Psych 156A/ Ling 150: Acquisition of Language II

Lecture 10

Pragmatics

Announcements

Be working on pragmatics review questions & HW3 (due 5/26/16)

Pragmatics: How to use language

http://languagelog.ldc.upenn.edu/nll/?p=3259

Figuring out how people use language

Computational Problem:

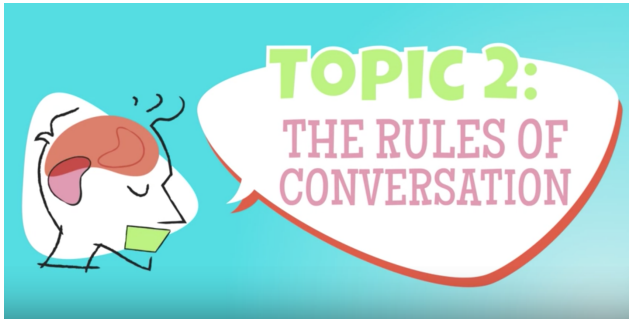
Identify what a speaker means by using a specific expression.

"I love some of my daxes."

Does the speaker not love all of them?

Pragmatics: How to use language

http://www.thelingspace.com/episode-2
https://www.youtube.com/watch?v=rzxyjFHh-y8
intro through 1:01



Pragmatics: How to use language

Sometimes, there's a difference between the literal meaning and the intended meaning when something is used in conversation.

"Some of my friends like penguins"
Logical/literal/"technically": Compatible with all friends liking penguins

Intended: Not all friends like penguins

Conversational implicature

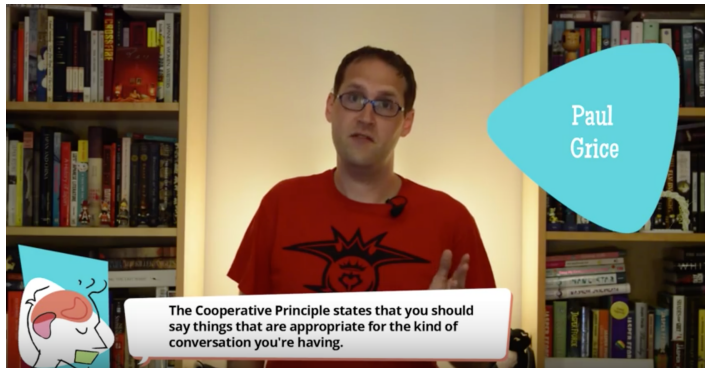
The "soft" part of the meaning that reflects the speaker's intended meaning (over and above the linguistic code) is called a conversational implicature.

"Some of my friends like penguins"
Logical/literal/"technically": Compatible with all friends liking penguins

Intended: Not all friends like penguins

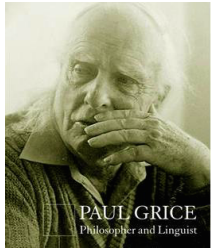
Cooperative Principle

http://www.thelingspace.com/episode-2
https://www.youtube.com/watch?v=rzxyjFHh-y8
intro through 1:01-1:52



Cooperative Principle

Paul Grice:
Core assumption listeners have is that communication is a purposeful and cooperative activity.



(1) The speaker is trying to get the hearer to understand a particular message.

(2) The hearer is trying to understand the speaker's message, assuming it's cooperative and purposeful.

Maxims of cooperative conversation

http://www.thelingspace.com/episode-2
https://www.youtube.com/watch?v=rzxyjFHh-y8
intro through 1:53-2:08

Maxim of Quality

http://www.thelingspace.com/episode-2
https://www.youtube.com/watch?v=rzxyjFHh-y8
intro through 2:08-2:34

Maxim of Quality

Quality: Speakers will be truthful (given their own current knowledge).

Note: When a speaker says something blatantly false, hearers assume non-literal meaning (ex: sarcasm, metaphor, hyperbole)

Sarcasm:
"It's just delightful out, isn't it?" when said during awful weather. Interpreted as meaning the weather is the opposite of delightful and the speaker is communicating chagrine/irony.

Maxim of Quality

Quality: Speakers will be truthful (given their own current knowledge).

Note: When a speaker says something blatantly false, hearers assume non-literal meaning (ex: sarcasm, metaphor, hyperbole)

Metaphor:
"She's a beast at problem solving."
interpreted as she's really excellent at problem solving (because she's not actually a beast).

