Isolating the role of language in linguistic accommodation

Why do people accommodate to one another's speech patterns? Many things can trigger changes in a speaker's linguistic production, including very subtle suggestions about the social context (Hay & Drager 2010). The fact that nonlinguistic cues can cause such changes without any linguistic input suggests that many cases of "accommodation" may not be straightforward to interpret. This raises a fundamental question about accommodation: Do people accommodate to their interlocutor's use of linguistic variables per se, or do they accommodate to a package of social and linguistic behaviors that a speaker produces to express his or her identity?

Accommodation is hard to investigate with two naïve live participants because many aspects of natural speech covary with each other and with aspects of the context. For example, people could accommodate to aspects of their interlocutor's gender identity by varying their own bodily and linguistic behavior, including the pitch of their speech. If one speaker changes their pitch to more closely approximate the pitch of the other speaker, how can we tell whether they are responding to the interlocutor's pitch itself, or to the overall impression the speaker creates using various symbolic resources, of which pitch is only one?

Using Virtual Reality (VR) to study accommodation solves this problem by allowing an experimenter to create an environment where one interlocutor's behavior (the virtual interlocutor's) is strictly controlled and varies in only one dimension. We used VR to investigate whether speakers would accommodate to a virtual interlocutor's pitch when all other aspects of her behavior were held constant.

24 female university students interacted with a virtual interlocutor (VIRTUA), whose speech was scripted and recorded in advance. Half of the participants were in the Low condition in which VIRTUA's speech was altered to have a 5% lower F0 than in the original recordings, and half were in the High condition in which VIRTUA's speech was altered to have a 5% higher F0 than in the original recordings. Participants' speech was recorded in a pretest (before speaking to VIRTUA) and during their conversation with her, and their average F0 during these timepoints was calculated automatically using a Praat script.

Participants in the High condition had a higher average F0 during their conversations with VIRTUA than during the pretest, while participants in the Low condition had a lower average F0 during their conversations with VIRTUA than during the pretest, yielding a significant interaction between Condition (High/Low) and Timepoint (Pretest/Conversation)($p=.05$). This interaction indicates that, controlling for individual variation, speaking to High VIRTUA caused participants to produce speech with a higher F0 than those participants who spoke to Low VIRTUA; that is, participants accommodated to VIRTUA's pitch.

Even when other aspects of the social interaction and bodily behavior were controlled, one speaker's pitch can cause accommodation in the other speaker's pitch. While in real conversations accommodation may be sensitive to many other aspects of a speaker's behavior, these results indicate that linguistic behavior alone is sufficient to produce accommodation.

Hay, Jennifer and Katie Drager. (2010). Stuffed toys and speech perception. *Linguistics* 48(4):865-892.