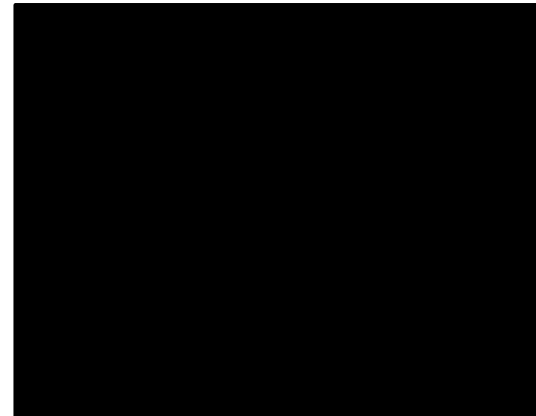
Materials

Presupposition

The bear didn't win the race



[-inference]

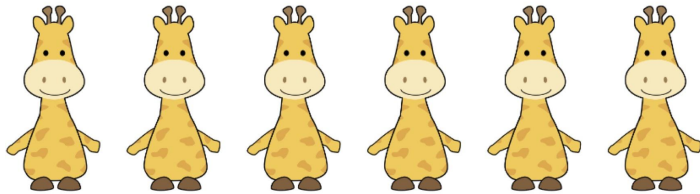


[+inference]

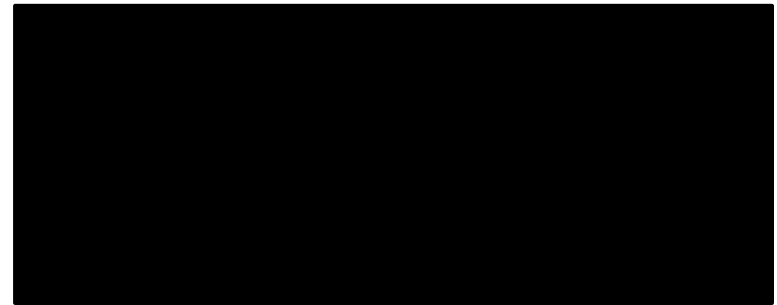
Materials

Indirect scalar implicature

Not all of the giraffes have scarves



[-inference]

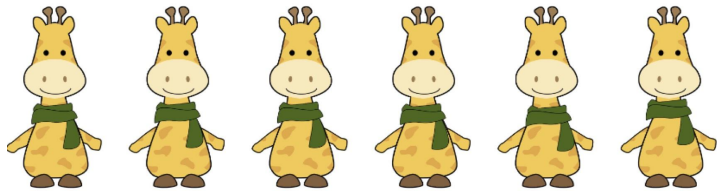


[+inference]

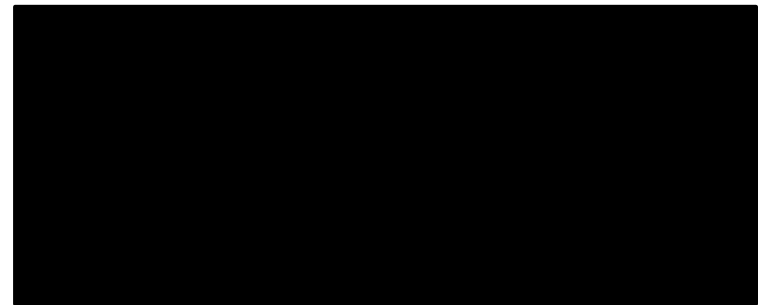
Materials

Direct scalar implicature

Some of the giraffes have scarves



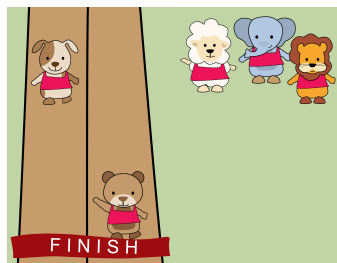
[-inference]



[+inference]

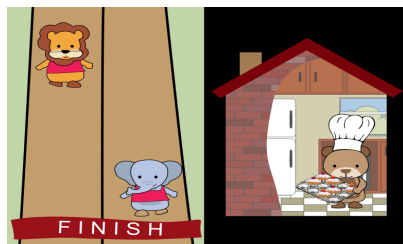
Presupposition Trial

Intro: "Today, a group of animals raced each other in some running races"

