

# Stem allomorphy effects in word recognition in individuals with Alzheimer's disease and mild cognitive impairment.

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This study discusses the recognition of Finnish nominal base forms in relation to their paradigmatic complexity (stem allomorphy). As has previously been shown by Nikolaev et al. (2014), response latencies to monomorphemic nouns differ depending on the number of their possible stem allomorphs. Using the single word lexical decision experiment, we presented monomorphemic nouns from three different inflectional types to 22 individuals with Alzheimer's disease (AD), 24 individuals with mild cognitive impairment, 17 cognitively healthy elderlies, and 31 young adults. The three *i*-paradigms we used can be exemplified by words like *vesi* 'water' (unproductive; three or more allomorphs, sg. *vede-*, *vet-*, *vete-*, pl. *ves-*), *savi* 'clay' (unproductive; two allomorphs, sg. *save-*, pl. *savi-*), and *lasi* 'glass' (productive; two allomorphs, sg. *lasi-*, pl. *lase-*). Only the *lasi* paradigm has no allomorphy in its singular forms. Thus, by including three types of noun classes that vary in terms of the richness of their stem allomorphy, we aimed to identify how rich the stem allomorphy must be before a facilitatory effect on lexical processing is observed (cf. Nikolaev et al., 2014).

We analyzed the data using a mixed effects model. Our model included participants, items, and trial numbers as random intercepts and a variety of other explanatory variables as fixed-effect factors.

We observed a facilitation effect for word recognition only for unproductive words with three or more stem allomorphs (*vesi*-type), but not for unproductive words with two allomorphs (*savi*-type). The findings suggest that high stem allomorphy, rather than productivity of the inflectional class, is driving the facilitation effect in word recognition. However, in one group, individuals with AD, responses to unproductive *savi*-type nouns did not significantly differ from *vesi*-type, suggesting that in AD, inflectional class productivity may drive word recognition facilitation.

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