Why did Mary gorp?

Inferring word meanings from the semantic context
Overview / This Talk

The Induction Problem

Umbrella!

Procedure: example trial

Context sentence: Mary and John went sailing...
Training sentence A: John used to be a sailing expert...
Training sentence B: Mary is a sailing star...
Rehearsal sentence: Sean and David are novice skiers so they probably... is this sentence plausible?

Plausibility Judgment
Semantic Congruency

Results: Plausibility Judgment

No
Yes

Yes
No

Congruent trials
Incongruent trials

$X^2 = 95.37$, $p < .001$
Word-object mapping

Umbrella!
Learning abstract meanings

Did you see the debate last night?

Whole-object bias?
Mutual Exclusivity?
Gestures?

Children’s first words tend to be concrete object words (Bergelson & Swingley, 2012, 2013)

But: Adult vocabularies are dominated by abstract words, like debate or ironic (Murphy, 2001).
The power of the semantic context

(1) Mary laughed; the sun was shining.

(2) Mary laughed because the sun was shining.

(3) Mary GORPED because the sun was shining.

(4) Mary GORPED even though the sun was shining.
Procedure: example trial

Context sentence:
Mary and John went skiing...

Training sentence A:
John gorped because he is a skiing expert.

Training sentence B:
Mary preeked because she is a novice skier.

Dashed sentence:
Susan and David are novice skiers so they probably preeked as well.

Plausibility Judgment:
Is this sentence plausible?

Um... example please?
Procedure: example trial

Ready?
Rock climbing is a dangerous sport.
Procedure: example trial

Jack tromed because he is an extremely cautious person.
Procedure: example trial

Is rock climbing dangerous?

Yes  No
Jana slalted because she tends to be rather reckless.
Is Jana reckless?

Yes

No
Paul and Delphine are very cautious people so they salted a lot.
Procedure: example trial

Paul and Delphine are very cautious people so they slalted a lot.
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Paul and Delphine are very cautious people so they salted a lot.
Paul and Delphine are very cautious people so they slalted a lot.
Procedure: example trial

Is this sentence plausible?

Yes  No
Procedure: example trial

Context sentence: Mary and John went skiing...

Training sentence A: John gorped because he is a skiing expert.

Training sentence B: Mary preeked because she is a novice skier.

Dashed sentence: Susan and David are novice skiers so they probably preeked as well.

Plausibility Judgment: Is this sentence plausible?
Paul and Delphine are very cautious people so they tromed a lot.
The Hypotheses

- **Congruent trials**
- **Incongruent trials**

**Plausibility Judgment**
- Yes
- No

**Reading Times**
- Yes
- No

Paul and Delphine are very cautious people so they tromed a lot.
Results: Plausibility Judgment

Congruent trials: 50% No, 50% Yes
Incongruent trials: 100% No, 0% Yes

$\chi^2 = 95.37$, $p < .001$
Results: Reading Times

- **Congruent trials**
  - 0 ms
  - 500 ms
  - 1000 ms

- **Incongruent trials**
  - 0 ms
  - 500 ms
  - 1000 ms

$t = -1.28$

$p = .2$
‘Converging evidence’ interpretation

Context sentence

Mary and John went skiing...

Training sentence A

John gorped because he is a skiing expert.

Training sentence B

Mary preeked because she is a novice skier.

Dashed sentence

Susan and David are novice skiers so they probably gorped as well.

Plausibility Judgment

Is this sentence plausible?

“Aha, so gorping is something that is expected of skiing pros.”

“Aha, so gorping is something that is expected of skiing beginners.”

Wait - what?!
Plausibility Judgments - again

- Correct
- Incongruent trials: 50%
- Incorrect

\[ X^2 = 73.55 \]
\[ p < .001 \]
Where to go from here...

- **More exposure per word**: contextual word learning is known to be incremental (Maratsos, 2001; Murphy, 2001) and more exposure may produce a bigger effect.

- **Test other aspects of the semantic context**: e.g., selectional properties of verbs (e.g., Bowerman, 2005) or subtle distinctions between abstract nouns (Scott, 2001).

Thanks for listening!