

Ling115: Semantics I

Conversational implicatures in children

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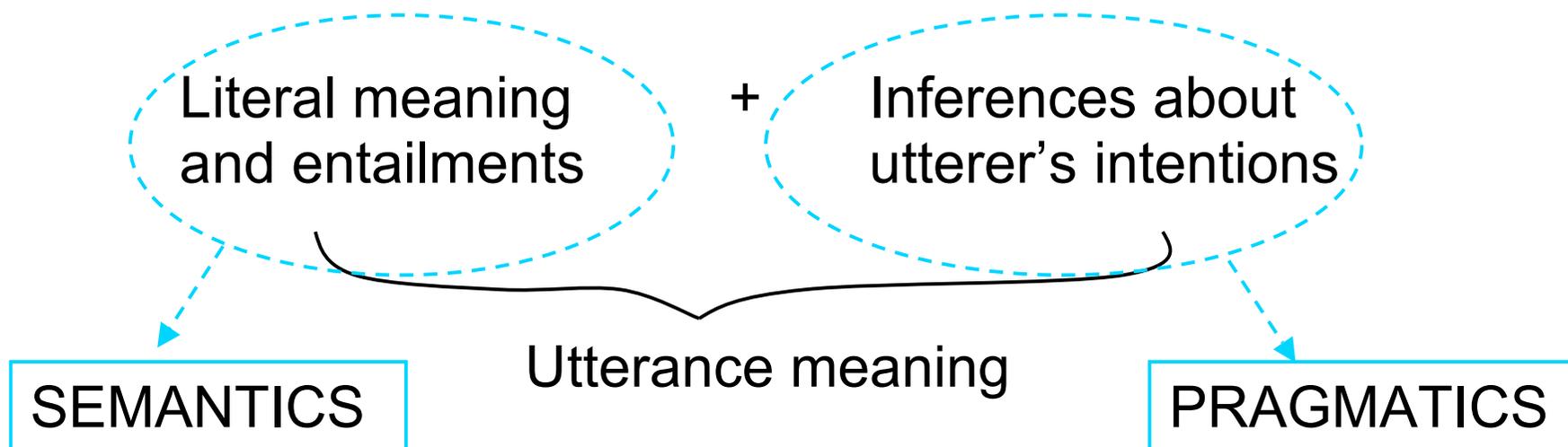
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Conversational Implicatures ^{1/3}

	Literal meaning alone	Extra reasoning
New info	ENTAILMENT	CONVERSATIONAL IMPLICATURE
Info already assumed	PRESUPPOSITION	PRESUPPOSITION

Conversational Implicatures 2/3

- A **conversationally implicates** B =_{def}
= A does not entail B, but B is part of what the
utterer of A meant.



Conversational Implicatures 3/3

QUESTION:

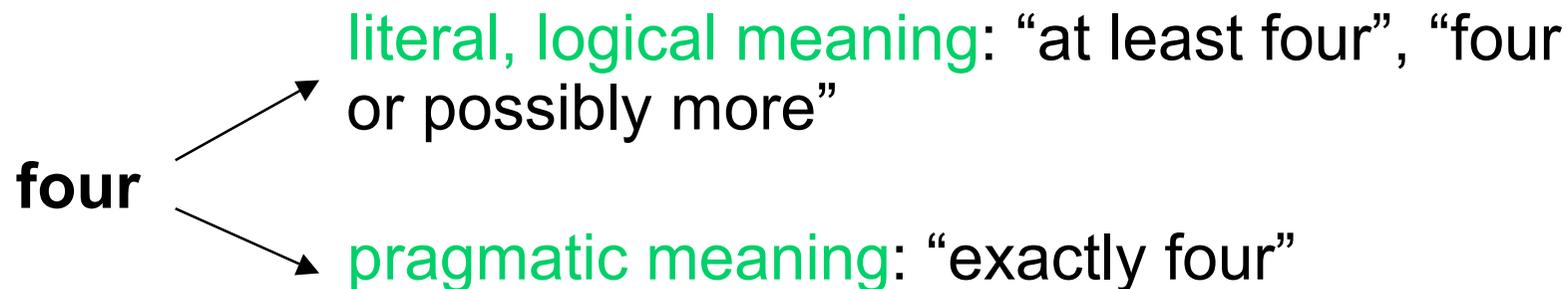
(1) Nirit has four portable chairs. $? \Rightarrow$

$? \dashrightarrow$

Nirit has exactly four portable chairs.

That is: Does **four** mean “at least four” or “exactly four”?

