

## **Secondary Stress: A Speaker-Specific Characteristic?**

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### **Introduction**

In so-called stress-timed languages, unstressed vowels are usually clearly differentiated from stressed vowels. The particular stress assigned to a given syllable/word determines the ultimate shape of a vowel to a high degree. In German word formation, up to four stress levels can be distinguished (Wurzel 1980). However, whereas in Standard German the main acoustic correlates for primary stress are duration (e.g. Jessen et al. 1995, Dogil & Williams 1999) and spectral tilt (Claßen et al. 1995), acoustic correlates of secondary stress could not be proved (Mengel 2000, Kleber & Klippahn 2006). It has therefore been suggested that secondary stress is solely a perceptual phenomenon (Mengel 2000), with the listener expecting a secondary stress at time intervals of approximately 300 ms (Schreuder 2006). However, since vowels change their shape due to stress, secondary stress might also be indicated by a specific vowel quality which differs from both primary-stress vowels and unstressed vowels. It can be assumed that secondary-stress vowels stand between primary stressed vowels and unstressed vowels, differing in the degree of lip opening, the degree of constriction, the length of constriction, and the degree of lip protrusion.

Approximately 25% of all German nouns and verbs may receive a secondary stress. Therefore, it is worth to investigate whether any speaker-specific realisations of secondary stress might occur.

### **Method**

Six speakers (three female and three male) of Standard Austrian German were asked to act as speakers. In a sound proofed room, open interviews were carried out with the speakers. The speakers were then asked to read a list of 72 sentences twice. Whether and in what way vowels change their quality in dependence on secondary stress has been tested on words bearing secondary stress, for example “Aussaat” (sowing) or “Finanzminister” (finance minister). For each speaker, one-tailed t-tests have been performed.

### **Results**

The most salient result is the high variability among the speakers. Any speaker has his or her own way to indicate secondary stress by changing the spectral shape of the vowel or by not indicating it at all. Therefore, a third level of stress exists. Whether and how it is activated, depends on the speaker. A secondary stress may either be realized in the same way as the primary stress, or in the same way as the unstressed position, or as discrete secondary stress.

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