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Susceptibility to ostensive communication culminates at 8-9 years of age

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Claim: Children's hypersensitivity to ostensive communication is highest at the age of 8-9 years

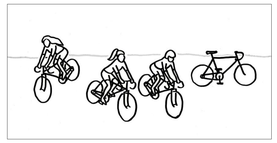
Relevance Theory (Sperber–Wilson, 1986), **Natural Pedagogy** (Csibra–Gergely, 2009)
Ostensive communication provides information (i) changing the listener's cognitive state, and (ii) information communicating that the first layer of information is presented intentionally. Children are predisposed to show preferential attention to ostensive communication. They encode the content of ostensive communication as highly relevant episodic information or as generalizable knowledge.

Ostension effect in language acquisition experiments (É.Kiss et al., 2015)

If the **visual stimulus** lacks episodic details, children tend to interpret every element of it as an ostensive signal relevant for the linguistic representation. They find the sentence inadequate if it does not represent every visual element judged as relevant.

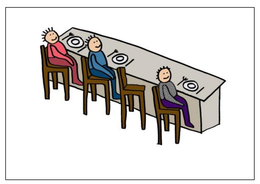
Experimental evidence: The case of Quantifier Spreading

Classical experiment:

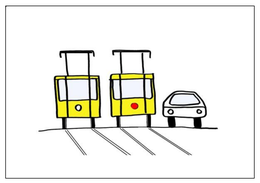


"Is every girl riding a bicycle?"
Children's (spreading) answer:
"No, not that one."

New design: drawings with icon-like elements vs. photos rich in accidental details

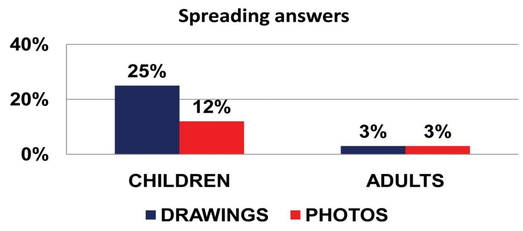


"Every child is sitting on a high chair."



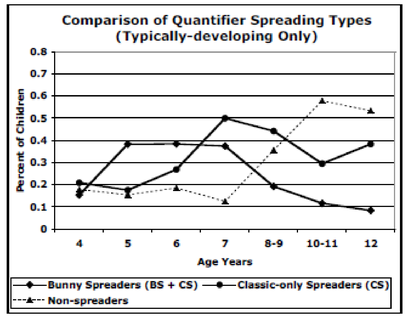
"Every street car is yellow."

Results:



Conclusion of the Quantifier Spreading experiments:
If the visual stimulus is a minimal model devoid of irrelevant details, children tend to interpret all of its elements as ostensive clues to be represented linguistically. If the ostensive effect is diminished by the use of photos taken in natural environments,
the proportion of QS is reduced by more than 50%.

The acquisition path of Quantifier Spreading (Roeper–Strauss–Pearson, 2004)
Classic-spreading increases from 6 to 7 years, and the non-spreading response after age 7.



Ostension and Exhaustivity

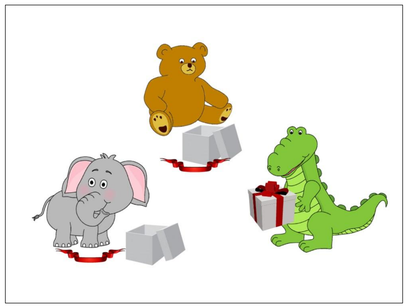
In Hungarian, exhaustivity can be expressed in numerous ways, e.g.

- with the particle csak 'only': (1) *Csak a maci nyitotta ki az ajándékot.*
  'Only the bear has opened the gift.'
- with structural focus: (2) *A MACI nyitotta ki az ajándékot.*
  'It is the bear who has opened the gift.'

Exhaustive interpretation of **sentences with neutral intonation and word order** is merely a pragmatic implicature arising in certain contexts.
(About implied exhaustivity see Onea–Beaver, 2011 and Wedgwood, 2005.)

(3) *A maci kinyitotta az ajándékot.*
'The bear has opened the gift.'

Aim: to test if children accept (1)–(3) in the *non-exhaustive context* in Figure 1.



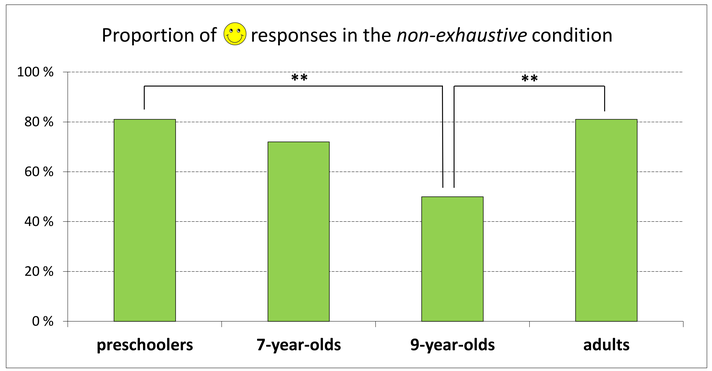
Surprising result: some children also rejected the neutral sentence in (3)

Explanation: in Figure 1. every icon is judged as ostensively present, hence relevant

Method: participants had to judge a puppet's utterances on a 3-point scale sentence–picture verification task

Participants: preschoolers (N = 15, mean age: 6;4)
7-year-olds (N = 15, mean age: 7;6)
9-year olds (N = 15, mean age: 9;8)
adults (N = 15, mean age: 22;10)

Results:



- Neutral SVO sentences of type (3) were mostly accepted in the *non-exhaustive condition*.
  → Most participants do not interpret these sentences exhaustively when the context does not support this reading.
- However, the scores of **9-year-olds** differed significantly from other age groups according to Kruskal–Wallis rank sum test: H(3)=11.45, p = 0.0095.
  Presumably, **children were misled** by the visual stimuli, and they expected the elephant to be a relevant character.

Conclusion

Because of the **ostension effect,** the use of iconic stimuli is mistaken when we want to test whether or not an element in the stimulus is relevant for the linguistic representation.

Children at around the age of 8–9 are exceptionally sensitive to ostensive cues. Apparently, trust in ostensive communication, readiness to accept it is highest at this age.

References

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