CONCLUSION:



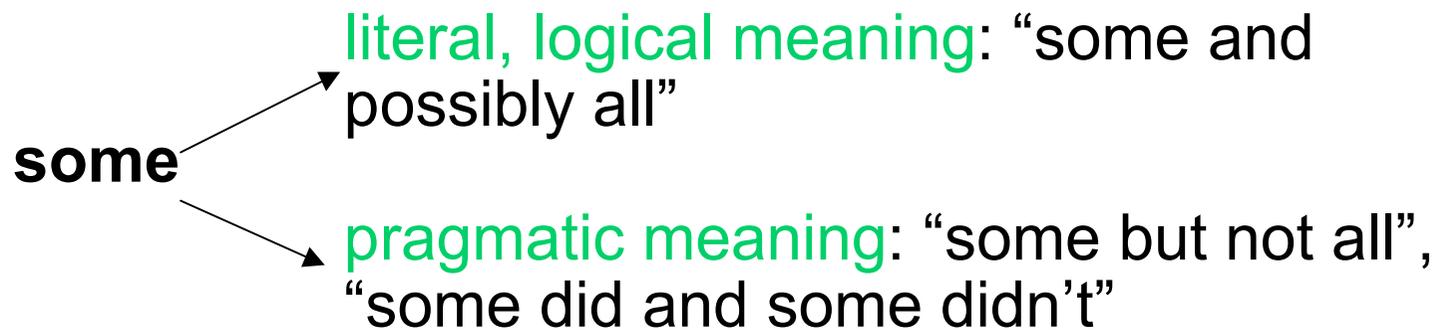
More cases ^{1/3}

(2) Some students passed the exam.

QUESTION:

Does **some** mean “some and possibly all” or “some but not all”?

ANSWER:



More cases _{2/3}

(3) John visited Sue or Pat on Sunday.

QUESTION:

Does natural language **or** mean “at least one of the two and possibly both” (inclusive disjunction) or “one or the other but not both” (exclusive disjunction)?

ANSWER:

or → **literal, logical meaning**: “at least one of the two and possibly both”
or → **pragmatic meaning**: “one or the other but not both”

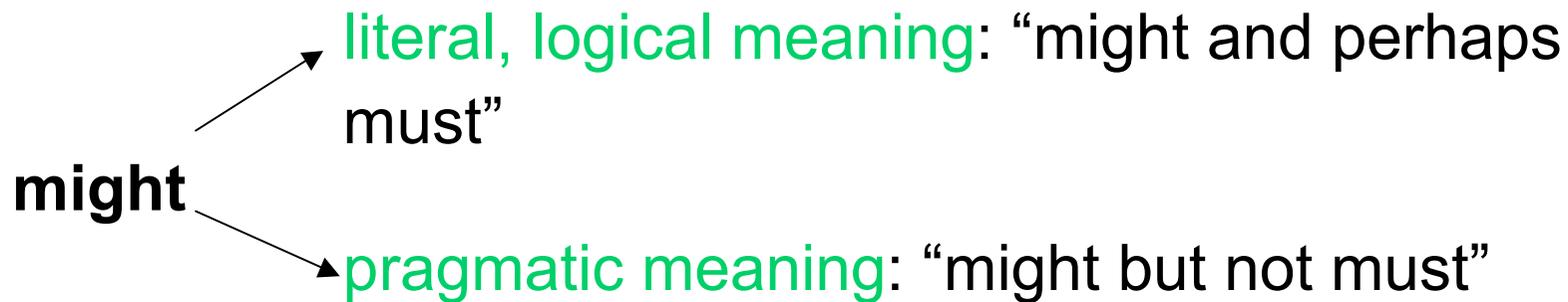
More cases 3/3

(2) There might be a parrot in the box.

QUESTION:

Is **might**'s meaning compatible with **must** (“might and perhaps must”) or incompatible with **must** (meaning “might but not must”)?

ANSWER:



Grice's Maxims and scales ^{1/2}

- Paul Grice (1989) proposes that both the speaker and the hearer adhere to the following conversation maxims:

(1) **GRICEAN MAXIMS:**

- » **Relation:** Be relevant.
 - » **Quantity:** Be as informative as required (be neither over-informative nor under-informative). ➔ Notion of **scale**.
 - » **Quality:** Say only what you believe to be true and adequately supported.
 - » **Manner:** Be perspicuous: be brief and orderly and avoid obscurity and ambiguity.
- Taking the literal/logical meaning of a sentence and adding these maxims, further inferences can be made that lead to a stronger, pragmatic meaning.

Sample Pragmatic Inferences ^{1/2}

(1) A: How did the students do on the exam?

