

ON INTRINSIC AND EXTRINSIC F_0 VARIATIONS IN SWEDISH TONAL ACCENTS.¹

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The importance of fundamental frequency variations for the distinction between the Swedish tonal accents is well established. This paper deals with the F_0 in the stressed vowel of words with different tonal accents and examines how it is affected when the consonantal environment of the vowel is changed from voiceless to voiced consonants and when the vowel itself is changed from long to short. The speech material consisted of nonsense words and was read by three speakers representing two Swedish dialects.

As expected from other investigations the duration of the vowel was longer before voiced than before voiceless consonants, the duration in the latter case being 85-90% of the duration in the former case. After voiced consonants the peak F_0 of the vowel was about 15 Hz lower than after unvoiced consonants. The influence of the preceding consonant on the fundamental frequency of the following vowel was, however, not confined to the beginning of the vowel but was still present when the F_0 peak was located near the end of the vowel. The interval from the onset of the vowel to the frequency peak increased about 25 msec as the preceding consonant was changed from voiceless to voiced. These variations probably reflect universal processes and were the same for all speakers and accents.

When the F_0 curves for long and short vowels were compared the location of the frequency peak was found to remain constant relative to the nearest boundary of the vowel and thus varied for different speakers and accents.

The variations are discussed in relation to the underlying mechanisms which cause them to occur and to their rôle in the speech communication process.

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