

# Encoding numerosity into number morphology: An ERP study

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Morphological Number usually encodes the referential numerosity, denoting one entity (singular) or more than one (plural). However, also quantifiers encode information about the numerosity. The Italian quantification expressions for 'some', *qualche+nounSG* and *alcuni+nounPL*, refer to a plural numerosity; however nouns agree in the plural with *alcuni* but in the singular with *qualche*. Since both conditions are grammatical, they allow to test the mismatch between referential numerosity as encoded by morphological Number and by quantifiers without exploiting a violation paradigm.

We designed an ERP study exploiting a newly developed picture–phrase matching paradigm. We chose 30 nouns referring to countable, concrete objects and created two pictures for each one: the object was represented either once or four times. Each picture was displayed once with *qualche+nounSG* and once with *alcuni+nounPL*, for a total of 120 experimental stimuli in 4 conditions. 180 filler stimuli were added to counterbalance each experimental condition; 120 of them presented a semantic violation. The 26 participants were asked to press one key if the phrase matched with the picture, another key in the opposite case.

We tested whether the quantification expressions elicit ERP components associated with violations in response to the numerosity represented in the picture. The aim is to disentangle whether the information of numerosity encoded in the Number morpheme is accessed even when the noun is embedded in a phrase with a quantifier. We analyzed ERPs time locked to the presentation of the noun. After a picture presenting one object, nouns following both *qualche* and *alcuni* elicited a larger Left Anterior Negativity (LAN), as compared to the conditions involving a picture displaying a plural numerosity. Considering the LAN as an index of morphosyntactic incongruence, this result seems to suggest that the reference to a numerosity could be incrementally encoded.

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