Rhythm affects the prosodic realisation of focus

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In German, information structure is typically marked by pitch accent placement and pitch accent type (e.g. Baumann, Grice and Steindamm 2006; Baumann and Grice 2006; Schweitzer et al. 2009). However, the relationship between pitch accent and information structure is not always straightforward: type and distribution of pitch accents can vary beyond of what semantic or pragmatic factors can explain. Several studies suggest that rhythm plays a role in sentence production and perception (e.g. Kentner 2012, Bohn et al. 2011, Geiser et al. 2006, Rothermich et al. 2012, Tilsen 2012); specifically, they found a rhythmic preference for an alternation of stressed and unstressed syllables. The current reading study investigates the interplay of pitch accents and focus. To test whether rhythmic preferences affect the prosodic realisation of focus, double-focus sentences were constructed (see table). In double-focus constructions, two focused constituents (here: corrections) semantically demand prominence, possibly resulting in the realisation of two pitch accents. If these pitch accents are required on adjacent syllables they conflict with rhythmic preferences (clash condition). The clash condition was compared to double-focus sentences with a different rhythmic makeup (unaccented syllable between the potential pitch accents – no clash condition).

| Context: | Hat Melli gesagt, dass Tobi das Schlagzeug Schülerinnen gegeben hat? Did Melli say that Tobi has given the drums to pupils? |
| Clash condition: | Nein, sie hat gesagt, dass Tobi das Klavier Lehrerinnen gegeben hat. No, he said that Tobi has given the piano to teachers. |
| No clash condition: | Nein, sie hat gesagt, dass Tobi das Klavier Studentinnen gegeben hat. No, he said that Tobi has given the piano to students. |

The productions of 16 speakers were played to three people, blind to the condition, who judged which word or words they perceived as prominent. Results from this prominence-judgement experiment show that listeners judged both focused objects by tendency more often as prominent in the no-clash condition (i.e. prominence on “Klavier” AND “Studentinnen”) than in the clash condition ($β=1.8923, SE=1.0190, p=0.06$). An acoustic analysis of the recordings, applying the PaIntE (parametric) modeling, revealed that in the clash condition speakers produce a difference in pitch excursion between the two focused objects: pitch excursion on the second object (i.e. on “Lehrerinnen”) is significantly higher than on the first object (i.e. “Klavier”) ($β=18.775, SE=7.492, t=2.506$). The study demonstrates that the rhythmic environment contributes to phonetic variation in the prosodic marking of focus that is also reflected in prominence perception.

References:


