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**BIG PURPOSE:** the effect of two types of cues on the time course of scalar implicature, both of which are motivated by the idea that speakers could have produced alternative utterances.

**First cue:** partitive *of*

**Second cue:** availability of lexical alternatives to *some,* use number terms as alternatives, e.g. You got two of the gumballs vs You got some gumballs.

**Previous Research:** found that responses to pragmatic ‘some’ were delated when intermixed with exact number

**Why wrong:** In situations where exact number is available as a description, the number term is likely to become automatically available, thus creating a more natural, more available interpretation of the scene

**New theory:** delays in RT not because of costly computation of quantity implicature (‘some’ to ‘not all’) but because of maxim of manner—

**\*\*\*\*\*\*\*\*\*\***When you arrive at the implicature ‘some’ 🡪 ‘not all’ when there are more natural alternatives to ‘some’ , you both use quantity maxim and manner maxim (inference that the speaker must have not meant the partitioned set which could have more easily and naturally been referred to by ‘two’)

**Gumball paradigm:** The gumball paradigm was developed in order to investigate whether listeners are sensitive to the partitive and to the naturalness and availability of lexical alternatives to some in scalar implicature processing using a range of different set sizes.

**Tests the hypothesis:** Number selectively interferes with ‘some’ when naturalness of ‘some’ is low and number terms are rapidly available.

**Exp. 1a: naturalness of some in the absence of number terms**

**\*\*\*\*\*\*\*\*\*\***To determine the naturalness of descriptions with ‘some’, ‘some of the’, ‘all of the’, ‘none of the’ for set sizes ranging from 0 to 13.

**Results:** Naturalness of ‘some’ varies with set size

1. Naturalness for some was lower in the subitizing range[1-4] than in the mid range[5-8]
2. Naturalness for some was lower for the unpartitioned set[13] than in the mid range
3. ‘Some’ received 12% FALSE ratings for one gumball and 9% FALSE ratings for unpartitioned set, ‘summa’ rated FALSE in 7% of cases for one gumball and 18% of cases for the unpartitioned set.

**Exp. 1b: naturalness of some in the presence of number terms**

Assume that listeners’ expectations about which quantifier will be used for a given set size depend on at least two factors: a) set size and b) awareness of contextual availability of alternative quantifiers. If no lexical alternative is available, listeners will have some expectations about use of some with different set sizes. This expectation distribution is what we have obtained in Exp. 1a. For some, naturalness is highest for intermediate set sizes and drops off at both ends of the tested range. That is, listeners’ expectation for some to be used is highest in the mid range. The Constraint-Based account predicts that listeners expectations about quantifier use are sensitive to alternatives. Including number terms among the experimental items, thus making participants aware that number terms are contextually available alternatives to some, should change this distribution. In particular, the prediction is that due to subitizing processes, which allow number terms to become rapidly available as labels for small sets, the naturalness of some should decrease for small sets when number terms are included. In other words, participants’ expectations that a small set will be referred to by some should decrease. This prediction is tested in Exp. 1b.

**\*\*\*\*\*\*\*\*\*\***test the hypothesis that the naturalness of some/summa would be reduced when used with small set sizes, where number terms are hypothesized to be most natural.

**Results:**

1. Similar to 1a: some/summa ratings lowest for 0 gumballs, increased in the small set and peaked in the mid rage at 6 gumballs, decreased in high range, and. Decreased further with the unpartitioned set
2. Mean ratings for some/summa did not differ for any set size except the unpartitioned set, some was more natural than summa
3. When testing if adding number terms decreases the naturalness for some/summa in the small set range but nowhere else – some/summa ratings were lower when. Numbers were present in the small set range, but not for 0 gumballs, in the mid range, in the high range or with the unpartitioned set.
4. When each analysis is done individually for each set size in the subitizing range 🡪 the strength of the number presence effect in the small set range differed for different set sizes: The effect was strongest for one gumball, less strong for two and three, and non significant for four.

**\*\*\*\*\*\*\*\*\*\***This suggests that naturalness effects are not due to subitizing per se, as initially hypothesized rather, subitizing might interact with naturalness to determine the degree to which number alternatives compete with some.

**Exp 1a&b**

Two rating studies suggest that listener’s judgement of an expression’s naturalness is directly affected by the availability of lexical alternatives.

At least in off-line judgements, listeners take into account non-scalar alternatives to some that the speaker could have uttered, but didn’t.

**Exp. 2: response time to some in the presence of number terms**

Designed to test whether the effect of available natural alternatives is reflected in response times. Instead of a scale, a YES or NO button was used.

Based or results of Exp 1a&b: YES responses should be slower for more unnatural statements, specifically for some/summa response times are predicted to be slower compared to their more natural alternatives when used with

1. Unpartitioned set, where alla is a more natural alternative
2. In the small set range where number terms are more natural and more rapidly available.
3. Based on the naturalness data, the largest effect is expected for a set size of one, a somewhat smaller effect for two and a still smaller effect for three,

Additionally:

The conditions in which some/summa are used with the unpartitioned set are of additional interest because they can be linked to the literature using sentence- verification tasks. In these conditions, enriching the statement to You got some but not all (of the) gumballs via scalar implicature makes it false. However, if no such pragmatic enrichment takes place, it is true. **That is, yes responses reflect the semantic, at least, interpretation of the quantifier, whereas no responses re- flect the pragmatic, but not all, interpretation.** Noveck and Posada (2003) and Bott and Noveck (2004) called the former logical responses and the latter prag- matic responses; I will make the same distinction but use the terms semantic and pragmatic and in addition take into account participants’ response consistency.

In Bott and Noveck’s sentence verification paradigm participants were asked to perform a two alternative forced choice task. Participants were asked to respond true or false to clearly true, clearly false, and underinformative items (e.g., Some elephants have trunks). Bott and Noveck found that: a) pragmatic responses reflecting the implicature were slower than semantic responses; and b) pragmatic responses were slower than true responses to alla for the unpartitioned set. If processing of the scalar item some proceeds similarly in the gumball paradigm, Bott and Noveck’s result should replicate: yes responses to some used with the unpartitioned set should be faster than no responses, and no responses to some should be slower than yes responses to alla.

**Results:**

1. **Judgements:** Relationship between response choice and naturalness (proportion of YES to No)
2. **Response time:** Relationship between response time and naturalness ratings (testing predictions)
3. Judgements and response times for pragmatic and semantic responses

**Exp. 2a: relevance effects**

**QUESTIONS**

Do I look at the first cue, whether the partitive of marks the difference between “Alex ate some cookies” and “Alex ate some of the cookies”. (Intuitively second one. “some of” leads to a stronger implicature. 🡪 not previously tested

“Under a Constraint-Based account, the absence of the partitive may provide weaker support for the implicature than use of the partitive form would have provided, resulting in increased processing effort to arrive at the implicature.”

**NOTES**

Upper bound interpretation of partitive some = when the speaker could have, but did not say all, because all would have been more informative