

## Understanding conjunctive generic and quantified sentences

Magdalena ROSZKOWSKI, Gyorgy GERGELY and Ernő TÉGLÁS

### In a nutshell:

Our study is concerned with the question of how children interpret generic sentences that contain a conjunction of two predicates such as *Wugs are green and have stripes*. In particular, we tested (i) whether such sentences allow for non-maximal interpretations, i.e., are compatible with a certain number of counterexamples, and (ii) whether they allow for cumulative interpretations where none of the respective individuals has both properties expressed by the predicates. Our results suggest that while conjunctive generics pattern with conjunctive ‘most’-quantified sentences in that they allow for non-maximal interpretations, they differ from quantified sentences wrt. their requirements on the distribution of properties as only generics seem to be compatible with cumulative scenarios under certain conditions.

### Background:

Most formal and experimental work on generics has concentrated on simple generic sentences such as (1) and the question of how many instances of a category are sufficient to make a generic statement true ([7, 4, 6, 3, 1, 5, 8] a.o., but see [9]).

(1) *Elephants have long trunks.*

However, generic knowledge does comprise more than a single fact and categories may often be described with sentences that involve more than one property ascription as in (2).

(2) *Elephants have large ears and long trunks.*

Our study looks at how children interpret such sentences in terms of the distribution of the expressed properties: Do they expect both properties to be possessed by each member of a category? And does the distribution of properties

interfere with the well-known tolerance for counterexamples of generics? By comparing the range of possible interpretations for conjunctive generic and quantified sentences we hope to gain further insights about the underlying form of generics, in particular, the nature of the covert generic operator assumed by many theories (e.g. [2, 4, 8]).

### **Methods:**

The study is conducted in Hungarian and involves a sentence-picture matching task with scenario type (cumulative, distributive, mixed, small distributive) as within-subjects factor, sentence type (plural, 'most'-quantified, 'every'-quantified) as between-subjects factor and acceptability rate as dependent measure. Preschoolers are presented with general statements about novel animal categories containing a conjunction of two compatible predicates (3), i.e. predicates that can hold simultaneously of an individual.

(3)

- a. ***Wugs** are green and have stripes.*
- b. ***Most wugs** are green and have stripes.*
- c. ***Every wug** is green and has stripes.*

In the **cumulative condition**, the accompanying picture shows a scenario in which some of the depicted category members have one property, others exhibit the second property, and some have none of these properties. In the **distributive condition**, the majority of instances has both properties, whereas some of the depicted animals have none of the expressed properties. In the **mixed condition**, a cumulative scenario is shown in which, however, a minority of category members has both properties. The **small distributive condition** involves scenarios in which a minority of instances exhibits both properties, while the majority lacks them.

### **Results:**

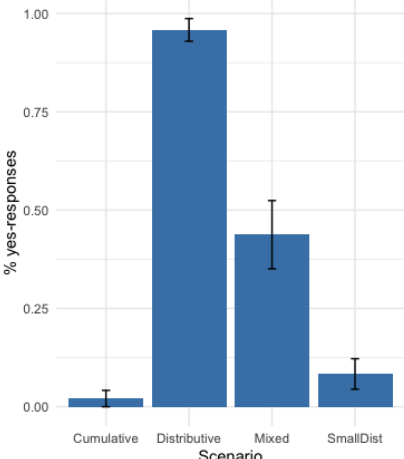
Our preliminary data suggest that acceptability rate for generic and quantified sentences in distributive scenarios is ceiling, while in cumulative scenarios such

sentences are mostly rejected. As expected, ‘most’-quantified sentences also show a high rejection rate in the small distributive condition, which indicates that children appreciate that ‘most’ imposes a lower boundary. The moderate results with generic plurals in the small distributive condition confirm the previously observed high tolerance for counterexamples. So far, plural generics, though mostly rejected in cumulative scenario, seem to yield a considerable acceptability rate in the mixed condition (Fig. 1 & Fig. 2).

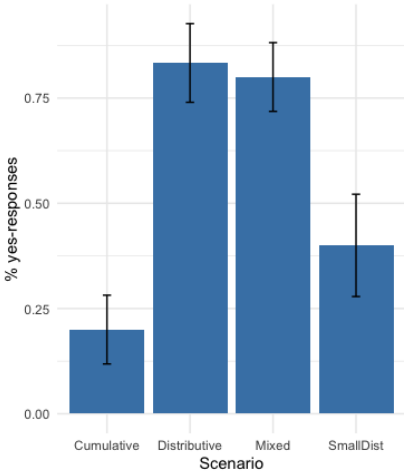
**Discussion:**

There is little evidence for conjunctive plural generics being compatible with cumulative scenarios in which none of the category members has each expressed property. Quantified sentences with ‘most’ and generics pattern alike in that they are not affected by a small number of counterexamples and acceptable in distributive scenarios. Interestingly, a special type of cumulative scenario, namely the scenario with some overlap of properties, seems to be highly compatible with generics, but not with quantified sentences, which not only suggests that a plurality representation is involved, but also raises some questions about the mechanism that is responsible for the asymmetry between purely cumulative and mixed cases.

**Figures**



**Figure 1:** Mean % of yes-responses for ‘most’ for generics



**Figure 2:** Mean % of yes-responses for plural generics

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