Variability in $F_0$ valleys: the case of Belfast English

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This paper reports on the variability of the alignment of the low turning point (L) in Belfast English nuclear rises. Investigation into variability in low points has been rather neglected due to a prevailing view that $F_0$ peaks are variable while valleys are not (e.g. Arvaniti et al 2000). Yet a fixed nature of valleys may not be a universal, as Ladd (1996) reports that the alignment of L in Glasgow English rises is variable, being affected by the number of preceding unstressed syllables. To investigate the possibility that valleys may be more variable than previously thought and to attempt to account for this variation, data was examined from a related dialect to Glasgow, Belfast English (data from the IViE (Intonational Variation in English) corpus (Grabe et al 2001)). Consequently, we began with the hypothesis that L in Belfast would be affected similarly to its Glasgow counterpart.

We then examined the hypotheses that the alignment of L would be affected by other factors, including segmental structure, sentence type and gender (scarcely examined in an alignment context previously). Our analysis of data from two speech styles (read sentences, map task) had these benefits: 1) the opportunity to examine the further hypothesis that there could be stylistically based alignment differences of L; 2) the opportunity to see if our other hypotheses pertaining to the alignment of L could be corroborated across both speech styles. We found significant effects on the alignment of L of the number of preceding unstressed syllables (somewhat similar to reports on Glasgow English), segmental structure and gender, effects that were indeed largely corroborated across both styles. We also found some evidence of alignment differences between the two speech styles. These results reflect high variability in valleys in Belfast and challenge the view that valleys are always stable entities.

References