

Can Complexity-Based Ordering be extended from English to German?

Linda Hilkenbach (formerly Zirkel)

hilkenbach@anglistik.uni-siegen.de

University of Siegen, Germany

There has been a long-standing debate about the factors that constrain the combinability of derivational suffixes in English. The most recent approach trying to explain the existence of some and the non-existence of other English suffix combinations was proposed by Hay (2002, 2003) and is known as *Complexity-Based Ordering*. Hay maintains that the combinability of suffixes is influenced by processing factors. The basic idea is that two suffixes can only combine if the resulting combination is well processable. Well processable are those combinations in which morphological complexity increases from the innermost to the outermost suffix. In *Complexity-Based Ordering* morphological complexity relies on the decomposability of suffixes, which is assumed to be a gradual phenomenon. Hay claims that suffixes can be ordered in a hierarchy from least to most decomposable. It is assumed that a more decomposable suffix can be attached to a less decomposable suffix, as such a combination is well processable. However, a combination where a more decomposable suffix occurs inside a less decomposable suffix would be difficult to process and should thus not be attested.

Recent studies, such as Hay and Plag (2004) and Plag and Baayen (2009) provide empirical evidence that the distribution of attested versus unattested suffix combinations in English can indeed be explained with the help of *Complexity-Based Ordering*. Furthermore, the results of Zirkel (2010), who extends research on *Complexity-Based Ordering* from suffixes to prefixes, give rise to the assumption that processing is a factor that also influences the combinability of English prefixes. The present study further broadens the empirical basis for testing Hay's approach by addressing the question whether *Complexity-Based Ordering* can be extended from English to German.

In order to answer this question, the combinatorial properties of 31 German suffixes are investigated, largely following Plag and Baayen's (2009) methodology. First, Muthmann's (2001) reverse dictionary, the DWDS corpus and the German CELEX database are checked for attestations of the 870 potential combinations of two suffixes. Second, based on the distribution of attested versus unattested combinations, the suffixes are hierarchically ordered. Third, it is tested whether the hierarchical ranking correlates with the suffixes' productivity, which is a strong indicator of decomposability according to Hay and Baayen (2002). Measures of productivity are calculated on the basis of CELEX data, as it is done for English affixes in Hay and Baayen (2002).

The investigation reveals that it is possible to rank the German suffixes such that a hierarchical order is established similar to the hierarchical order for English suffixes. However, a statistical analysis yields that there is no significant correlation between the ranks of suffixes and their productivity and thus there is no indication that the ordering reflects morphological complexity. In sum, there is no clear evidence that *Complexity-Based Ordering* can be extended from English to German.

References

- Baayen, R. Harald, Richard Piepenbrock, and Leon Gullikers (1995). The CELEX lexical database (CD-ROM). Linguistic Data Consortium, University of Pennsylvania, Philadelphia, PA.
- Hay, Jennifer (2002). From Speech Perception to Morphology: Affix-ordering Revisited. In: *Language*, 78(3): 527-555.
- Hay, Jennifer (2003). *Causes and Consequences of Word Structure*. London: Routledge.
- Hay, Jennifer and R. Harald Baayen (2002). Parsing and Productivity. In: Gert E. Booij and Jaap van Marle, *Yearbook of Morphology 2001*, 203-255. Dordrecht: Kluwer.
- Hay, Jennifer and Ingo Plag (2004). What constrains possible suffix combinations? On the interaction of grammatical and processing restrictions in derivational morphology. In: *Natural language and linguistic theory*, 22: 565-596.
- Muthmann, Gustav (2001). *Rückläufiges deutsches Wörterbuch. Handbuch der Wortausgänge im Deutschen, mit Beachtung der Wort- und Lautstruktur*. 3rd edition. Tübingen: Niemeyer.
- Plag, Ingo and R. Harald Baayen (2009). Suffix ordering and morphological processing. In: *Language*, 85(1): 109-152.