Tattoos as a window onto cross-linguistic differences in scalar implicature

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Outline

Introduction

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Conclusion
Scalar Implicature: The use of a weaker form implicates the negation of a stronger alternative along the same scale.
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(1) She ate some of the grapes.
    \(\sim\) She did \textit{not} eat \textit{all} of the grapes.

Alternative: She ate \textit{all} of the grapes.
**Scalar Implicature:** The use of a weaker form implicates the negation of a stronger alternative along the same scale.

(1) She ate some of the grapes.
She did *not* eat *all* of the grapes.

**Alternative:** She ate *all* of the grapes.

Hearer thinks: If the speaker means ‘all’, they would say *all*, which is just as short (Manner), and more informative (Quantity).
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Regardless of differences in the pragmatic reasoning process, all frameworks appeal to the idea of alternatives. (Grice, 1975; Horn, 2000; Geurts, 2011; Chierchia et al., 2008; Frank & Goodman, 2012)
An appeal to alternatives

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Alternatives: “Sentences the speaker might have uttered instead of the one that he did utter” (Geurts, 2011, p. 29)
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(1) She ate some of the grapes.  
    ~ She did not eat all of the grapes.  
    **Alternative:** She ate *all* of the grapes.
To understand scalar implicature calculation, we need to understand what alternatives are available to listeners.
Constraining the set of alternatives

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Different theories have imposed different constraints on the set of alternatives:

- **Complexity-only constraints** restrict alternatives based on word count.
  - Horn (2000)
  - Katzir (2007)
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- **Prevalence-based constraints** restrict alternatives based on production probability.
  - Geurts (2011)
  - Frank & Goodman (2012), Goodman & Stuhlmüller (2013)
It has been noted in the literature that an asymmetry exists between *finger* and *toe.*
(Horn, 1984, 2000; Geurts, 2011)

(2) She has a tattoo on her finger.
   \[\neg\] She does not have a tattoo on her thumb.

(3) She has a tattoo on her toe
   \[\neg\] She does not have a tattoo on her big toe.
Horn’s conjecture

“We would predict that if the colloquial language replaced its thumb with the polymorphous pollex (the Latin and scientific English term for both ‘thumb’ and ‘big toe’), the asymmetry [between finger and toe] would instantly vanish.”
“It is important to note, however, that the adjective ‘colloquial’ is doing real work in this statement: it is not enough for an alternative word to be in the language; it has to be sufficiently salient, as well: if the word ‘thumb’ was rarely used, then presumably the asymmetry between would vanish too.”
The present study

Spanish: pulgar ‘thumb’ (equally as complex as thumb, less prevalent)

Goal: To investigate, using cross-linguistic comparison, what determines the viability of alternatives when calculating a scalar implicature
The present study

Spanish: *pulgar* ‘thumb’ (equally as complex as *thumb*, less prevalent)

**Goal:** To investigate, using cross-linguistic comparison, what determines the viability of alternatives when calculating a scalar implicature
Design/Procedure

Norming: Production
(fill in the blank)

Comprehension
(forced choice)

Targets
Fillers

6 digits
6 other body parts
(arm, leg, back)

6 digit-pairs
6 other pairs
(mix of easy/hard)

Order, left-right presentation randomized.
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Thumb vs. ring finger (Comprehension)

“She has a tattoo on her finger.”

Observed rates plotted with 95% CI
Ring finger vs. pinky finger (Comprehension)

“She has a tattoo on her finger.”

Observed rates plotted with 95% CI
The RSA framework uses probabilistic reasoning to model the recursive nature of pragmatic reasoning.
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Let us consider two models of the speaker $S$:

- Complexity Model: penalizing longer utterances
- Production Model: perfect knowledge of speaker behavior (prevalence)
Model comparison

Comparison of Model Results

R^2 for complexity model = 30.6; R^2 for production model = 76.3
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Support: *pinky* doesn’t act like *thumb* (in Spanish or English).
- Single-word alternatives available to speakers, but less prevalent.
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Troublesome for complexity-based accounts (Horn, 1984, 2000; Katzir, 2007)
Conclusions

1. Viability of alternatives depends on how prevalent the alternatives are.
   - Languages differ in which alternatives are considered viable based on the prevalence of translational equivalents.
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2. Viability is tied to prevalence (production probability), and complexity is not all there is to it. Interlocutors are recursively probabilistic when communicating.
Conclusions

1. Viability of alternatives depends on how prevalent the alternatives are.
   - Languages differ in which alternatives are considered viable based on the prevalence of translational equivalents.

2. Viability is tied to prevalence (production probability), and complexity is not all there is to it. Interlocutors are recursively probabilistic when communicating.

Our findings provide evidence against a structural approach to calculating alternatives (Horn, 2000; Katzir, 2007), favoring theories that determine alternatives based on production probability (Geurts, 2011; Goodman & Stuhlmüller, 2013).
Thank you!
Gracias!


