Prosodic Cues in Expectation-Driven Prominence Marking

Christine T. Röhr, Henrik Niemann, Stefan Baumann, Martine Grice
IfL Phonetik, University of Cologne
{christine.roehr; henrik.niemann; stefan.baumann; martine.grice}@uni-koeln.de

In many languages speakers employ prosody to highlight new or unpredictable information, making it more prominent. Prosody is also used to play down, or attenuate, shared or expected information, making this information less prominent. Prosodic highlighting and attenuation can take different forms, involving both phonetic parameters, such as pitch direction and excursion, target height and alignment, and segmental durations, as well as phonological choices, such as accentuation and phrasing.

Previous research has revealed that in West Germanic languages information status (i.e. newness/givenness in discourse) is marked not only by accent *placement* (nuclear – non-nuclear) but also by the level of prominence of pitch accent *types*. Studies on German ([1], [3], [5], [6]) suggest an inverse relation between discourse givenness and prosodic prominence, i.e. the more accessible a concept in the listener's mind, the lower the produced prosodic prominence required for the listener to decode it. Results reveal that the pitch movement leading towards the target on the accented syllable ('onglide' [4]) is the most important tonal cue to the marking of givenness and the perception of prominence (rising onglides being perceptually more prominent than falling ones [2]).

An ERP study [7] showed that prosodically signalled information status (including different pitch accents) is processed in real-time. While prosodic cues entail sensory input (i.e. signal-driven attention orienting based on the prosodic realization) and are used by the speaker to (re)orient the listener's attention, they also interact with expectation-driven prominence (raised by the pragmatic or prosodic context).

With this production study on read German we aim to find out how far different types of expectations influence a speaker's choice of prosodic cues. Two discrete pre-contexts for each test sentence (60 items) were designed to trigger expectations about appropriate upcoming prosody. For example, the pre-context in (1a) builds up an expectation for new (unpredictable) information, whereas the pre-context in (2a) establishes that nothing new or unexpected is going to follow (predictable). A prominent accent typically used for new information is assumed to be appropriate on the noun in test sentence (1b), whereas a less prominent accent typically found on contextually derivable information should be appropriate on the noun in test sentence (2b). In order to compensate for effects of the speech task itself, we used three different elicitation methods with different groups of subjects: In two groups the contexts were presented orthographically. In the first group only the test sentence was read aloud, while in the second group both the context and the test sentence were read aloud. In the third group the contexts were only presented acoustically, and subjects read out loud the test sentence only.

Preliminary results generally confirm our hypothesis (Fig.1). In 80% of all test sentences subjects (10f, 4m) realize the nuclear accent on the noun. After context (1a) they use accents with a rising onglide 91.8% of the time, rarely using ones with a falling onglide (only 8.2%). After context (2a), there is a reduced percentage of accents with a rising onglide (65%), and an increase of accents with a falling onglide (35%). Thus, accent types are distributed differently, depending on the prior context. These results will serve as a basis for a follow-up ERP study which aims to disentangle expectation-based vs. signal-driven aspects of perceptual prominence in neurocognitive information processing.

(1)   (a) *Rate mal, was uns heute passiert ist!*   (b) *Wir haben Milena getroffen.*
           'Guess what happened to us today!   We met Milena.'

(2)   (a) *Heute ist nichts Besonderes passiert.*   (b) *Wir haben Milena getroffen.*
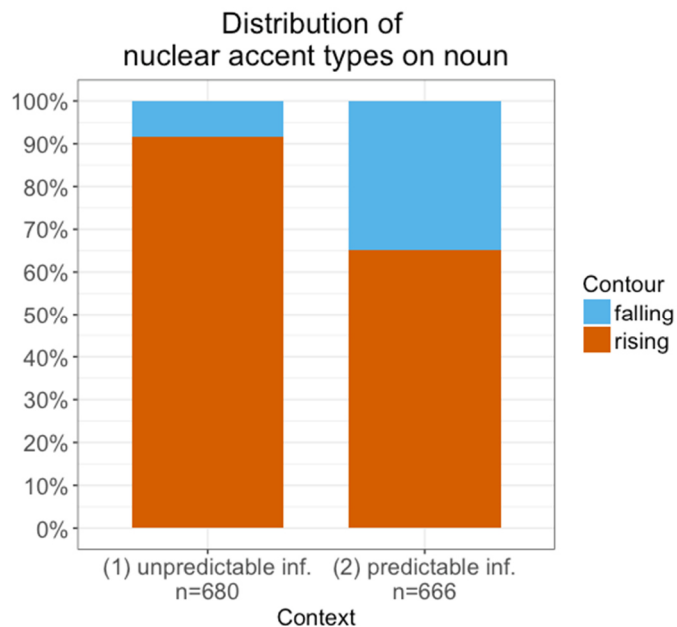   'Today, nothing special happened.   We met Milena.'

Figure 1. Relative distribution of nuclear accent types on the nouns in the test sentences plotted against their respective pre-context.

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