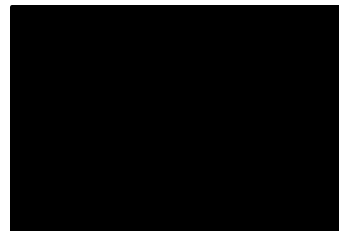


Context Picture

Context picture description: "In the first race, the bear won the race"



Visible Picture



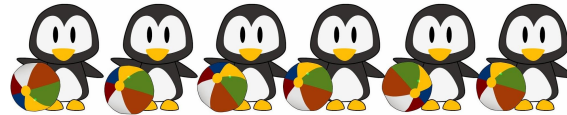
Covered Picture

Test sentence: "But, in the second race, the bear didn't win the race"

Question: "Am I talking about the bear in this picture (visible), or the bear in this picture (covered)?"

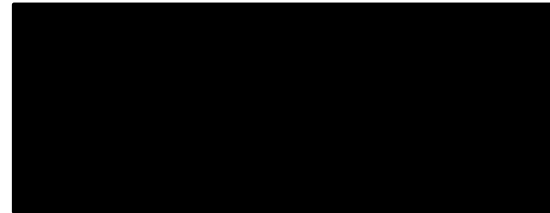
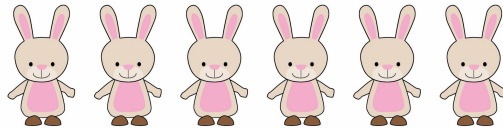
Indirect Scalar Implicature Trial

Intro: "Today, a group of penguins and a group of rabbits went to the park"



Context Picture

Context picture description: "All of the penguins brought balls"



Visible Picture

Covered Picture

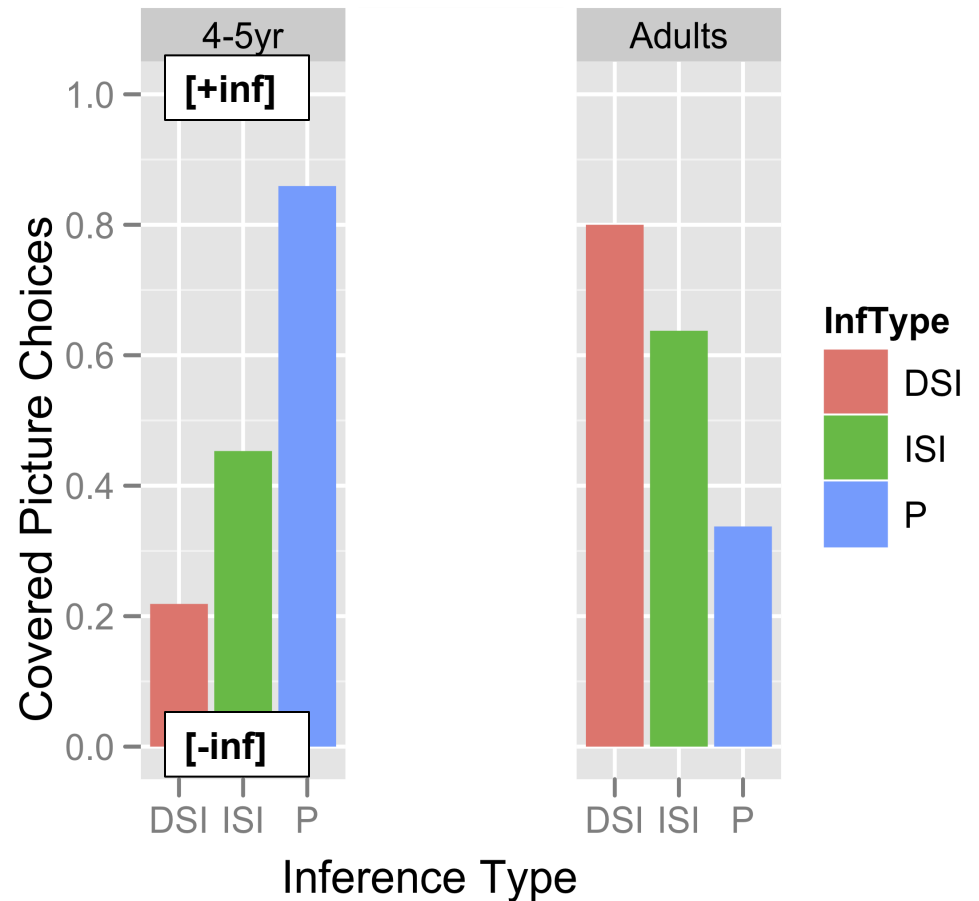
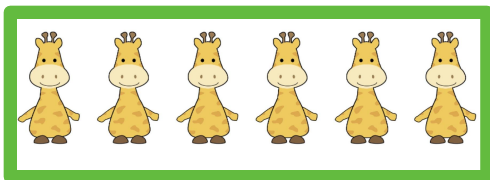
Test sentence: "But, not all of the rabbits brought balls"

