

Effects of animacy on the processing of morphological Number: a cognitive inheritance? A psycholinguistic study.

Introduction. Language encodes into morphology only some of all the possible information present in the referential world. Some features are marked in the great majority of languages, such as the numerosity of the referents that is encoded into morphological Number (Corbett, 2000; Dryer, 2013). Other features do not surface so diffusely in morphological markings, yet they are pervasive in natural languages (Dahl, 2000). This is the case of animacy, that can ground Gender systems as well as constraint the surfacing of Number (Dixon, 1979; Smith-Stark, 1974). The diffusion of numerosity and animacy could mirror their biological salience and phylogenetic ancestry at the extra-linguistic cognitive level. Human extra-linguistic numerical abilities can be observed in animal species (Cantlon & Brannon, 2007; Rugani et al., 2015), especially when counting salient animate entities such as social companions (Rugani et al., 2010).

Does the saliency of animacy influence the morphological encoding of Number in language processing?

The study. We designed an experiment to test: i) the encoding of morphological Number in language processing and, ii) its interaction with the semantic interpretability of the morpheme with respect to animacy.

In Italian, Gender and Number are mandatorily expressed in a fusive morpheme. In some nouns denoting animate referents, Gender encodes the sex of the referents and is semantically interpretable. In some other animate nouns, and in inanimate nouns, Gender is not interpretable at the semantic level (Di Domenico, 1997).

Methods.

20 nouns for each *Type* were selected: animate nouns with interpretable Gender (Anim_g, *gatto* - 'cat'), animate nouns with semantically uninterpretable Gender (Anim_i, *ghepardo* - 'cheetah'), inanimate nouns (Inanim, *divano* - 'couch'). Each noun was presented in two conditions of *Number*, namely singular and plural, for a total of 120 experimental trials. Orthographic length and frequency of the nouns were controlled. 220 fillers were added.

36 Italian native speakers performed a phrase-completion task. Noun phrases made up of a demonstrative and a noun, appeared on the screen one at a time. One or the other word lacked the inflectional morpheme. Participants had to press a button to insert *-o* (masculine singular) or another for *-i* (masculine plural). Experimental trials required completion only on noun; half of the fillers required completion on the demonstrative.

Results. Repeated measures ANOVA on accuracy measures revealed significant effects of: *Number* (by subject $F=6.203$, $p<.05$; by item $F=8.819$, $p<.01$), singulars were completed more accurately; *Type* (by subject $F=6.203$, $p<.05$; by item $F=3.846$; $p<.05$), Anim_g nouns were completed more accurately; *Number x Type* (by subject $F=6.203$, $p<.05$ by item $F=4.451$; $p<.05$), revealing no difference between singular and plurals only in the Anim_g condition.

Discussion. It is easier to inflect for Number nouns when the inflectional morpheme is interpretable respect to a semantic feature related to animacy. The primacy of animacy in counting seem to be mirrored in morphological processing, suggesting that morphology is designed to easily express information that is salient from a cognitive point of view.

References.

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