Testing Plural Unmarkedness Across Languages

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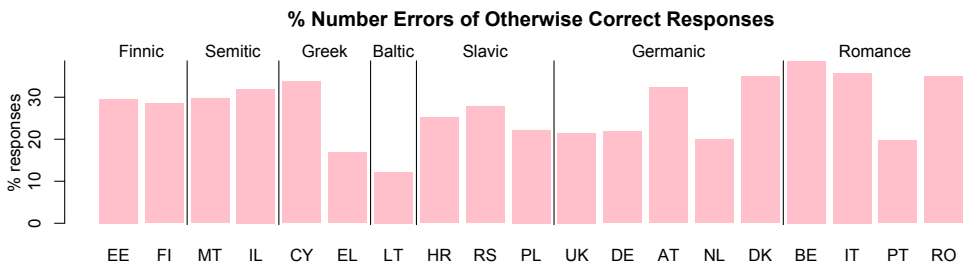
Introduction Morphologically, the plural is derived from the singular, and therefore, is the morphologically marked form in English, German, and many other languages. It is debated whether the plural or the singular is the marked form semantically, however. While Krifka (1989) and others have argued that the singular is marked, Farkas & de Swart (2010) and others argue that plural is semantically marked.

Because adults tend to not use the semantically unmarked form when a more specific, marked form is available (Heim 1991, and others), semantically marked and unmarked forms are in complementary distribution for adults. Children, however, sometimes accept the semantically unmarked, less informative form in circumstances when the marked form could also be used (e.g. Noveck 2001 and others). Child data, hence, can distinguish the two views of number markedness: children should accept the unmarked form in cases where adults use only the marked form. Data from child language have been invoked in this debate already by Sauerland *et al.* (2005) and Tieu *et al.* (2014), but only from English, and may reflect problems with perception of final *s*. We present data from three experiments that support the view that the singular is marked semantically, and argue against a plural perception report. Our data from one study of 18 languages and two studies on German show that the error persists regardless of the plural morphology used.

Experiment 1: We analyzed number error data of a study of the acquisition of wh-movement in 18 European languages at 19 sites. The test consisted of a question such as (1) and a picture choice where one picture matched the number of the subject (*the fairy*) while another didn't (*the fairies*). A pure number error consists of choosing the number mismatched picture (e.g., choosing the bottom left picture, instead of top left one in (1)). The data for 18 languages in (2) shows that number errors occur in all 18 languages at non-neglible rates above 10%, showing that this is independent of morphological form of the plural marking of the languages.

(1) Which granny are the fairies tickling?

(2)



Experiment 2: 42 children (3;7–8;6, $M = 5;10$), recruited from a daycare and a school in Berlin, Germany, participated in Experiment 2&3. Of the different plural endings of German, only nouns requiring the most frequent plural morphemes *-e* or *-en* (balanced factor) were used.

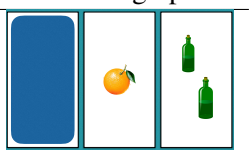
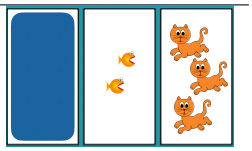
Each trial consisted of a picture and question pair, three items each for the four conditions in (3). For instance, one of the critical items (3d) was accompanied by a picture of girl's face.

(3) a. absurd question: Hat dieser Fisch Beine? ('Does this fish have legs?')
b. control True: Hat diese Katze Pfoten? ('Does this cat have paws?')
c. control False: Hat dieser Junge Flugzeuge? ('Does this boy have airplanes?')
d. Test: Hat dieses Mädchen **Nasen**? ('Does this girl have **noses**?')

Result 3∼5-year-olds rejected the inappropriate plural items significantly less frequently than 6∼8-year-olds (4.3% vs 52.6%, $p < .01$ Fisher's Exact Test).

Experiment 3: We tested with the "covered-box task" (Pearson *et al.* 2010, Huang 2013) for the same children in Experiment 2. Participants were shown two open cards and one hidden card with each sentence. Participants had to choose the card that matched the sentence best. During a familiarization phase participants had to choose the covered card 4 out of 8 trials. 7 test- and 4 control-items as illustrated in (4) (of 40 items total) tested plural understanding.

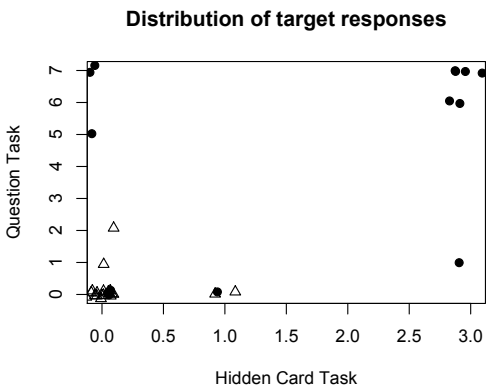
(4)

item type	Sentence	cards facing up
test (7 trials)	Zeig mir die Karte mit Orangen. *Show me the card with oranges*	
control (4 trials)	Zeig mir die Karte mit Katzen. *Show me the card with cats*	

Result Performance on the control items was at ceiling for both 3∼5 and 6∼8-year-olds. For the critical items, 6∼8-year-olds chose the hidden card 60.3%, whereas 3∼5-year-olds only chose it 1.8% of the time (Fisher's Exact test, $p < .01$).

Further Support Our results show that independent of plural morphology (English /-s/, German /-e/ and /-n/, 16 other languages), the plural shows semantic unmarkedness. We furthermore find a strong correlation between experiment 2 and experiment 3, as shown in (5). Our results show that language development drives the responses, not accidental mishearings.

(5)



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