Deceptive language: a new methodology in language acquisition and implicature theory

Mailin Antomo, Yuqiu Chen, Susanne Müller, Markus Paluch, Katharina Paul, Maik Thalmann
U Göttingen

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1. Introduction

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We will present two experimental studies to show that using deceptive language in experimental pragmatics

- is a suitable method to the investigation of inferential processes.
- challenges the results of other experiments by yielding partly different results.

2. Experiment 1: Acquisition of Implicatures

Theoretical Background I

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- Noveck (2001): „7-year-olds were the youngest children to demonstrate modal competence while not appearing to make pragmatic interpretations of *Might*“(p. 183).

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- Katsos/Bishop (2011), Shetreet et al. (2014a), Panizza et al.: children are able to derive inferred meanings as early as **age 3** and are simply more tolerant of pragmatic violations.

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- Is there a difference in the assessment of untruthful implicatures between children and adults?
- Use of deceptive language in order to establish a high relevance of the task for the children and to increase the at-issueness of the implicatures.

Methods and Materials I

- Offline rating experiment
- 12 critical items: 6 truthful and 6 untruthful PCIs (only relevance implicatures).
- 12 control and filler items: 6 truthful and 6 untruthful assertions.

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- The target sentence followed a question which corresponds to the QUD (Von Stutterheim/Klein 1989, Roberts 1996).
- Critical items: target sentence induced a relevance implicature:
  - asserted proposition true (not-at-issue)
  - implicated proposition false (at-issue)

Methods and Materials II

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- Scale coded with smiley faces (adopting Ambridge 2010) to be suitable for children.
- The items were presented as video sequences (from 18 to 39 seconds in length) and in randomized order.
- Prosocial lies were excluded.
- Clearly identifiable motive for every (potential) lie.

Karla likes Frida's new glittery bouncy ball.

When Frida is not in the room, her cat Minka comes in.

Minka plays with the glittery bouncy ball for a moment and afterwards, she goes into the kitchen.

Karla takes the bouncy ball and puts it in her pocket.

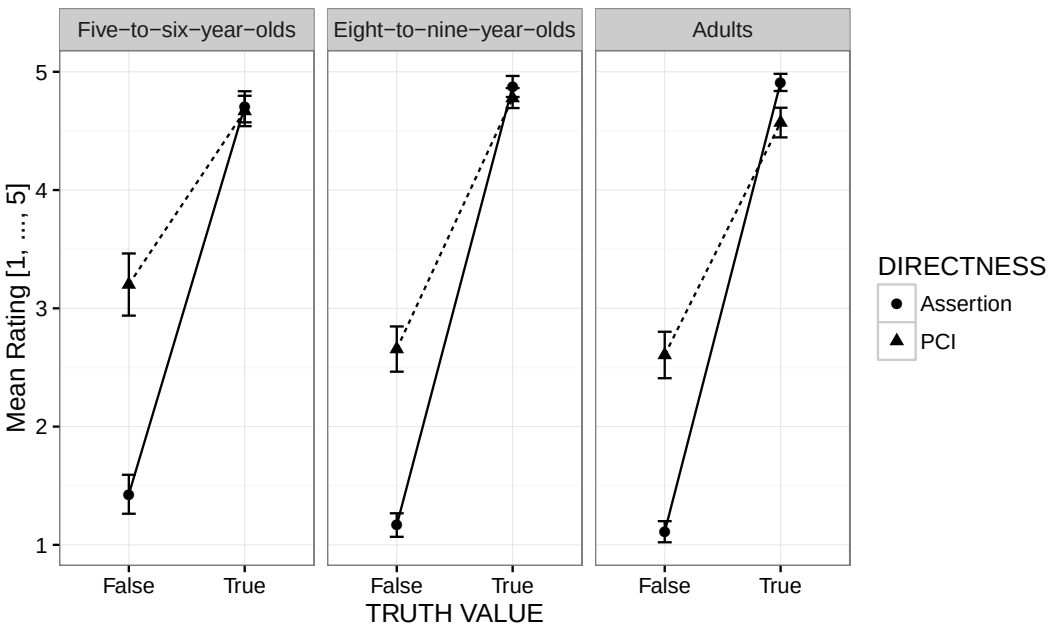
Frida comes back. While she is looking for her bouncy ball, she asks Karla: "Karla, do you know where my bouncy ball is?" Karla answers: "Minka was just here and played with it." (Target PCI: Minka took the ball away.)

Example

The glittery bouncy ball

- **Participants:**
  - 30 adults between 17 and 76 years of age (mean= 35.1 $\pm$ 16.86)
  - 60 children:
    - 30 children from 5 to 6 years
    - 30 children from 8 to 9 years
  - Native speaker from different regions of Germany.