Maxim of Quality

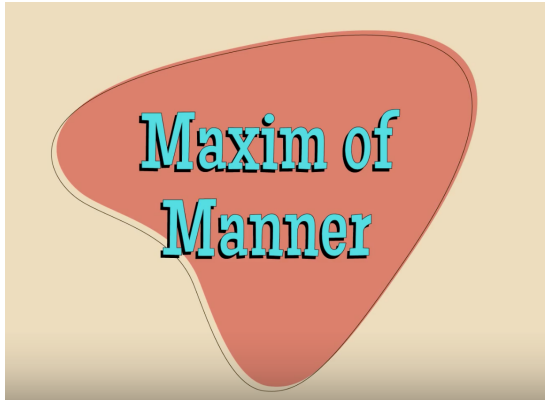
Quality: Speakers will be truthful (given their own current knowledge).

Note: When a speaker says something blatantly false, hearers assume non-literal meaning (ex: sarcasm, metaphor, hyperbole)

Hyperbole:
"That soda costs a million dollars!"
interpreted as the soda is more expensive than normal. Emerges when speakers realize one communicative intention is speaker attitude (Kao et al. 2014)

Maxim of Manner

http://www.thelingspace.com/episode-2
https://www.youtube.com/watch?v=rzxyjFHh-y8
intro through 2:34-4:10



Maxim of Manner

Manner: Speakers use reasonably straightforward, unambiguous, and orderly ways to communicate.

Ex: Describe events in the order they happen.

"Sam started hacking his boss's email."
"Sam got fired."
Implication: He got fired because of the hacking.

"Sam got fired."
"Sam started hacking his boss's email."
Implication: He started hacking because he was fired.

Maxim of Relevance/Relation

http://www.thelingspace.com/episode-2
https://www.youtube.com/watch?v=rzxyjFHh-y8
intro through 4:10-5:22

Maxim of Relevance/Relation

Relevance/Relation: Speaker utterances organized around some specific communicative purpose.

Ex:
Attia felt very dizzy and fainted.
She was carried away unconscious to the hospital.

Second utterance is connected to the first: Attia was unconscious *because* she fainted, not because something else happened (like being hit over the head).

Maxim of Relevance/Relation

Relevance/Relation: Speaker utterances organized around some specific communicative purpose.

Connection to advertising:
"Why are you telling me this?"

Inference: This must be something special about your product.

Ex: "Our mangos contain no additives."

(But do any mangos have additives??)

Maxim of Quantity

http://www.thelingspace.com/episode-2
https://www.youtube.com/watch?v=rzxyjFHh-y8
intro through 5:22-6:46

Maxim of Quantity

Quantity: Speakers don't add unnecessary information.

Ex:
"Some of my friends like penguins."

Inference: The speaker used the vague expression *some* because she couldn't use a more precise expression like *many*, *most*, or *all*.

Maxim of Quantity

Quantity: Speakers don't add unnecessary information.

Note: This line of reasoning can be used any time expressions sit in a"scalar relation" to each other. The implicature is referred to as a scalar implicature.

I like some kinds of pies —> I don't like all kinds of pies.
(some < all)

Maxim of Quantity

Quantity: Speakers don't add unnecessary information.

Note: This line of reasoning can be used any time expressions sit in a"scalar relation" to each other. The implicature is referred to as a scalar implicature.

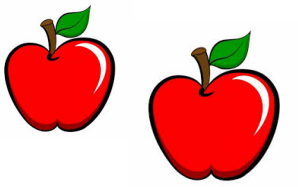
It's possible he'll win. —> It's not likely he'll win.
(possible < probable < certainly)

Maxim of Quantity

Quantity: Speakers don't add unnecessary information.

Note: This line of reasoning can be used any time expressions sit in a"scalar relation" to each other. The implicature is referred to as a scalar implicature.

I have two apples —> I don't have three (or more) apples.
(two < three < four < …)



Maxim of Quantity with numbers

http://www.thelingspace.com/episode-34
https://www.youtube.com/watch?v=N9OdeDQKnR4
intro through 0:36-1:46

Learning how to use implicatures

There's some evidence that conversational implicature ability develops late. Children have trouble understanding some implicatures until they're six years old (Bucciarelli et al. 2003).

