Classifying Swedish dialects based on vowel pronunciation

Among Swedish dialects vowels differ a lot in contrast to consonants, and the variation in vowel pronunciation is important for characterizing dialectal identity. In this poster presentation Swedish dialects are classified on the basis of vowel pronunciation. The data come from the project Swedia2000 (http://swedia.ling.gu.se/) where vowels were elicited with mono- or bisyllabic words with vowels in a coronal context. 105 sites in Sweden and Swedish-language areas in Finland are included and each site is represented by 12 speakers (3 elderly women, 3 elderly men, 3 young men and 3 young women).

The traditional way of measuring vowel quality acoustically is by means of formant measurements. However, formant measurements are complicated by the need for manual correction of the data. Jacobi, Pols and Stroop (2006) showed that there is a high correlation between formant measurements and principal components of bark filtered spectra. An advantage of band filter analysis compared to formant analysis is that band filtering needs no manual correction and thus can be applied automatically to big data sets. In this study vowel spectra are filtered up to 18 bark and analysed by means of principal component analysis. The vowel segments are analysed at three different points in time in order to analyse degrees of diphthongisation. In order to classify the Swedish dialects a factor analysis is carried out. In the factor analysis older and younger speaker at every site are also compared to each other in order find signs of language change.