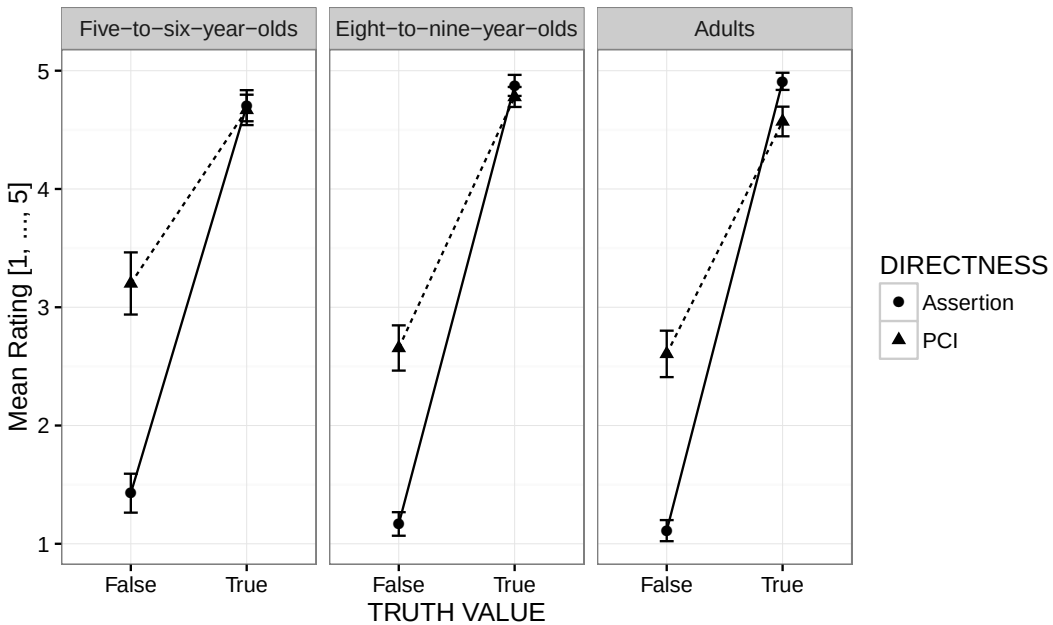
Results I



Main effect for:

- TRUTH VALUE ($LR\text{-}\chi^2(1) = 28.501$, $p < .001$)
- DIRECTNESS ($LR\text{-}\chi^2(1) = 6.468$, $p < .01$)
- The interaction of TRUTH FACTOR and IMPLICATURE ($LR\text{-}\chi^2(1) = 38.124$, $p < .001$)

Results II



No main effect for:

- Developmental Stage (LR-$\chi^2(1) = 4.789$, $p < .09$)
- The interaction of Truth Value and Developmental Stage (LR-$\chi^2(1) = 4.6$, $p < .1$)
- The interaction of Directness and Developmental Stage (LR-$\chi^2(1) = 2.269$, $p < 32$)
- The interaction of all three factors (LR-$\chi^2(1) = 5.051$, $p < .08$)

Discussion

- In our experiment, children performed similarly to adults.
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Discussion

- In our experiment, children performed similarly to adults.
- They were able to infer implicatures as early as age 5, a result that challenges Noveck (2001).
- Previous findings in conflict with our own (such as Noveck 2001) are caused by childrens pragmatic tolerance.
- We conclude that deceptive language not only does not add to the complexity of the task, but implicated lies might also prove to be a setting which brings to the fore childrens inferential abilities (due to the high relevance of the implicatures involved).

3. Experiment 2: The PCI/GCI-distinction

Theoretical background

- Generalized versus particularized conversational implicatures
  1. A: Where's John?
     B: Some of the guests are already leaving.
     GCI: Not all of the guests are already leaving.
     PCI: John might have left with the other guests.
  2. A: What time is it?
     B: Some of the guests are already leaving.
     GCI: Not all of the guests are already leaving.
     PCI: It must be late.

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     GCI: Not all of the guests are already leaving.
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Neo-Gricean account (NG) vs Relevance Theory (RT)

- NG: GCIs are more „default" than PCIs and even literal meanings (Horn 1972, Gazdar 1979, Horn 1989, Levinson 2000).
- RT: All implicatures are context-dependent and cognitively effortful (Sperber/Wilson 1996, Noveck/Sperber 2007).

Experimental Studies: GCI/PCI distinction

- Methods used in experiments (e.g. Noveck 2001; Noveck/Posada 2003; Bott/Noveck 2004; Breheny et al. 2006; Huang/Snedeker 2009 a.o)
  1. Truth Value Judgment Task (TVJT)
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- Observations and results
  - Pragmatic enrichment is more costly than literal meaning (but see Degen/Tanenhaus, 2016).
  - RT is favored.

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  - RT is favored.