Ex:
"Can I have a cookie?"

"We're eating lunch in a few minutes" —>
No, you may not have a cookie because you're going to have lunch soon.
(Maxim of Relevance)

Learning how to use implicatures

Children as old as ten struggle when judging other implicatures.

(Noveck 2001)
Some giraffes have long necks.

Adults: False because *all* giraffes have long necks. (Maxim of Quantity)

Children as old as 10: Yup! That's right.

But requiring kids to reflect on meaning in a conscious way may underestimate their abilities….

Maxim of Quantity reasoning

http://www.thelingspace.com/episode-34
https://www.youtube.com/watch?v=N9OdeDQKnR4
intro through 2:40-3:08

Learning how to use implicatures

Schulze, Grassmann, & Tomasello 2013:
Three- and four-year-olds can use the Maxim of Relevance when connecting statements together.

To puppet:
"Do you want cereal or a roll?"


Experimenter: "Psst - the milk is all gone." (Implication: Puppet can't have cereal.)

Three- and four-year-olds give the puppet a roll about 7 out of 10 times. This is pretty good! (Though adults give it 9 out of 10 times.)

Learning how to use implicatures

Ozturk & Papafragou 2015:
Learning about epistemic modals (concerning possibility), which form a scale. This allows for scalar implicatures (using the Maxim of Quantity).

Strongest
"The penguin is on the iceberg."
"The penguin has to/must be on the iceberg."
"The penguin should be on the iceberg."
"The penguin may be on the iceberg."
Weakest

may < should < has to/must < [bare assertion]

Learning how to use implicatures

Ozturk & Papafragou 2015:
Testing four- and five-year-olds on epistemic modals.

General setup
Short animated stories about animals hiding in boxes (for example, a cow hiding in an orange box).


There were different story types.

After each animal story, participants were presented with the epistemic modal stimuli.

Learning how to use implicatures

Ozturk & Papafragou 2015:
Testing four- and five-year-olds on epistemic modals.

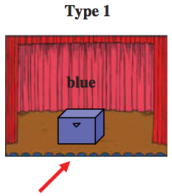
Experiment 1
Participant was asked: "**Do you agree?**"

"The cow has to be in the orange box."

"The cow may be in the orange box."


Learning how to use implicatures

Ozturk & Papafragou 2015:
Testing four- and five-year-olds on epistemic modals.



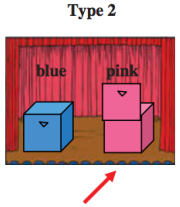
Story type 1:
Only one box shown, so whatever animal it was must have hidden in that box.

	% Yes	
	Children	**Adults**
"The cow has to be in the blue box."	100%	100%
"The cow may be in the blue box."	100%	100%

Children and adults behave the same: They accept the weaker statement (and don't compute the implicature).

Learning how to use implicatures

Ozturk & Papafragou 2015:
Testing four- and five-year-olds on epistemic modals.



Story type 2:
Two boxes shown, and one opened and shown as empty. Therefore animal in other box.

	% No	
	Children	**Adults**
"The cow has to be in the pink box."	86%	100%
"The cow may be in the pink box."	80%	100%

Children and adults mostly behave the same: They deny the weaker statement (and don't compute the implicature). However, children aren't quite as good as adults.

Learning how to use implicatures

Ozturk & Papafragou 2015:
Testing four- and five-year-olds on epistemic modals.

Experiment 1 takeaway:
Both children and adults respond to these situations by *not* computing the scalar implicature. Therefore, children have achieved adult-level competence for these modal terms in this respect.

But what about when they have to compute the implicature?

Learning how to use implicatures

Ozturk & Papafragou 2015:
Testing four- and five-year-olds on epistemic modals.

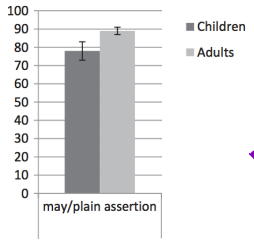
Experiment 2:
Same general setup as experiment one (with animals hiding in boxes), but now participants are asked to judge which of two characters (Minnie or Donald) makes a more accurate statement about what's going on.

Learning how to use implicatures

Ozturk & Papafragou 2015:
Testing four- and five-year-olds on epistemic modals.

Experiment 2: Story 1
Cow found inside opened yellow box.

% correct



"The cow may be in the yellow box."