Question: *"Am I talking about the group of rabbits in this picture (visible), or the group of rabbits in this picture (covered)?"*

Results

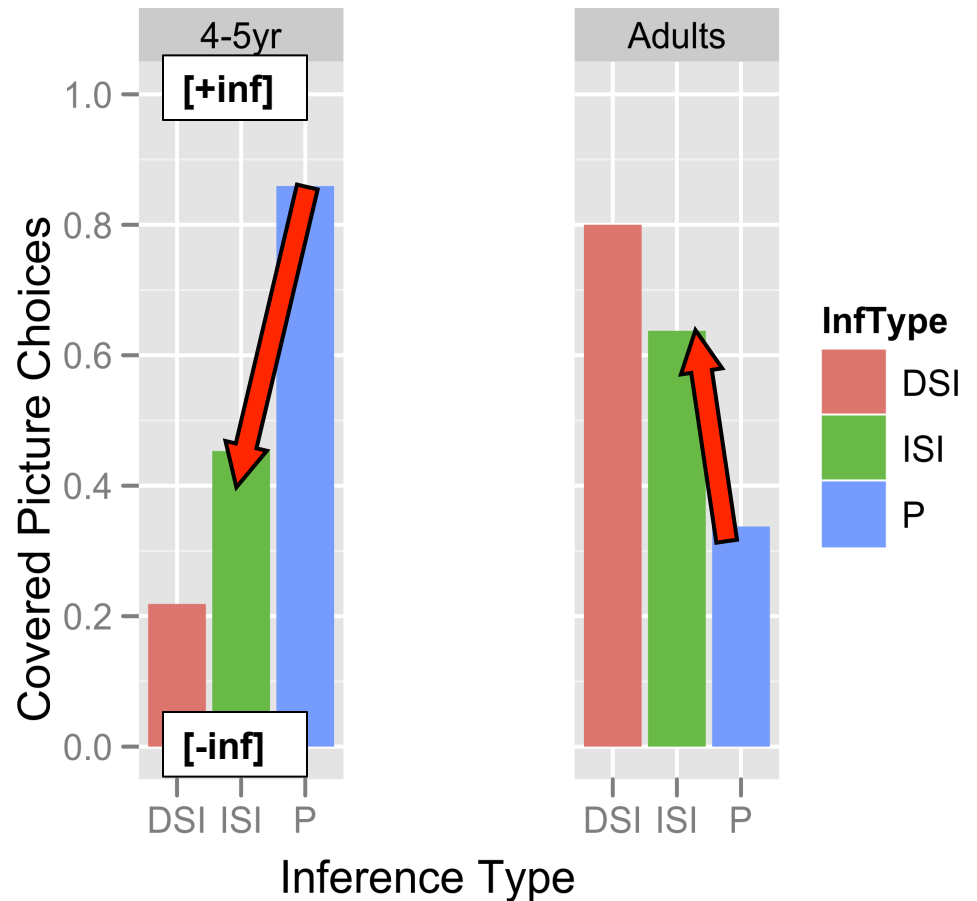
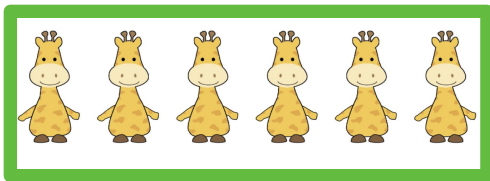
Results

- Covered Picture choice \approx [+inference]
- Rate varied, based on both age and type of inference