B: Some students passed.

(1B) conversationally implicates “Not all the students passed”

Deriving this conversational implication:

It is assumed that B follows Grice’s principles and hence that he is being *relevant*, maximally *informative* and *true* to his beliefs. The following two utterances would have been relevant:

All the students passed.

Some students passed.

Of these two, **All the students passed** expresses a stronger proposition and thus is more informative than **Some students passed**. Given that the speaker did not utter **All the students passed** even though it would have been relevant and more informative, it must be that the speaker thinks that **All the students passed** is not true. Hence, uttering the weaker sentence yields as an implicature the negation of the stronger sentence: “It is not the case that all students passed”.

Sample Pragmatic Inferences 2/2

(2) A: What did John do on Sunday?

B: He visited Sue or Pat.

(2B) conversationally implicates “It is not the case that he visited (both) Sue and Pat.”

Deriving this conversational implication:

The speaker is assumed to be *relevant*, maximally *informative* and *true*. The two following propositions are relevant, the first one of which would have been stronger and more informative:

He visited Sue and he visited Pat.

He visited Sue or he visited Pat.

Since the speaker chose to utter the weaker one and not the stronger one, it must be because he doesn't think the stronger one is true. Hence, we take the negation of the stronger one to be true: “It is not the case that he visited Sue and Pat”.

Summary

Word

four

some

or

Might

Literal/**logical** meaning
in mental lexicon

“at least four”

“some and possibly all”

“one or both”

“might and possibly
must”

Derived pragmatic
meaning

“exactly four”

“some but not all”

“one but not both”

“might but not
must”

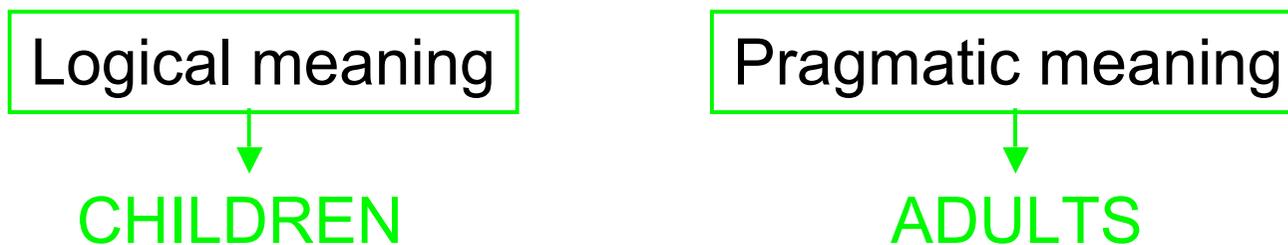
Inference process using
scales and Grice's Maxims

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Aim

- In experimental research, implicatures are usually left aside.
- Noveck (2001) tries to fill this gap. He investigates how the meaning of certain weak scalar items (**might, or, some**) develops from children to adults. Can children access both meanings? If one is highly preferred, which one and why? What about adults?



- Noveck's conclusion: children behave more logically than adults in this respect.

Experiment 1: **might** ^{1/2}

- Participants: 32 five-yr-olds, 20 seven-yr-olds, 16 nine-yr-olds, 20 adults
- Materials: one open box with parrot and bear, one open box with parrot, one closed box. Participants are told that the closed box has the same content as either the first box or the second.
- Procedure: the puppet presents each of eight modals statements (e.g. **There might be a parrot in the closed box**), and the participant's task is to say whether the puppet's claim is right or not.

Experiment 1: might ^{2/2}

- Results:

Presented statements	Is the puppet right?	Age (years) (<i>n</i>)			
		5 (32)	7 (20)	9 (16)	Adults (20)
		Necessary conclusion (parrot)			
Has to be a parrot	Yes	75*	90**	88**	100**
Does not have to be a parrot	No	72*	75*	75*	100**
Might be a parrot	Yes	72*	80**	69	35
Cannot be a parrot	No	66	80**	100**	100**
Total		73**	81**	83**	83**

Experiment 2: might after logical training ^{1/2}

- The aim was to verify the findings of experiment 1, but this time after intensive training trying to encourage logical interpretations.
- Participants: 19 five-yr-olds, 16 seven-yr-olds, 26 adults
- Training: one open box with horse and fish, one open box with horse, one closed box. Participants are told that the closed box has the same content as either the first box or the second. Then they are asked questions like the following and corrected when they don't give the logical response:
(1) If we open the box, could there be a horse inside? (yes)
- Materials and procedure: similar as before.

