When “all” means not all: Nonliteral interpretations of universal quantifiers

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Introduction

A great deal of research examines when and why “some” is pragmatically strengthened to mean not all [1, 2]. Less well studied are cases where “all” is used hyperbolically to mean a lot but not all.

Speakers often use hyperbole to express emotional attitudes [3]. A recent probabilistic model of language understanding predicts listeners’ interpretation of hyperbole and their affective subtexts using background knowledge and reasoning about communicative goals [4]. We describe two experiments that explore listeners’ interpretations of “all” across contexts. We then present a model that predicts these interpretations.

Experiments

Experiment 1 examines the effect of prior knowledge. 60 MTurk participants read scenarios in which Ann brought 10 M&Ms, cookies, or pies to a party and rated how likely it is that Bob ate certain amounts of the items. 40 other participants read scenarios in which Ann says to a friend, “Bob ate some/all of the M&M’s/cookies/pies!” Participants rated how likely it is that Bob ate certain amounts of items.

Results: “All” is more likely to be interpreted hyperbolically when its literal meaning is a priori unlikely (β=.04, SE=.02, t=2.45, p<.05).

Experiment 2 examines the affect communicated with hyperbolic “all.” 40 participants rated how Ann feels given that Bob ate n items (1 ≤ n ≤ 10). 160 participants rated how Ann feels given that Bob ate n items and that she said: “Bob ate some/all of the M&M’s/cookies/pies.”

Results: Participants rate Ann as feeling more negative when she says “all” than when she says “some” (β=.31, SE=.04, t=7.7, p<.0001), suggesting that hyperbolic uses of “all” convey additional affect.

Rational Speech Act Model

Speaker chooses utterances that maximize informativeness to a communicative goal [4, 5].

Pragmatic listener reasons about speaker’s communicative goal. Given that it is highly unlikely Bob ate all 10 items, he infers that Bob ate < 10 items, but Ann feels negative about it.

Model produces interpretations that closely match humans’ (r=0.91) and infers additional affect from hyperbolic uses of “all.”

Conclusion

Prior knowledge and reasoning about the speaker’s communicative goals shape interpretation, such that utterances whose meanings are normally uncontroversial can be interpreted nonliterally in context.

References


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