

Intonational Variation in the speech of Welsh-English bilinguals in north Wales

Recent work on fundamental frequency range (FFR) in Welsh-English bilingual speech in north west Wales (where the majority of the population speak Welsh) has reported significant cross-linguistic differences between the two languages for female speakers but not for male speakers (Ordin & Mennen 2017). This complements the results of work on segmental variation in north Wales which also found that women were more likely to differentiate between realisations of /l/ in Welsh and English (Morris 2017). It is not known, however, the extent to which intonation varies both within and between the two languages in different areas of north Wales (particularly in areas where Welsh is not spoken by the majority) and whether the same social factors influence intonational variation across the region.

The current study therefore aims to examine both areal variation and the influence of other social factors on intonation in three areas of north Wales. Specifically, I address the following research questions:

- (1) To what extent do Welsh-English bilinguals from north Wales have distinct patterns of intonation in their two languages?
- (2) Are there differences between western, central, and eastern areas of north Wales and to what extent can this be accounted for by the social history of the Welsh language in these areas?
- (3) To what extent do speaker sex and home language influence both the phonological and phonetic realisation of intonation both within and between Welsh and English?

Data were collected from 48 Welsh-English bilinguals aged 16–18. The sample was stratified equally by area (western/central/eastern), speaker sex (male/female), and home language (Welsh/English) in order to examine the extent to which intonation is influenced by extra-linguistic factors. Participants were asked to read *The North Wind and The Sun* in both languages.

The recorded reading passages were then segmented into intonational phrases. First, the phonological realisation of intonation was analysed by conducting an Autosegmental Metrical Analysis (Ladd 2008; Nance et al. 2015) of each intonational phrase. Second, f₀ level and span were analysed acoustically in order to examine FFR (cf. Mennen et al. 2012). The influence of linguistic and extra-linguistic factors on both the phonological and phonetic realisation of intonation was investigated using linear mixed effects models using the lme4 package in R (Bates et al. 2015; R Core Team 2017).

The results of the ongoing data analysis will be discussed with reference to (1) cross-linguistic differences between Welsh and English, (2) areal variation across north Wales, and (3) the effect of social factors on intonational variation in specific communities. I will then discuss the results in the context of previous work in perceptual dialectology (Williams et al. 1996) and on phonological and phonetic variation in this region (Morris 2013; Morris 2017). Particularly, I will claim that variation is not only a result of long-term language contact and synchronic language transfer in the speech of bilinguals but is also shaped by local social structures.

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