Introduction

Automatic decomposition into stem and affix has been shown to exist in masked priming (Rastle et al., 2004):
- Corner decomposes into corn- and -er
- But broth-ed does not prime broth

Decomposition extends to pseudowords in masked priming, including grammatically ill-formed and semantically meaningless forms such as *sportun in French (Longtin & Meunier, 2005).

Semantic interpretability of morphologically viable complex pseudowords can be determined through the number of semantic neighbours of a novel form (Marelli & Baroni, 2015). But interpretability judgments could also be driven by differences in derivational depth:
1. acne|mën > acneless|adjective
2. hike|ver > hike|noun > hikeless|adjective

Thus, it is possible that acneless is judged to be semantically more interpretable than hikeless in Marelli and Baroni (2015) because of differences in derivational depth between the two novel forms.

Derivational depth in real words

In neuroimaging, we see stronger activation in the LIFG for words with more derivational depth compared with visually matched complex words (Pliatsikas et al., 2014).

More activation for eyeing (eye|ing > eye| > eye|ing) than for running (run|ing > run|ing)

Research question

Within meaningful pseudowords, do differences in the derivational chain affect processing?

Lexical gaps in derivational chains

Derivational chain in German:
- adjectival base > zero-derived verb > noun ending in {-ung}
  a) heil (A., ‘safe’) > heilen (V., ‘heal’) > Heilung (N., ‘healing’)
  b) spitz (A., ‘sharp’) > spizen (V., ‘sharpen’) > *Spitzung (N., ‘sharpening’)
  b) hübsch (A., ‘pretty’) > *hübschen (V., ‘make pretty’) > *Hübschung (N., ‘making pretty’)

The noun derived in a) is an existing word found in everyday speech. It is derived following the sequence of derivations given by the derivational chain. Based on the structural rules of the derivational chain, new words were formed in b) and c). In an offline rating task with native speakers of German, the nouns in b) and c) were judged to be pseudowords in German. Stimuli in b) and c) differ in the presence of a lexical gap for the intermediate derivation.

Experiments 1 & 2. Reaction time to the target following unrelated and related primes for conditions Extant, NonEx1, NonEx 2

In Experiments 1 and 2, both types of pseudowords prime their respective base words as well as existing words.

Experiment 3 shows a more direct comparison between the two word forms *Spitzung and *Hübschung. Semantic and form control pairs were included to control for the influence of non-morphological factors.

Discussion

Both types of pseudowords *Spitzung and *Hübschung can be decomposed as they are semantically interpretable and grammatically well-formed. But their processing is also affected by the comparison with other forms presented in the experiment. This leads to a significantly weaker priming effect for ‘NonEx2’ in Experiment 3 where a direct comparison between the types of pseudowords could be established.

Thus, the composition of the derivational chain affects the processing of pseudowords. Spitzung primes its base as well as the existing noun Heilung. The priming effect in *Hübschung is significantly weaker.

In a simple lexical decision task, pseudowords with fewer lexical gaps in their derivational chain are felt to be more difficult to be classified as ‘nonwords’. Again, lexical gaps within the derivational chain affect the interpretability of novel forms.

Selected References