"The cow is in the yellow box."

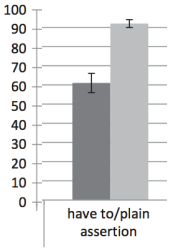
Children and adults compute the implicature (though children aren't quite as good as adults). But children are still above chance.

Learning how to use implicatures

Ozturk & Papafragou 2015:
Testing four- and five-year-olds on epistemic modals.

Experiment 2: Story 2
Cow found inside opened yellow box.

% correct



"The cow has to be in the yellow box."

"The cow is in the yellow box."

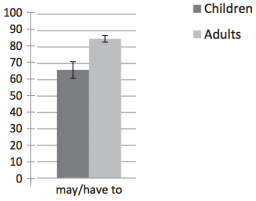
Adults compute this fairly subtle implicature but children don't. Children's performance isn't significantly different from chance (50%).

Learning how to use implicatures

Ozturk & Papafragou 2015:
Testing four- and five-year-olds on epistemic modals.

Experiment 2: Story 3
Cow *not* found inside opened yellow box.
Unopened pink box present.

% correct



"The cow may be in the pink box."

"The cow has to be in the pink box."

Adults compute this scalar implicature and children do so, though not as well. Children's performance is significantly different from chance (50%), though.

Learning how to use implicatures

Ozturk & Papafragou 2015:
Testing four- and five-year-olds on epistemic modals.

Experiment 2 takeaway:
Most of the time, children recognize the pragmatic potential of modal verbs, even if they're not able to compute the implicatures as well as adults. However, the subtle difference between "has to be" and "is" is harder for them to judge.

What happens if we get at their knowledge without using a judgment task? Maybe use a task that kids would be more engaged in?

Learning how to use implicatures

Ozturk & Papafragou 2015:
Testing four- and five-year-olds on epistemic modals.

Experiment 3: Setup

"Participants were told that they would play a game involving two twins. The twins would look alike, dress alike but they would tell children different things. Each twin had a box that contained a single object. Participants were told that they should listen carefully to what the twins said and then choose one box for themselves."

Learning how to use implicatures

Ozturk & Papafragou 2015:
Testing four- and five-year-olds on epistemic modals.

Experiment 3: Setup

Positive trials:
Participants asked to name something they really like (ex: "ice cream").

Experimenter describes what each twin says.

Participants then were asked:
"Which box would you choose?"

Computing implicature = pick the plain assertion twin.

"In my box, there is ice cream."

"In my box, there may be ice cream."

Learning how to use implicatures

Ozturk & Papafragou 2015:
Testing four- and five-year-olds on epistemic modals.

Experiment 3: Setup

Positive trials:
Adults and children both compute the implicature and choose the better outcome box (though children a little less often than adults). Much stronger support for children's ability.

"In my box, there is ice cream."

"In my box, there may be ice cream."

Learning how to use implicatures

Ozturk & Papafragou 2015:
Testing four- and five-year-olds on epistemic modals.

Experiment 3: Setup

Negative trials:
Participants asked to name something they really hate (ex: "cauliflower").

Experimenter describes what each twin says.

Participants then were asked:
"Which box would you choose?"

Computing implicature = pick the "may be" twin.

"In my box, there is cauliflower."

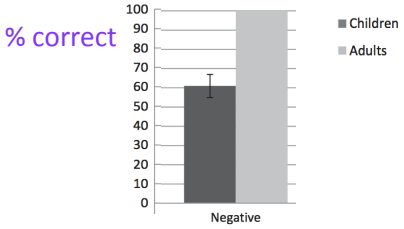
"In my box, there may be cauliflower."

Learning how to use implicatures

Ozturk & Papafragou 2015:
Testing four- and five-year-olds on epistemic modals.

Experiment 3: Setup

Negative trials:
Adults compute the implicature, but children struggle though they do pick the choice reflecting the implicature slightly more often than chance.



"In my box, there is cauliflower."

"In my box, there may be cauliflower."

Learning how to use implicatures

Ozturk & Papafragou 2015:
Testing four- and five-year-olds on epistemic modals.

Experiment 3 takeaway:

Five-year-old children recognize the pragmatic potential of modal verbs, and can compute them more easily in more realistic scenarios. However, they are not yet adult-like and struggle to compute them accurately in certain contexts (the negative condition).