Experiment 2: might after logical training ^{2/2}

- Results:

Presented statements	Is the puppet right?	Age (years) (<i>n</i>)		
		5 (16)	7 (16)	Adults (16)
<i>Evaluations of necessary conclusion</i>				
Must be a parrot	Yes	81*	100**	94**
Might not be a parrot	No	75*	94*	94**
Might be a parrot	Yes	81*	94**	75*
Must not be a parrot	No	69	94**	100**
Total		77	95	91
Has to be a parrot	Yes	94**	100**	100**
Does not have to be a parrot	No	63	94**	100**
Could be a parrot	Yes	88*	100**	94**
Could not be a parrot	No	75*	100**	100**
Total		80	98	98

Experiment 3:

French **certains** “some” ^{1/2}

- Participants: 31 eight-yr-olds, 30 ten-yr-olds, 25 adults
- Materials: statements with the quantifiers **all** and **some** (in French). Some statements are true (e.g. **All elephants have trunks**), some are false (e.g. **All dogs have spots**) and some are logically true but pragmatically infelicitous (e.g. **Some giraffes have long necks**).
- Procedure: participants had to say whether they agreed with each statement or not.

Experiment 3:

French **certains** “some” ^{2/2}

- Results:

Sentence type	Correct response	Age (years) (<i>n</i>)		
		7–8 (31)	10–11 (30)	Adults (15)
Utterances expressed with <i>Some</i>				
Absurd (false) (e.g. Some stores are made of bubbles)	No	95	99	98
Appropriate (true) (e.g. Some birds live in cages)	Yes	84	90	99
Inappropriate (true though pragmatically infelicitous) (e.g. Some giraffes have long necks)	Yes	89	85	41

Noveck's Conclusion

- P. 184: "... the competent use of a weak scalable term is linked initially to an explicit [MR: logical] interpretation and [that] this is *followed by* a pragmatic one."
 - First: logical meaning is acquired, put in lexicon
 - Later: ability to run pragmatic inference appears
- This developmental path is consistent with Grice's theory of implicatures (or similar theories) assumed by linguists.
- Still, the question is left open, what exactly in the pragmatic inferencing process is problematic for children.

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Potential sources of difficulty ^{1/2}

- Gricean Maxims:
 - (1) **Relation**: Be relevant.
 - Quantity**: Be as informative as required.
 - Quality**: Say only what you believe to be true and adequately supported.
 - Manner**: Be perspicuous.
- Hypothesis 1: Children lack full understanding of these maxim and thus cannot master the pragmatic inferencing process.

Potential sources of difficulty ^{2/2}

- Scales

(2) <some, several, many, most, every>

<..., three, four, five, six, seven, eight...>

<or, and>

<might/possibly, probably, must/necessarily>

- Hypothesis 2: According to Reinhart (1999), “computations that require comparison of pairs of derivations are beyond the processing capacity of [young] children [...]. The claim is that children “know” the sem/pragm principles but cannot implement this knowledge when it requires ‘reference-set’ computations” p. 166₂₆

Experiment A: **or** ^{1/2}

- Participants: 15 children (mean age 5;2) and 8 adults.
- Story where, after considering several toys, each of four boys takes both a stake-board and a bike.
- Puppet utters **Every boy chose a skate-board or a bike** and the participant has to accept it or reject it.

Experiment A: **or** ^{2/2}

- Results:

Pragmatic responses

Adults	100%
1 child	at chance
7 children	92,8%
7 children	7,2%

Experiment B: or and overt alternatives ^{1/2}

- Participants: 15 children (mean age 4;8).
- Story where, after looking at all the animals, each farmer decides to clean a horse and a rabbit.
- Two puppets provide alternative descriptions of the story:

Every farmer cleaned a horse or a rabbit.

Every farmer cleaned a horse and a rabbit.

The participants are asked to reward with a coin the puppet who “said it better”.

Experiment B: or and overt alternatives ^{2/2}

- Results:

	<u>Pragmatic responses</u>
Children	93,3%

That is, when the alternatives/scales are explicitly given, children choose the pragmatic response as adults do.

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Conclusions

- Linguists assume that, for e.g. **four**, the logical interpretation “**at least four**” is listed in the mental lexicon, whereas the interpretation “**exactly four**” is derived from Gricean Maxims and scales.
- Developmental evidence (Noveck 2001) shows that there is a **stage where children access the logical meaning without accessing the implicated meaning**, thus supporting the linguists’ view.
- Further experiments (Chierchia et al. 2001) suggest that the **source of difficulty** deriving the implicated meaning resides **not in the Maxims but in the alternatives / scales**.