A nasometric study of anticipatory vowel nasalisation in Southern British English

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Introduction

Oral vowels before nasal consonants undergo coarticulatory influence from velum movement in advance of the nasal, rendering the vowel at least partially nasalised. The temporal extent of anticipatory vowel nasalisation is known to systematically vary across languages (Clumeck 1976). In American English, this phenomenon is widely documented to be temporally extensive (e.g., Moll & Daniloff 1971; Pouplier et al. 2023) and has been argued to be phonologised (Solé 1995). Meanwhile, British English is commonly assumed to exhibit much less extensive vowel nasalisation (e.g., Bladon 1979), but there is little consensus among impressionistic descriptions (e.g., Wells 1982) and so far a lack of empirical evidence. The current study thus focuses on anticipatory vowel nasalisation in Southern British English, with the aim of investigating its time-course in production. This study also explores patterns of individual variation in vowel nasalisation, given the potentially significant role of individual differences in the production and perception of coarticulation in contributing to sound change (Beddor 2009).

Method

11 male speakers of Southern British English (aged 20–34) completed a communicative task that elicited production of embedded target words covering the vowel space in CVC, CVN and NVN contexts. They were recorded using a nasometer, which consists of two microphones separated by an acoustic baffle that record nasal and oral output to separate channels. The amplitudes of the nasal (A_N) and oral (A_O) channels were extracted from 11 equidistant points over the duration of each vowel. The degree of nasality at each point was then measured by the proportional nasal amplitude: $A_N/(A_N + A_O)$. To compare the extent of anticipatory nasalisation across different vowels, the trajectory of each CVN token was normalised, within speaker and within vowel, against the mean trajectories of the corresponding CVC and NVN tokens, which served respectively as “oral” (0% nasalised) and “nasal” (100% nasalised) baselines.

Results

The degree of nasalisation in CVN context was found to show a generally cline-like rise in Southern British English that is indicative of a phonetic, rather than phonological, process at work (Cohn 1993). Results also show much vowel-dependent variation. In particular, in line with previous work, the onset of nasalisation was earlier for low vowels (TRAP, BATH), which for some speakers reached full nasalisation before midpoint. There is further evidence among this sample of individual variation in the trajectory of vowel nasalisation, with clusters of speakers showing early, late and variable onset of coarticulation. The implications of the present findings for the potential of sound change will be explored. The role of sociolinguistic variation for the present findings will also be discussed.

References

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