In general: Children's ability to compute implicatures is very dependent on the specific task/scenario.

Generalized vs. particularized implicatures

Stiller, Goodman, & Frank 2015:
Testing two-, three-, and four-year-olds when the reference for the implicature is made very clear from context (Maxim of Quantity).

Generalized implicatures:
Involve lexical items that are ordered with respect to one another.

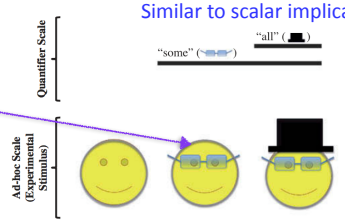
Ex:
some < most < all might < must one < two < three

Generalized vs. particularized implicatures

Stiller, Goodman, & Frank 2015:
Testing two-, three-, and four-year-olds when the reference for the implicature is made very clear from context (Maxim of Quantity).

Particularized/Ad-hoc implicatures:
Involve features of the context, rather than relying on lexical items that are ordered.

Similar to scalar implicatures



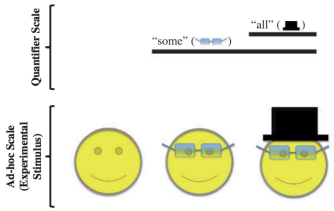
"My friend has glasses."
—> implies friend does not have a hat (that is, friend has some of the properties but not all of them).

Generalized vs. particularized implicatures

Stiller, Goodman, & Frank 2015:
Testing two-, three-, and four-year-olds when the reference for the implicature is made very clear from context (Maxim of Quantity).

Experimental setup:
Participant asked to help puppet identify referent from set.

Label condition:
"My friend has glasses."



Generalized vs. particularized implicatures

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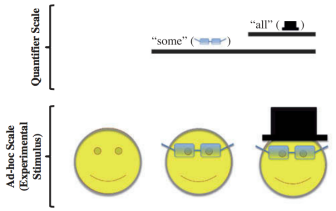
Testing two-, three-, and four-year-olds when the reference for the implicature is made very clear from context (Maxim of Quantity).

Experimental setup:
Participant asked to help puppet identify referent from set.

No Label (Control) condition:
"[mumble mumble]"

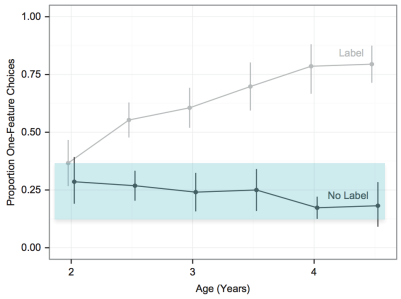
***Do this condition to make sure children don't have any pre-existing bias towards the correct answer.*

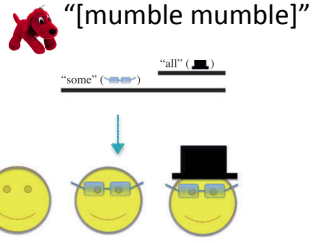


Generalized vs. particularized implicatures

Stiller, Goodman, & Frank 2015:
Testing two-, three-, and four-year-olds when the reference for the implicature is made very clear from context (Maxim of Quantity).

No Label (Control) condition results: All children at chance for picking referent that has single property.

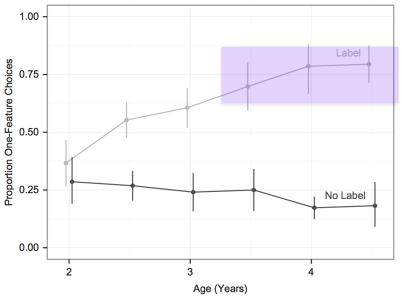


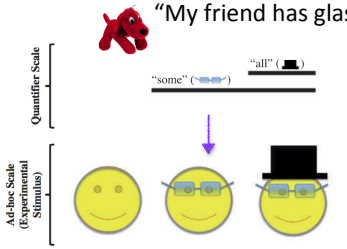


Generalized vs. particularized implicatures

Stiller, Goodman, & Frank 2015:
Testing two-, three-, and four-year-olds when the reference for the implicature is made very clear from context (Maxim of Quantity).

Label condition results: Children as young as three and a half can compute the implicature from context (significantly above chance).

