AFFIXAL HOMONYMY

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Annotation

This paper investigates whether affixal homonymy, the phenomenon that one affix form serves two or more semantic/syntactic functions, affects lexical processing of inflected words in a similar way for a morphologically rich language such as Finnish as for morphologically restricted languages such as Dutch and English. For the latter two languages, there is evidence that affixal homonymy triggers full-form storage for inflected words (Bertram, R., Schreuder, R., and Baayen, R. H. (in press). The balance of storage and computation in morphological processing: the role of word formation type, affixal homonymy, and productivity. *Journal of Experimental Psychology: Learning, Memory, and Cognition*; Sereno and Jongman (1997). Processing of English inflectional morphology. *Memory and Cognition, 25*, 425–437). Two visual lexical decision experiments show the same pattern for Finnish. Apparently, the substantially richer morphology in Finnish does not prevent full-form storage for inflected words when the affix is homonymic.

Key words: Affixal Homonymy, Full-form storage, morphologically rich languages

Introduction. Word formation type appears to be a crucial factor in morphological processing. Up till now, experimental results are consistent with the view that inflected words are computed on the basis of their morphological constituents, whereas derived words are stored and processed by means of their full-form representations (for a review, see Niemi et al., 1994). However, empirical evidence remains quite limited. Moreover, only word formation type has been investigated systematically in Finnish, while studies in other languages suggest that several other factors also affect the balance of storage (storing and processing via full-form representations) and computation (storing and processing via morpheme-based representations) of polymorphemic words. For instance, Laudanna and Burani (1995) and Burani, Dovetto, Thornton, and Laudanna, (1997) found that affix-specific properties such as confusability (defined as the percentage of word tokens for which an orthographic string is homographic with an affix, but does not in fact denote that affix) and affix length crucially affect morphological processing. Similarly, Bertram, Schreuder, and Baayen (1999) showed that in Dutch affixal homonymy (a suffix is

homonymic when it serves more than one function) and productivity profoundly influence the way complex words are processed. By manipulating base and surface frequency, respectively (a methodology introduced by Taft, 1979), they found that processing derived words with a productive, unambiguous suffix takes place via both full-form and morpheme-based representations. In contrast, morphologically complex words, of which the suffix is unproductive or has a productive homonymic competitor, are effectively processed via full-form representations only. In other words, in Dutch both affixal homonymy and lack of productivity shift the balance of storage and computation totally in favor of storage. The question is whether these findings extend to Finnish, a language with an extremely productive morphology, where—due to an abundant use of the morphological parser—affixal homonymy or lack of productivity does not have to lead to insuperable problems for computation. To explore the possible role of cross-linguistic differences in the balance of storage and computation, the present study addresses the potential effects of word formation type, affixal homonymy, and productivity for Finnish, paralleling the study of Bertram, et al. (1999) in Dutch. The methodology employed is a comparison of visual lexical decision performance on morphologically complex vs. morphologically simplex words. We make the common assumption that morphological parsing necessarily will take some additional time compared to holistic processing the present results are surprisingly similar to those that were acquired for Dutch by Bertram et al. (1999). Experiment 1 showed that the inflectional locative case endings in Finnish behave similarly to the inflectional past tense marker in Dutch, in that they show an effect for computation only. Moreover, experiment 2 showed a similar effect of storage for Finnish derived words with either an unproductive suffix (-IA) or a homonymic suffix (-JA) as was found for Dutch with the unproductive de-adjectival suffix -te and with the homonymic suffix -er, denoting both the comparative marker in formations like warmer, "warmer, " and the deverbal subject noun marker in formations like drinker, "drinker." In experiment 3, derived Finnish words were responded to faster than the monomorphemic control words. This finding can

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Be explained in terms of statistical facilitation that occurs when derived words carry an unambiguous, productive suffix, but not when the suffix is either unproductive or ambiguous, as it was in experiment 2. In Dutch, effects of both storage and computation were observed for derived words in the deadjectival suffix -heid, which

also is productive and unambiguous at the same time. In what follows, we try to answer the question of how the balance of storage and computation is affected by word formation type, affixal homonymy, and productivity in visual lexical decision in Finnish. Word Formation Type. In some previous studies it has been argued that derived words are always stored and inflected words are always parsed (Taft, 1994; Niemi et al., 1994). The present study and the study of Bertram et al. (1999) show effects for parsing of derived words as well. A difference between the Dutch and Finnish study is that thus far no effects for storage of inflected words in Finnish have been found, whereas in Dutch both Bertram et al. (1999) and Baayen, Dijkstra, and Schreuder (1997) did find evidence for storage of inflected words. Sereno & Jongman (1997) also found evidence for storing inflected words as full forms in English. It should be noted, however, that the effect for storage of inflected words in Dutch and in English was only found for words that had what we would call a complicating suffix. Bertram et al. (1999) found the effect for the comparative marker -er, that, as noted before, is homonymic in that it also serves as the deverbal subject noun marker. Baayen et al. (1997) found the effect for noun plurals with the productive plural suffix -en. However, for this suffix there is a subcategorization conflict, since it also was employed to mark plurality for verbal forms. Finally, Sereno and Jongman (1997) employed the plural marker -s in English, a suffix that is also frequently used to denote the third person singular in the verb paradigm. The fact that no effect for storage of Finnish inflected words has been found so far might be simply due to the fact that no experiments have been conducted with this kind of complicating suffix. If we consider the pure effect of word formation type without any complicating factors/suffixes, parsing is the rule for inflected words, whereas parsing and storage at the same time is the rule for derived words. The latter assessment goes against the spirit of Aronoff s proposal (1976) that word formations derived by means of affixes that are also productive, semantically consistent, and phonologically neutral (e. g., -ness), do not have their own representations in the mental lexicon, but instead will be listed by means of their morphemes only. One could indeed wonder why derived words would develop their own full-form representations at all—as was found by our study and the study of Bertram et al. (1999)—when parsing is a relatively effortless operation. Conclusion. Another explanation for the tendency of easily decomposable derived words to develop full-form representations could be a language-specific one. In Finnish, derived words mainly appear in inflected form. Fairly common inflected derived words such as karta+sto+ssa+ni+kin [map + collective noun + in + my + also],

"also in my atlas, " are very intensive information clusters. To compute the meaning of this type of word on-line via the constituent morphemes would be a particularly demanding task even when the derivation kartasto, "atlas, " would be processed as a whole unit. The computational load would increase further if the derivational part of the word also has to be computed on-line out of its constituents. Thus derived words in Finnish (like kartasto) might be prone to develop full-form representations simply to reduce the computational load encountered with inflected derivations. Affixal Homonymy. In general, we could claim that affixal homonymy triggers storage. This is what was found in Dutch by Bertram et al. (1999) with the inflectional and derivational variant of -er, in English by Sereno and Jongman (1997) with the inflectional plural marker -s, and in this study with the productive derivational variant of -jA. We are currently investigating with the inflectional variant of -jA (partitive plural) whether affixal homonymy triggers storage for Finnish inflected words as well. Productivity. In general, we could claim that productivity enhances parsing. However, the effect of this factor is modified by the effect of the two other factors investigated here. Parsing takes place for complex words without a homonymic suffix. For inflected words with an unambiguous suffix it is the only option; for derived words with an unambiguous suffix, it goes hand in hand with processing via full-form representations. In sum, the present study shows that word formation type, affixal homonymy, and productivity are among the factors that play an influential role in lexical processing.

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