P vs. ISI across age groups

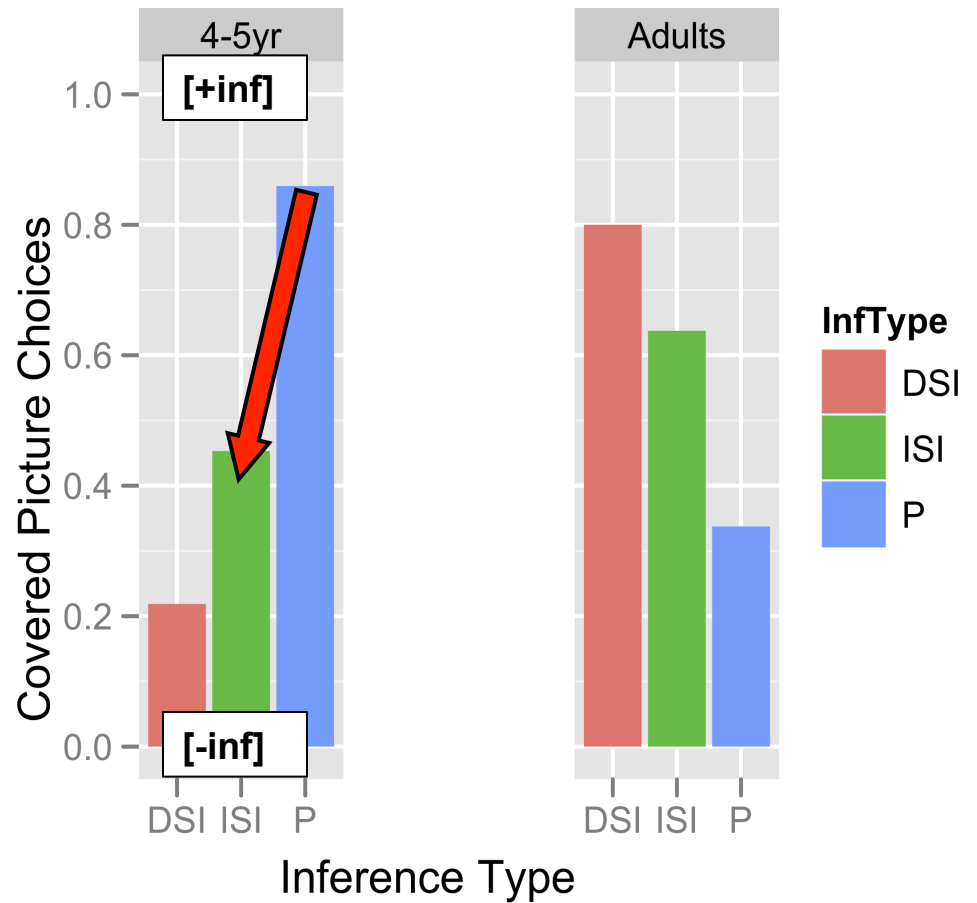
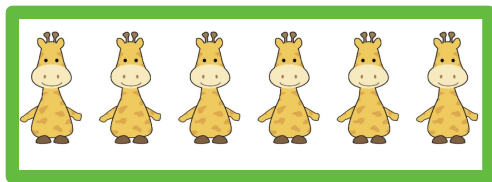
- P and ISI **not** uniform
- **Interaction** between P and ISI for adults vs. children



P vs. ISI across age groups

Simple effects for Children:

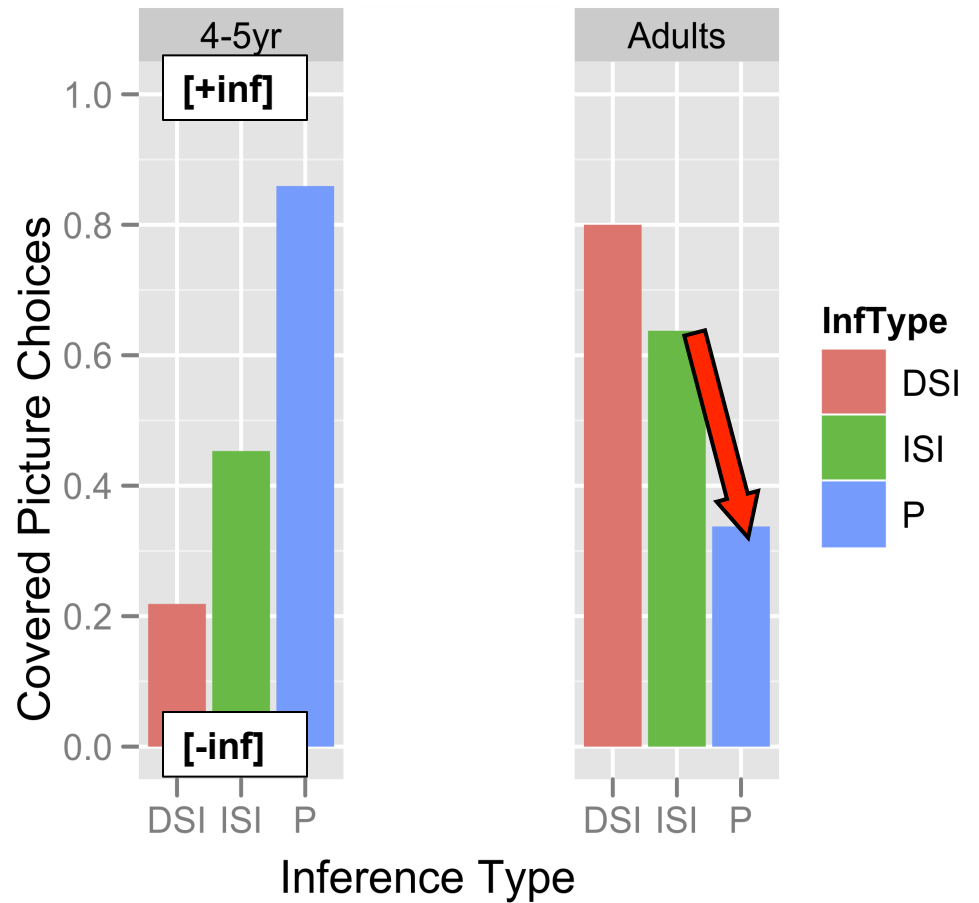
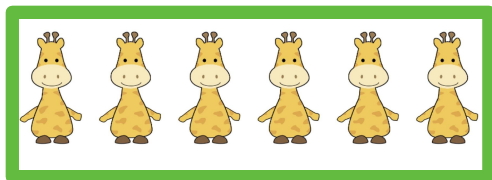
$P > ISI$



P vs. ISI across age groups

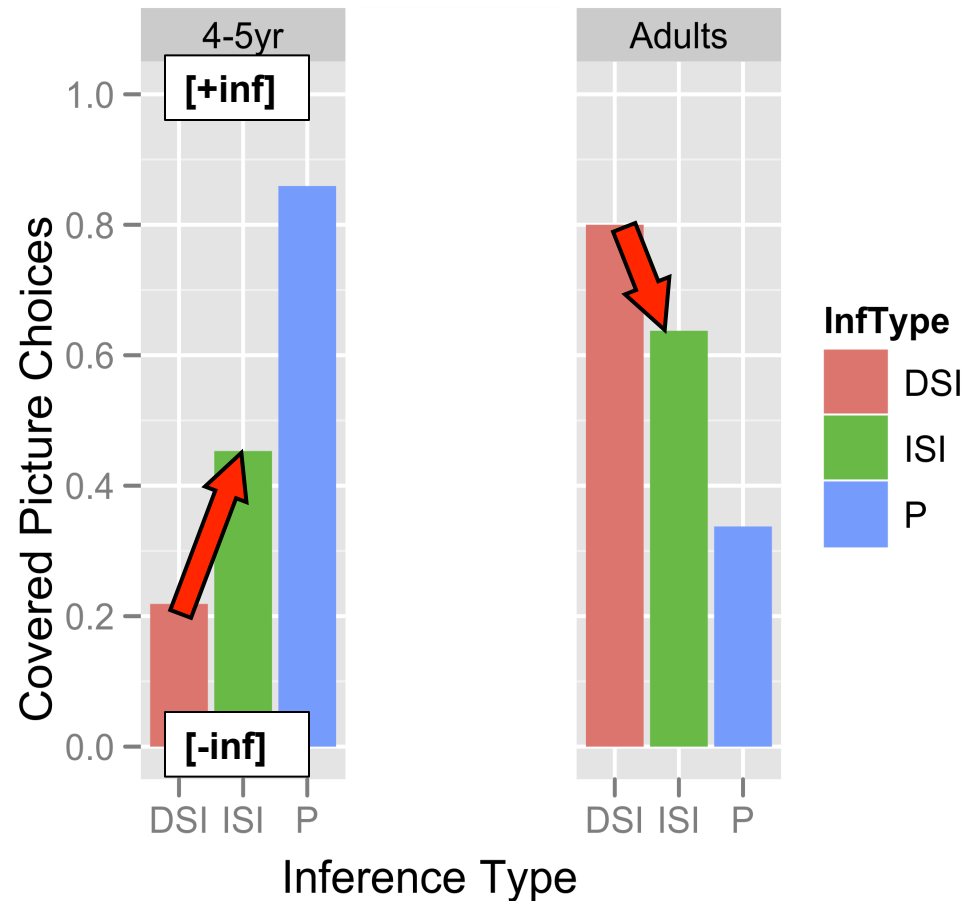
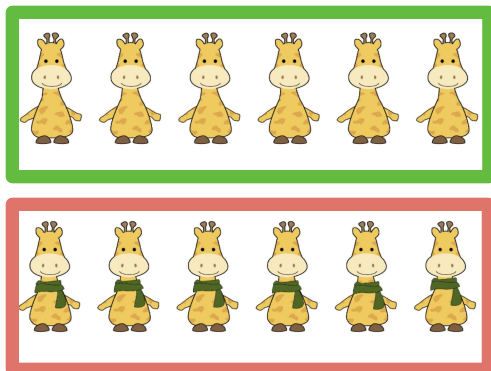
Simple effects for Adults:

ISI > P



Additional Finding: ISI vs. DSI

- **Interaction & simple effects** between Implicature type and age group
- Children = **ISI > DSI**
Adults = **DSI > ISI**



Discussion

Discussion

Evidence that presuppositions are different from ISIs
(contra Chemla, 2009; Romoli, 2012, 2014)

- Strong difference between **ISIs** and **P** (**cross-over interaction**).
- Results more compatible with traditional perspective:
ISIs and **Ps** as two separate inferences based on distinct mechanisms.

Traditional perspective

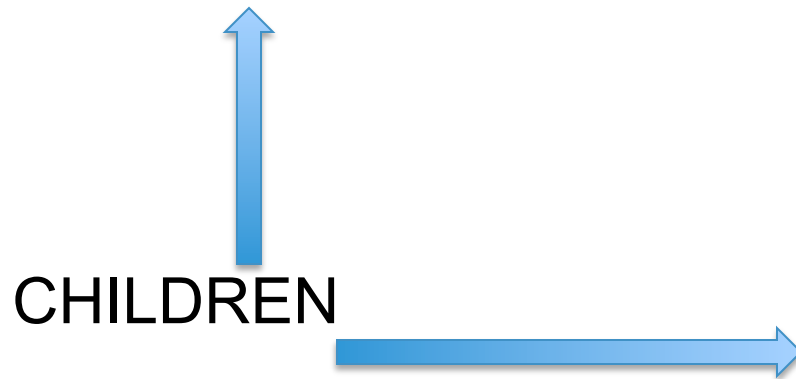
	basic meaning	derived meaning
ISI	[-inference]	[+inference]
P	[+inference]	[-inference]

ISI: Gricean enrichment

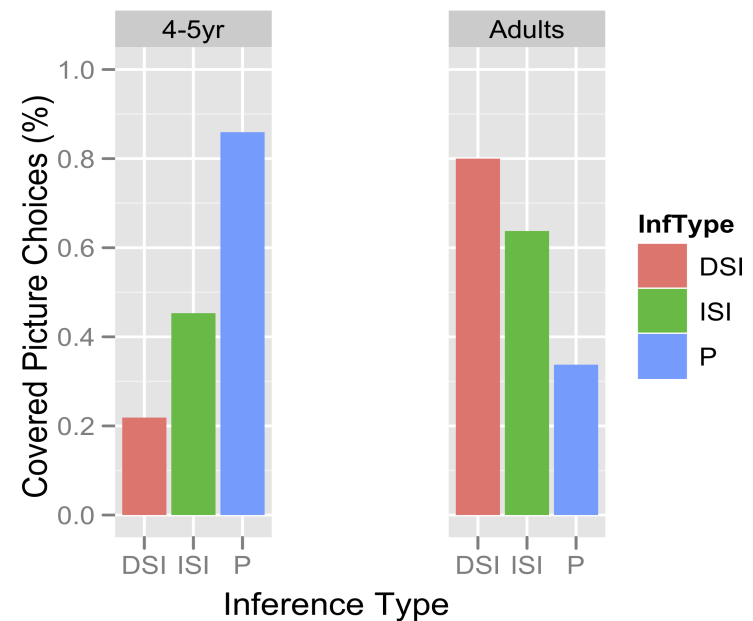
P: Process that removes inference
(e.g., Local Accommodation)