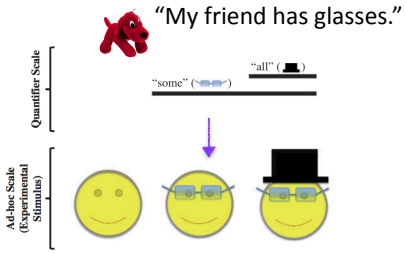




Generalized vs. particularized implicatures

Stiller, Goodman, & Frank 2015:
Testing two-, three-, and four-year-olds when the reference for the implicature is made very clear from context (Maxim of Quantity).

Takeaway:
"[Very young] [c]hildren are sometimes capable of computing implicatures, but these implicatures are sensitive to the availability of the inferential alternatives."



Learning how to use implicatures

Brandone, Gelman, & Hedglen 2015:
Learning to interpret generics.

Generic statement interpretation is complex:

Penguins can swim.

Implication: All penguins can swim.

Mosquitos carry the West Nile Virus

Implication: Some mosquitos carry the West Nile Virus.

Learning how to use implicatures

Brandone, Gelman, & Hedglen 2015:
Learning to interpret generics.

Adults expect generics to apply to the vast majority of category members - but require little evidence to be judged true.

Lorches have purple feathers.

Adult expectation: 95% of lorches have purple feathers

BUT only need to see a few lorches (as few as 10%) to decide this is true.

Learning how to use implicatures

Brandone, Gelman, & Hedglen 2015:
Learning to interpret generics.

Notably, generics seem harder to interpret than quantifiers.

All lorches have purple feathers.
Adult expectation: 100% of lorches have purple feathers

Most lorches have purple feathers.
Adult expectation: nearly 100% of lorches have purple feathers

Some lorches have purple feathers.
Adult expectation: significantly <100% of lorches have purple feathers

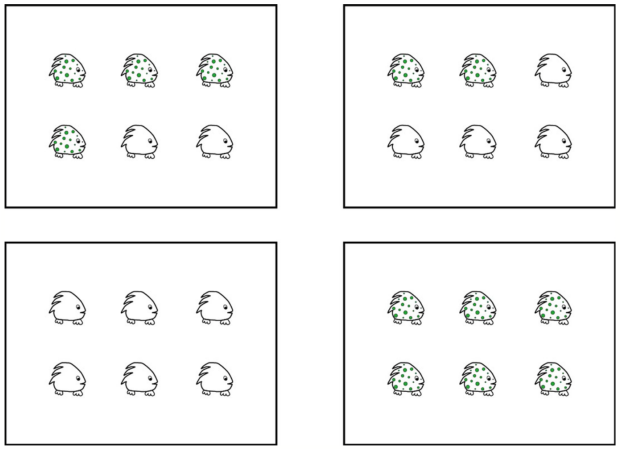
Learning how to use implicatures

Brandone, Gelman, & Hedglen 2015:
Testing four-year-olds, eight-year-olds, and adults.

Right or wrong?:
"Crullets have spots."

vs.

"Some/Most/All crullets have spots."



Learning how to use implicatures

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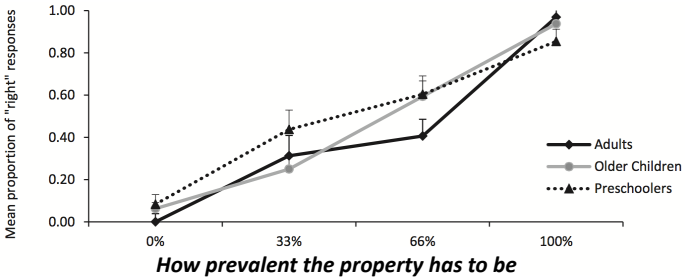
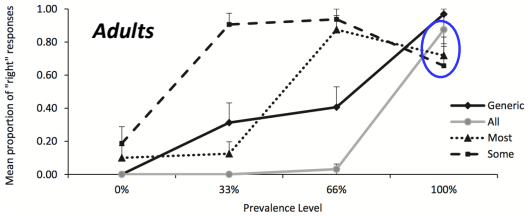


Generics: "Crullets have spots."

Preschoolers and older children behave pretty much like adults in their judgments of how prevalent the property has to be.

Learning how to use implicatures

Brandone, Gelman, & Hedglen 2015:
Testing four-year-olds, eight-year-olds, and adults.