Our investigation (Thalmann 2019 (submitted))

Use of deceptive language to carve out the PCI/GCI-distinction

Background: Lies vs Deceptions

- We assume that lies are bound to verbal acts of communication, while deception in the narrow sense is applicable to non-verbal acts (Vincent 1981, Mahon 2015).

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Are untruthful implicatures lies?

- Horn (2017): All untruthful implicatures are deceptions.
- Meibauer (2005, 2014): False PCIs, due to their dependence on the triggering utterance, are lies proper.
- Antomo et al. (2018): false implicatures are suitable for lying, but participants differentiate between what is said and what is implicated.
- untruthful PCIs, because they are not semantic but pragmatic in nature, constitute mere deceptions; untruthful GCIs, should be understood as proper lies because of their close link to lexical semantics (Saul 2012; Sweetser 1987).

Predictions

- Predictions:
  - PCIs and GCIs will not behave uniformly.
  - Scalar GCIs are processed with other semantic phenomena (Shetreet et al. 2014b) and thus should be categorized as lies.
  - PCIs should behave like non-verbal deceptive acts.

Methods and Materials I

- Design
  - 12 critical items: 6 untruthful GCIs and 6 untruthful PCIs.
  - 24 control and filler items: 6 truthful assertions, 6 deceptions (non-verbal), 6 truthful GCIs, 6 truthful PCIs.
- Forced choice task: 3 options
  - rather a lie
  - rather a deception
  - rather the truth
- Procedure
  - Online questionnaire via OnExp

Methods and Materials II

- Material
  1. false GCI

     The math test in class 7a was so difficult that all the students failed. After many parents complained to the school headmistress, she asks the class's math teacher to her office.

     The school headmistress asks: Now tell me again: how was the math task?
     The math teacher replies: Some students failed.

     GCI: Not all students failed.

- Material
  2. false PCI

Every morning and evening Paul's mother or father brushes Paul's teeth, which he does not like. Now it is late in the evening and Paul is supposed to go to bed. Together with his father, he goes to the bathroom. Just before his father starts to brush Paul's teeth, the phone starts ringing. Paul's father leaves the bathroom to answer the phone, while Paul goes into his room, where his mother is waiting for him.

The mother wants to put him into bed and asks: Paul, did your father already brush your teeth?
Paul answers: We were just in the bathroom.

PCI: In the bathroom, my father brushed my teeth.

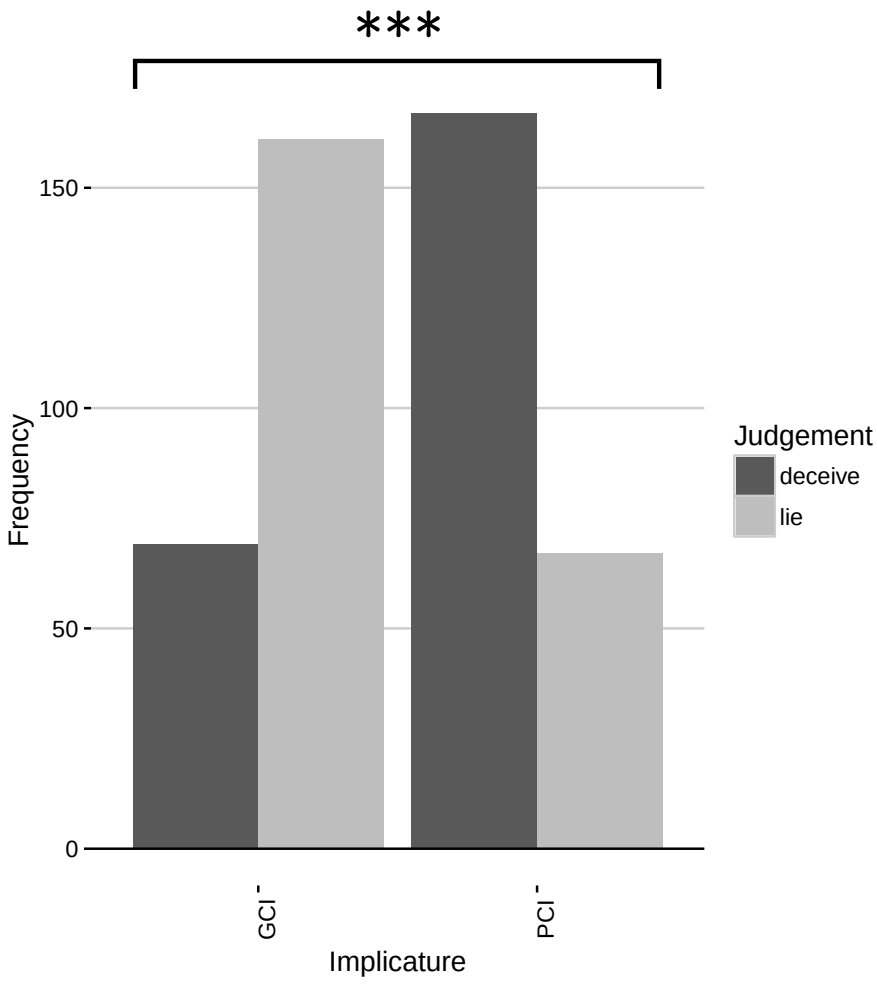
- Material
  3. Deception

     Paul is very hungry and eats all the cookies from the candy box in the kitchen. He distributes some cookie crumb in the basket of his dog Fido, so that his parents do not realize that it was him who ate the biscuits.

