

Rogue vowel: Acoustic variation and dynamics of Swedish Viby-i

Fabienne Westerberg

University of Glasgow & Queen Margaret University Edinburgh

f.westerberg.1@research.gla.ac.uk

Most of the world's languages have a high front vowel (Lindblom 1986), but in some varieties of Swedish, [i:] is replaced by a centralised, "damped", "buzzing" allophone known as Viby-i. This vowel has a high F1, low F2, and high F3 compared to [i:], and can potentially be achieved through multiple articulatory strategies (Björsten & Engstrand 1999). Although Viby-i is known to show articulatory variation (e.g. Frid et al 2013), there is no previous work on acoustic variation in this vowel. This paper investigates the influence of sociolinguistic factors on Viby-i acoustics, and discusses the dynamic role of fricative noise in the vowel.

The data comprises word list recordings of 24 native Swedish speakers from Gothenburg and Stockholm. Both cities have Viby-i, but in Stockholm it is a newer feature associated with young upper-class women (Kotsinas 1994), whereas in Gothenburg it appears to be older (Björseth 1957) and possibly linked to local dialect. The analysis found that all speakers had Viby-i, but F2 was significantly lower in Gothenburg than in Stockholm ($p < 0.001$). Women had a lower F2 than men ($p < 0.01$), and in Stockholm this difference was particularly pronounced in young people ($p < 0.05$). This could suggest that the realisation of Viby-i is both regional and gendered, and is becoming increasingly gendered in Stockholm.

The formant data represents a (Lobanov normalised) average of the first 10% of the vowel. But this static measurement does not account for dynamic features such as fricative noise, which can occur at the end, in the middle, or throughout Viby-i: [i:] [i:]ə [i:]. Fig. 1 shows a typical word-medial trajectory, but offglides also occur word-finally. A dynamic analysis using bandpass-filtered zero-crossing rate (Gordeeva & Scobbie 2010) found that Viby-i tends to have mid-frication when followed by /b, l, r/ or null, end-frication when followed by /p, g, n/, and high-frequency end-frication when followed by /t, k, s/. This implies that frication is an integral part of Viby-i, which can be achieved using coarticulatory strategies.

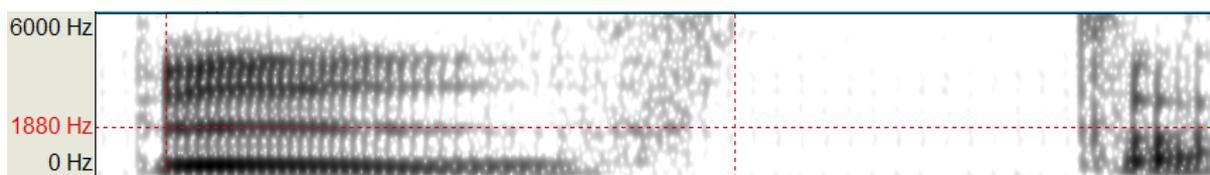


Fig 1: /bi:ta/ produced by a young female Gothenburg speaker.

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