

# Sensing subjectivity: Semantic and epistemological development

Ruthe Foushee & Mahesh Srinivasan  
University of California, Berkeley



## Background

- Word meanings may be subjective, posing a challenge for semantic compositionality
- Subjective words permit faultless disagreement<sup>1</sup>

### → How does the adult intuition that subjective disagreements are faultless develop?

Faultless disagreement could arise when:

- Speakers have different personal tastes
- A predicate is inherently vague
- Speakers have had different experiences, thus different standards

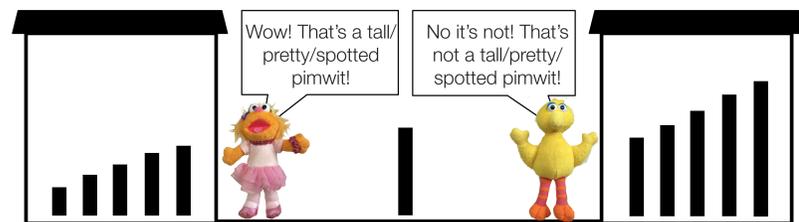
### → Do adults and children consider a speaker's opinion and experience when interpreting different adjectives?

- 4-year-olds understand that words like tall are interpreted relative to specific distributions<sup>2</sup>
- Young children may be naive realists<sup>3</sup>

Faultless disagreement not permitted ? Permit faultless disagreement

ABSOLUTE adjectives	RELATIVE adjectives	SUBJECTIVE adjectives
spotted, striped, clear, full	tall, big, cold, heavy, expensive	pretty, tasty, funny, boring

## Stimuli & Method



Puppets are independently exposed to distinct (see above) or identical distributions of novel objects, varying along two dimensions (e.g., height and spottedness), then disagree about a novel, intermediate object.

Trial Type	Novel Object	Disagreements
Training Trials	fep	white/black, sparkly/round
	zav	blue/red, shiny/square
Critical Trials	pimwit	spotted, tall, pretty
	pimwit (plain)	pretty
	dax	striped, big, boring
	dax (plain)	boring

TRUE/FALSE ABSOLUTE RELATIVE SUBJECTIVE } Adults ONLY

## Method, cont.

### Test Questions

Following each assertion:  
CRITICAL QUESTION: *Zoe said, "That's a tall pimwit," was she wrong, or could she be right?*  
UTTERANCE EXPLANATION: *Why?*

FAULTLESS DISAGREEMENT = 'could be right' for both speakers

Following each disagreement:  
DISAGREEMENT EXPLANATION: *Why did Zoe and Big Bird not agree?*

Qualitative responses coded into following categories:

For each object, in a post-test:  
PERSONAL PERCEPTION: *Is this pimwit tall?*

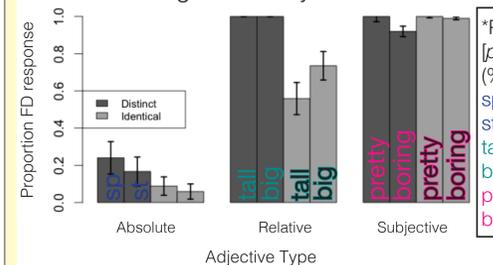
code	example
object property	<i>There are dots on the pimwit.</i>
distribution exposure	<i>He saw tall pimwits &amp; she saw short ones.</i>
speaker opinion	<i>Big Bird likes purple &amp; Zoe hates spots.</i>
social/moral	<i>They aren't friends.</i>
incompetence	<i>She needs glasses!</i>
metalinguistic	<i>Pretty is subjective.</i>
outside experience	<i>He thinks there are others that are taller out there.</i>

## Experiment 1: Adults

### Are faultless disagreement judgments modulated by speakers' experience? → Characters exposed to distinct or identical distributions

Participants: 59 adults (DISTINCT: 25 adults, 18 women, M = 21 yrs, SD = 1.7 yrs;  
IDENTICAL: 34 adults, 26 women, M = 20.9 yrs, SD = 3.5 yrs)

#### Faultless Disagreement by Trial & Condition



\*Post-test: Is this [pimwit/dax] [Adj]? (% YES):  
spotted: 100%  
striped: 100%  
tall: 97%  
big: 62%  
pretty: 97%  
boring: 32%

#### UTTERANCE EXPLANATIONS

- Adults refer to...
- object properties more for abs.
  - distribution exposure more for relative adjectives
  - speaker opinion more for subj.