Derived meanings later in acquisition

	basic meaning	derived meaning
ISI	[-inference]	[+inference]
P	[+inference]	[-inference]



ADULTS



Derived meanings later in acquisition

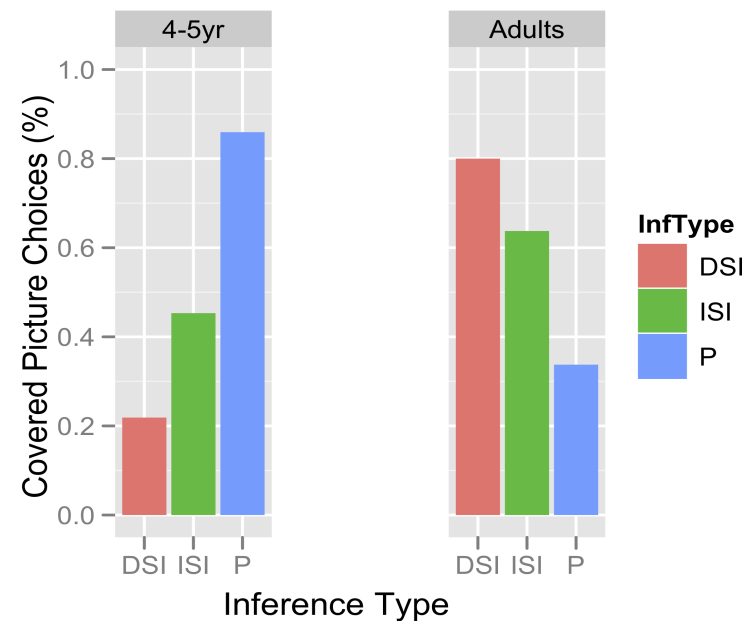
	basic meaning	derived meaning
ISI	[-inference]	[+inference]
P	[+inference]	[-inference]



ADULTS



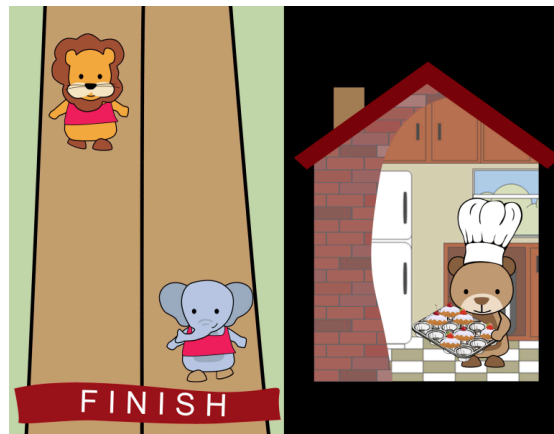
CHILDREN



Adult Processing

- **Derived meanings ([-inference]) for presuppositions are costly**

(6) The bear didn't win the race



Rejection [+inf]: **Fast**
Acceptance [-inf]: **Slow**

Chemla and Bott (2012), and Romoli and Schwarz (2014).

Discussion

- Implications with children vs. adults consistent with previous work (Noveck, 2001; Musolino & Lidz, 2006).
- ISI vs. DSI interaction is theoretically puzzling
 - Potential theoretical distinction
 - Potential processing differences (Schwarz & Romoli, 2014; Cremers & Chemla, 2013)
- But adult vs. children reversal goes beyond a simple difference

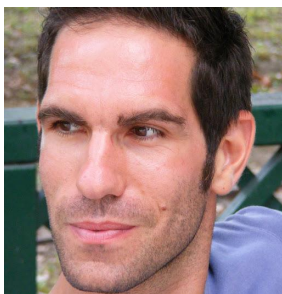
Future directions

- Comparing ISIs and Ps through:
 - Acquisition
 - Which changes in development lead to adult behaviour?
 - Processing
 - Reaction-time
 - Eye-tracking

Thank you

Thanks to:

- Collaborators:



Jacopo
Romoli



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Schwarz



Stephen
Crain

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- Rosalind Thornton, Kelly Rombough, Dorothy Ahn, Emmanuel Chemla, Danny Fox, Clemens Mayr, Yasutada Sudo, Lyn Tieu, Neha Khetrapal.
- Language Acquisition Lab (Macquarie University)

Development of Presuppositions:

7 year olds:

- Between 4-5 and adults for presupposition
- Like 4-5 on implicatures

