Alignment-induced phonological variation in non-native dialogue

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Individuals are attuned to process variation at all levels of linguistic production. Even at the level of phonetics, where phones vary due to coarticulation, physiology, and language experience (among other factors), speakers alter their production in response to the speech of their interlocutor (phonetic alignment; e.g., Pardo, 2006; Babel, 2012). Most research on phonetic alignment has investigated phonetic variation within a single phonological category, but individuals are also often exposed to systematic production variation across categories. Additionally, nearly all research on the topic has assessed phonetic alignment at only two time points (cf. Pardo, 2006; Delvaux and Soquet, 2007; Babel and Bulatov, 2011; Nielsen, 2011; Babel et al., 2013; Trofimovich and Kennedy, 2014; Hwang et al., 2015) rather than in real time, raising the question of whether alignment is an incremental process influenced by continued exposure or a rapid shift in production patterns due to discourse context.

The current study investigates the plasticity of phonological boundaries in discourse using a corpus of 34 Spanish-English bilinguals who converse with two Dutch confederates in English as a *lingua franca* across two speech styles (the Nijmegen Corpus of Spanish English; Kouwenhowevn et al., Forthcoming). When Spaniards converse with Dutch interlocutors in English as a *lingua franca* (ELF), they encounter two variables not present in their L2 speech: an English-like vowel contrast they have difficulty producing (/i/-/ɪ/; cf. Flege, 1991; Booij, 1995:1; Casillas, 2015) and a merger of two English vowels that they habitually distinguish (/ɛ/-/æ/; cf. Booij, 1995:4-5; Archila-Suerte et al., 2012; Giacomino, 2012). We track the production of these contrasts during formal and informal speech using the Pillai score[1] (e.g., Nycz and Hall-Lew, 2013; Hay et al., 2006; Babel et al., 2013) as an analog of category separation and mixed effects models of the corpus data (cf. Baayen et al., 2008; Baayen et al., 2015; Barr et al., 2013; Bates et al., 2015a; Bates et al. 2015b).

Results indicate that Spaniards aligned with Dutch confederates in their phonological category production, quickly merging their /ɛ/-/æ/ distinction and gradually separating their merged /i/-/ɪ/ category (see Figure 1), rather than adopting standard English production (a four-way contrast). We found greater merger in informal speech overall in addition to an interaction with time for the /i/-/ɪ/ contrast, which indicates that /i/ and /ɪ/ gradually separated in informal conversation. There was no effect of time for the /ɛ/-/æ/ contrast: Spaniards merged /ɛ/ and /æ/ more strongly in informal than in formal conversation, but the magnitude was stable throughout the conversation. Finally, proficiency influenced alignment: the most proficient speakers separated /i/-/ɪ/ and merged /ɛ/-/æ/ more than less proficient speakers. We situate these results alongside other research on phonetic alignment and speech production, stressing the importance of treating phonological categories as dynamic and interpreting phonetic alignment as a complex phenomenon that may be rapid or gradual, depending on the phonological categories under investigation.

[1] Pillai scores occur on a scale from 0 to 1. Higher scores indicate greater category separation.

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