#### DISAGREEMENT EXPLANATIONS

- Adults refer to...
- incompetence more for abs.
- In IDENTICAL condition, adults refer to
- distribution exposure less
  - opinion more overall
  - incompetence more for abs.

- Adult faultless disagreement responses differentially related to post-test judgments by adj.

#### CONDITION X ADJECTIVE TYPE interaction:

- FD rates decrease in IDENTICAL condition for absolute & relative, but not subjective, adjs.

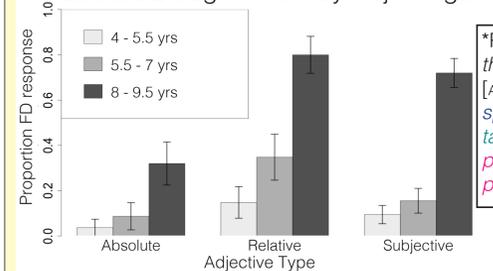
## Experiment 2: Children

### Do children permit faultless disagreement for subjective adjectives, and relative adjectives when characters have been exposed to distinct distributions?

Participants: 74 children, 4;0 - 9;6

- 4;0 - 5;6, n = 25
- 5;6 - 7;0, n = 25
- 8;0 - 9;6, n = 24

#### Faultless Disagreement by Adj. & Age



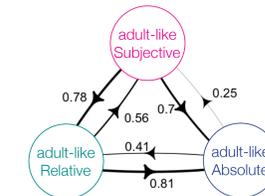
\*Post-test (Is this pimwit [ADJECTIVE]?):  
spotted: 98%  
tall: 56%  
pretty: 88%  
pretty (plain): 58%

- Children 'sided' with character who accorded with their own perceptions
- Rates of faultless disagreement judgments did not differ for absolute and subjective adjectives in younger age groups

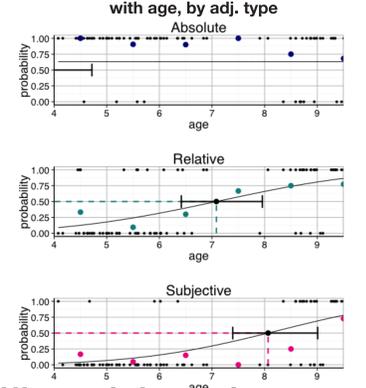
## Results, cont.

### How and when do children become adult-like?

- Success may depend on achievement of Interpretive Theory of Mind<sup>4</sup>



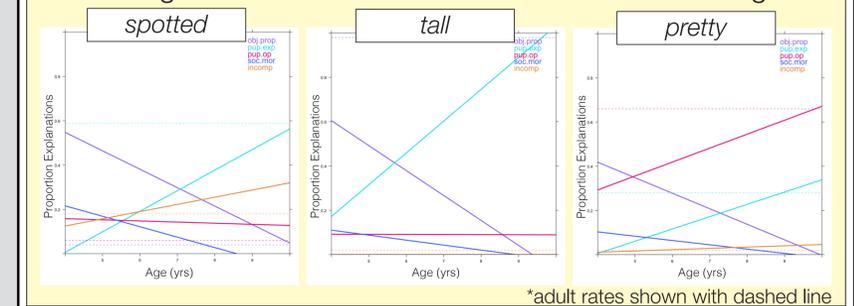
#### Probability of adult-like performance with age, by adj. type



- Adult-like performance on disagreements over subjective adjectives most predictive of overall adult-like performance

### Do children understand that different information sources are relevant for different adjectives?

#### Change in Reference to Information Sources with Age



## Conclusions

- Adults permit faultless disagreement for many reasons: distribution exposure, inherent uncertainty, and speaker opinion
- Children adult-like in faultless disagreement judgments only by approx. 9 years, consistent with interpretive ToM literature<sup>4</sup> → may explain advantage of relative over subjective adjs.
- Children's sensitivity to sources of subjectivity is developing through the early school years

#### Future Directions

- Can children and adults use consensus information to infer the subjectivity of a novel adjective?
- Is a speaker's competence evaluated differently for 'incorrect uses' of absolute vs. relative/subjective adjectives?
- How does children's understanding of linguistic subjectivity relate to their epistemological development?

## References

- 1 Barker, C. (2013). *Inquiry*, 56(2-3), 240-257.
- 2 Barner, D. & Snedeker, J. (2008). *Child Development*, 79(3), 594-608.
- 3 Holubar, T. F. & Markman, E. M. (2013). *Cognitive Science Society*, 603-608.
- 4 Carpendale, J. I. & Chandler, M. J. (1996). *Child Development*, 67(4), 1686-1706.

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