

An acoustic study of GOOSE-fronting in German-English sequential bilinguals in London, UK

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A key component of second language (L2) acquisition for speakers who acquire their L2 in a naturalistic setting is the development of sociolinguistic competence (Howard et al., 2006), i.e. type 2 variation, the use of L2 variants to index social information, such as age or gender (Adamson & Regan, 1991; Schleef, 2013). However, standard L2 speech acquisition models, such as the Perceptual Assimilation Model (Best, 1995) and the Speech Learning Model (Flege, 1995) do not incorporate L2 acquisition of social variation. The present study investigated the extent to which 13 German-English sequential bilinguals (Table 1) displayed sociolinguistic competence in their English L2 productions of the GOOSE vowel.

Traditionally described as a high back rounded vowel, /u/ in Standard Southern British English (SSBE) is moving forward in the vowel space, a process known as GOOSE-fronting (Deterding, 1997; Hawkins & Midgley, 2005; Strycharczuk & Scobbie, 2017). Generally, for German speakers, /u/ is reported to be a canonical back vowel (Pätzold & Simpson, 1997), phonologically and acoustically distinct from high front rounded /y/. In contrast, SSBE /u/ represents a single phoneme moving progressively towards /y/. This shift, for SSBE speakers, is linked to age and gender (e.g. Harrington et al., 2008), with young females leading the sound change, or, at least, being perceived to do so (Alderton, 2018). In the present study, German-English sequential bilinguals' normalised F2 frequencies (Fabricius et al., 2009) for English /u/ were compared with those of their German /u/ and /y/. Within speakers, the closer the F2 of their English /u/ to German /y/, the more front their GOOSE vowel was considered to be. Based upon these comparisons, we examined whether the German-English sequential bilinguals patterned like SSBE speakers in their English L2 GOOSE productions, thereby indicating sociolinguistic competence in their L2.

A linear mixed effects analysis showed significant effects of age and length of residence (LOR) for both males and females. Female bilinguals with >5 years LOR in London tended to produce English /u/ with higher F2 values, moving English /u/ closer to German /y/ (Figure 1), aligning with previous findings for SSBE female speakers. Male speakers, however, appeared to demonstrate the converse, indicating perhaps that those males who had lived in the UK longer perceived GOOSE-fronting to be female-led, thereby avoiding it. Age was also an important factor, with male and female speakers aged 36-40 years producing an increased F2 compared to both older and younger groups (Figure 2). However, when separated by LOR, female speakers demonstrated an inverse relationship between F2 and age (Figure 3), whereas male speakers' F2 increased as a function of age.

Further research is necessary to understand the effects of variation in the target L2 on L2 acquisition processes. However, our results, at least partially, appear to confirm that bilingual speakers are sensitive to native-like social patterning in their L2 speech. Such findings, unaccounted for by traditional L2 speech acquisition models, indicate a need to further investigate sociolinguistic competence in L2 speech and, potentially, revise traditional models to account for L2 variation.

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	N	Length of Residence in London, UK		Age			
		<5 years	>5 years	26-30	31-35	36-40	41-45
Males	4	2	2	1	0	2	1
Females	9	3	6	2	2	1	4
Total	13	5	8	3	2	3	5

Table 1: Participant background information

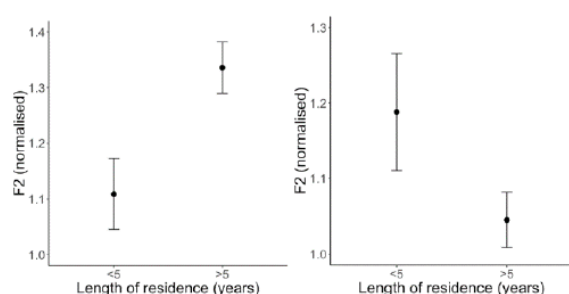


Figure 2: Mean F2 values, averaged across 20%, 50% and 80% timepoints, for English /u/ produced by female (left) and male (right) German-English bilinguals, arranged by length of residence in London, UK.

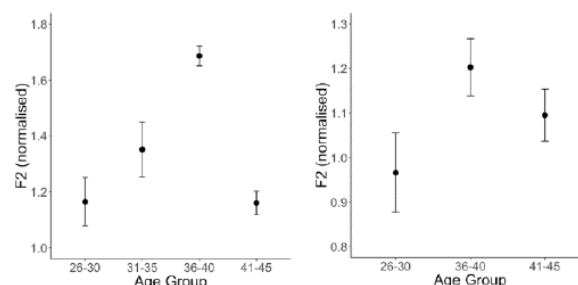


Figure 1: Mean F2 values, averaged across 20%, 50% and 80% timepoints, for English /u/ produced by female (left) and male (right) German-English bilinguals, arranged by age group.

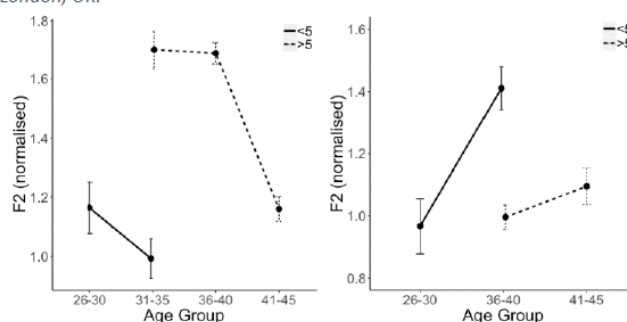


Figure 3: Mean F2 values, averaged across 20%, 50% and 80% timepoints, for English /u/ for female (left) and male (right) German-English bilinguals. The graphs consider the relationship between age group and length of residence in London, UK.