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Derivational depth and the role of the lexicon in morphological decomposition

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Within theoretical linguistics, the study of morphology is as much concerned with the structure of words in a particular language as with a way to capture the variation that exists across languages. Accordingly, empirical investigations into morphological processing have focused on a variety of languages ranging from English and German (cf. Crepaldi et al. 2015; Smolka et al. 2015) to templatic languages such as Hebrew and Arabic (Boudelaa et al. 2004; Feldman et al. 1994). Surprisingly, few studies have addressed a common issue in many languages –derivational depth.

Morphologically complex words can differ in their degree of derivational depth. To give an example, while both *running* and *eyeing* end in the same suffix, *eyeing* has more internal morphological complexity than *running*. For *eyeing*, two derivations are required to decompose down to the base word eye,N (eye,N > eye,V > eyeing). For *running*, on the other hand, the base run,V is only one derivation away. Using fMRI techniques, Pliatsikas et al. (2014) showed sensitivity to this difference through increased activation in the LIFG during the processing of *eyeing* compared with *running*.

In the present study, we move beyond the processing of specific lexical representations (e.g. *running*; *eyeing*) to understand the general mechanisms involved in the processing of morphological complexity. In order to do this, we investigated the processing of well-formed complex pseudonouns in German such as **Denkbarkeit*(thinkability,N)* (denken>denkbar*** >Denkbarkeit*)* *andHoffbarkeit* (hopeability,N) (*hoffen* > **hoffbar*** >Hoffbarkeit*) that differ in the derivational depth required to access an entry in the lexicon. Using behavioural, electrophysiological and fMRI techniques with native speakers of German, we have found that speakers are sensitive to degrees of morphological complexity in all complex words and pseudowords, but also rely on information stored in the lexicon during recognition of morphologically complex items.

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