     Later, he sees his mother scolding Fido.

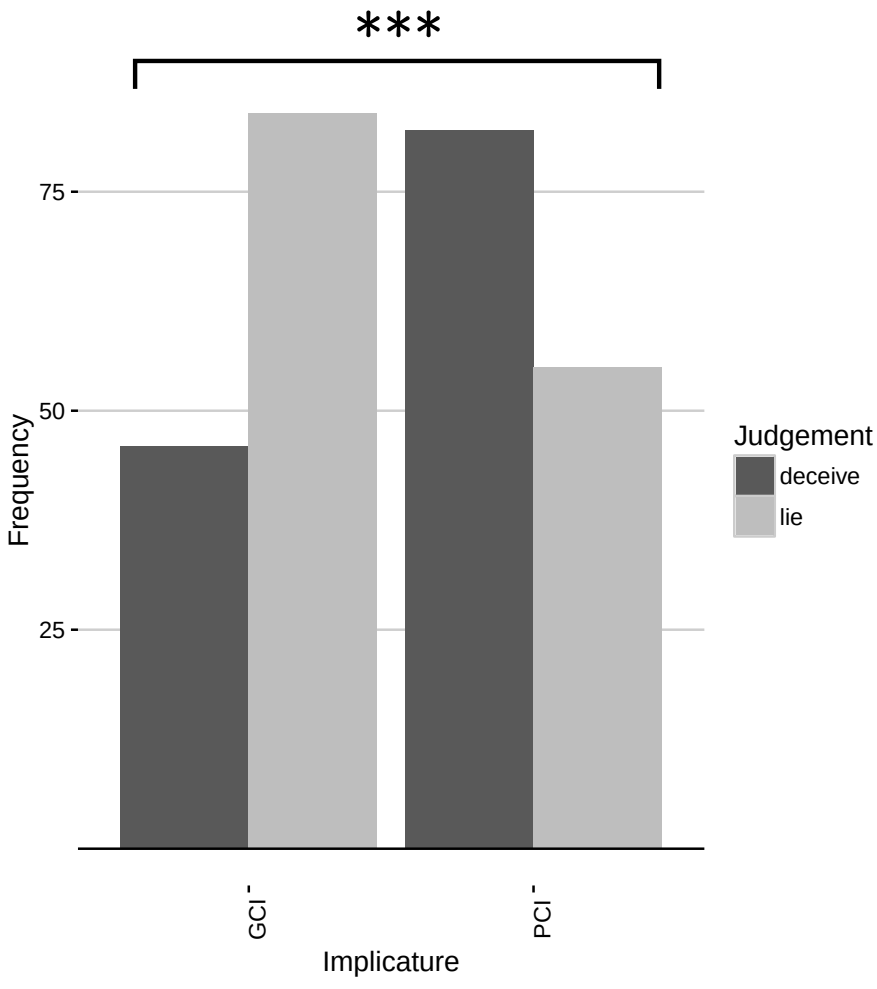
- Participants
  - 43 native German speakers, 34 female and 9 male (mean age= 23.51 $\pm$ 16.86).
  - 29 native Chinese speakers, 25 female and 4 male (mean age= 20.69 $\pm$ 0.97).

Results: Experiment in German



Main effect for the factor IMPLICATURE
(z value = -4.65, p $<$ .001)

Results: Experiment in Mandarin



Main effect for the factor IMPLICATURE
(z value = -3.81, p $<$ .001)

Discussion

- In accordance with more fine-grained methodological results (de Carvalho et al. 2016; Shetreet et al. 2014b), GCIs appear to behave essentially semantic.
- PCIs pattern with non-verbal acts and are categorized as deceptions (presumably because they are not closely linked to compositional semantics).
- Support for the view in Saul (2012): GCIs pattern with assertions and PCIs with non-linguistic deceptive acts.
- Stable phenomenon even between culturally and linguistically unrelated groups of speakers.
- Results challenge post-Gricean pragmatics such as RT, which denies the taxonomy of GCIs and PCIs, arguing that both arise from the same mechanism.

4. Conclusion

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Further applications: experimental investigation of

- Presuppositions (soft vs hard triggers)
- Acquisition of GCIs
- Expressives

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