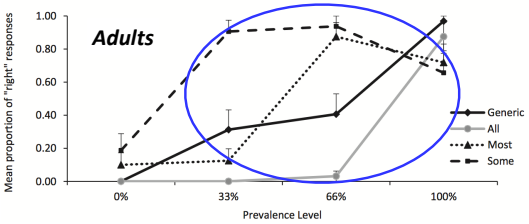


Quantifiers: "Some/Most/All crullets have spots."

Adults view "all" as correct only at 100%, and don't like to use "most" and "some" as much at 100%.

Learning how to use implicatures

Brandone, Gelman, & Hedglen 2015:
Testing four-year-olds, eight-year-olds, and adults.



Quantifiers: "Some/Most/All crullets have spots."

Adults don't think generics are like any of the quantifiers (overall linear trend is distinct).

Learning how to use implicatures

Brandone, Gelman, & Hedglen 2015:
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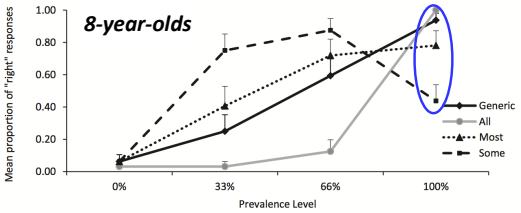
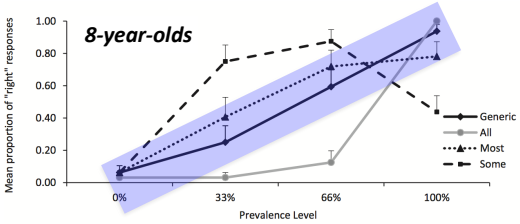


Quantifiers: "Some/Most/All crullets have spots."

8-year-olds also view "all" as correct only at 100%, and don't like to use "most" and "some" as much at 100%.

Learning how to use implicatures

Brandone, Gelman, & Hedglen 2015:
Testing four-year-olds, eight-year-olds, and adults.

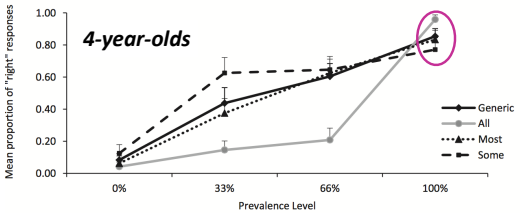


Quantifiers: "Some/Most/All crullets have spots."

However, 8-year-olds think generics are like "most" (overall linear trend is the same).

Learning how to use implicatures

Brandone, Gelman, & Hedglen 2015:
Testing four-year-olds, eight-year-olds, and adults.

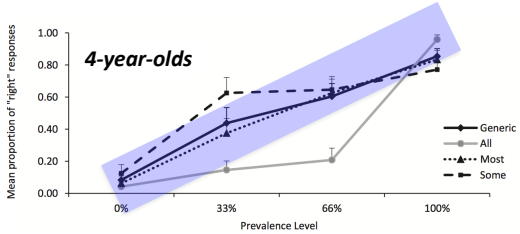


Quantifiers: "Some/Most/All crullets have spots."

4-year-olds also view "all" as correct only at 100%, but they're pretty happy to use "some" or "most" for 100% too.

Learning how to use implicatures

Brandone, Gelman, & Hedglen 2015:
Testing four-year-olds, eight-year-olds, and adults.



Quantifiers: "Some/Most/All crullets have spots."

4-year-olds also think generics are like "most" (overall linear trend is the same).

Learning how to use implicatures

Brandone, Gelman, & Hedglen 2015:
Testing four-year-olds, eight-year-olds, and adults.

Takeaway:

Children as young as four understand that generics like "Crullets have spots" can represent a broad range of prevalence levels (like adults do).

However, unlike adults, both younger (4-year-old) and older (8-year-old) children have mapped the meaning of generics to the quantifier "most".

Sometime after this point, they learn the nuances of adult interpretation of generics.

Recap

Part of linguistic knowledge is how to use language to communicate intended meaning that goes beyond the literal meaning.

The cooperative principle (implemented as the maxims of conversation) are what adults use to make implicatures.

It takes children awhile to learn how to make different implicatures.

Children are better at making implicatures when the alternatives are made very salient (either by context or because they're familiar with the linguistic items).

Questions?

You should be able to do all the questions on the pragmatics review questions and up through question 2 on HW3.