The Role of Social Context in Spontaneous Phonetic Imitation by Children Aged 3-6 years

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Research Topic

It has been posited that imitation as a general process may guide our understanding of the world, group behaviour and social norms (Over & Carpenter, 2011). Indeed, imitative behaviour has been noted at numerous levels in numerous domains, from motor movement to speech. Of interest to this project is phonetic accommodation, which can be thought of as imitation at the level of speech sounds. It has been demonstrated to be a subconscious and automatic process (Babel, 2009; Garrod & Pickering, 2004) which can be socially mediated (Giles & Coupland, 1991; Babel, 2012). For example, it is possible that interlocutors increase imitation towards those they like or wish to be liked by (Giles & Coupland, 1991). Indeed, spontaneous phonetic imitation has been demonstrated both in socially-rich conditions (Pardo, 2006), as well as “impoverished” social situations such as laboratory settings (Babel, 2009, 2010).

Research into the effect of social context on spontaneous phonetic imitation has for the most part been conducted with adult populations. The current project aims to contribute to the literature by investigating whether children, specifically those between the ages of 3 and 6 years, preferentially imitate a speaker of Appalachian American English (Southern US) who is depicted as being “mean” or “nice”. Some studies have shown that children are indeed sensitive in-group and out-group membership (Kinzler, Dupoux & Spelike, 2007) between the ages of 3 and 6 years, which is also when they begin to expand their peer groups. Kinzler & De Jesus (2012) have also demonstrated that children of this age don’t yet possess stereotypes regarding southern accents, which rules out the chance that social bias (e.g. in the form of stereotypes) is mediating accommodative behaviour. We predicted that, as with adults, social context (perceived meanness or niceness) would affect the extent to which children accommodate phonetically. Further, we believed that children would imitate the “nice” Southern US speaker more. It is hoped that studying this behaviour will provide insight into age- or gender-related differences and the role of social context in linguistic behaviour. Research of this type may also increase our knowledge of childhood social bonds and provide a clearer picture of when and how social sensitivity is developing, along with the strategies children use to identify or distinguish themselves from the peers or interlocutors.
Method

The first half of this study was run in the Psychology department at the University of Chicago by our collaborators Dr. Katherine Kinzler and Samantha Fan, a PhD candidate. Thirty-two children of both genders between the ages of 3 and 6 years participated in two phases of an experiment. First they did a picture-naming task wherein they were asked to name 25 common objects; this provided us with baseline productions of these target words. Next, the children were randomly assigned to one of two conditions, where they were exposed to a video of a Southern US speaker telling either a “mean” or “nice” narrative. The “nice” narrative involved sharing cookies and helping the teacher, whereas the “mean” narrative discussed kicking over sandcastles and lying. The next phase of the experiment included a similar picture-naming task, although this time the children were prompted by the Southern US speaker to repeat the object name after her. This produced the shadowed productions, which, along with the baseline productions, were recorded and sent to our lab. This is where my work on this project began: I was responsible for segmenting words and vowels from these sound files using Praat, a program designed for acoustic analysis. This task took a number of months, and allowed me to gain familiarity with Praat, reading spectrograms (visual representations of sound), and more generally, children’s speech, which is both acoustically and visually messier than adult speech.

I next learned to code the segmented stimuli into an experiment using E-Prime, a program used to design and run experiments. Under the supervision of Dr. Babel, the perception experiment took shape, and I was soon able to begin scheduling and running subjects. While we can never be certain exactly what in the linguistic signal listeners are attending during speech perception, listeners provide a reliable holistic measure of phonetic imitation. Such results will later be coupled with acoustic measurements, such as formant frequency changes between baseline and shadowed productions, which will in turn provide us with a more complete picture of accommodative behaviour in this study.

During the perception task each listener (n=64) was randomly assigned 8 blocks, with one child per block and roughly 4 blocks per condition. Each block began with an “accent exposure” phase where listeners heard a randomized list of the twenty-five target words produced by the Southern US speaker. They were next presented with pairs of counterbalanced single words, the baseline (e.g. starbaseline) and shadowed (starchadowed) productions. After each pair listeners were asked to judge which token sounded “more like a Southern US accent”, and responses were logged using a button box.

Results

Statistical analyses included Condition (Mean, Nice), Gender (Boy, Girl) and Age (3-4 years, 5-6 years) as independent variables. Overall, a main effect of condition was found, meaning that children imitated to a greater extent in the Nice condition (Figure 1). However, breaking down this effect by gender makes it clear that this effect is only observed amongst girls; boys can be seen to accommodate in both the Mean and Nice Conditions (Figure 2).
Figure 1. Main effect of Condition

Figure 2. Interaction between Gender and Condition

Figure 3 explores the three-way interaction between Condition, Gender and Age, and demonstrates that while girls imitate in the same way across ages (3-4 years, 5-6 years) and conditions (i.e. preferentially in the Nice condition), boys imitate more in the 5-6 year old group, and to a greater extent overall.

These results suggest that social context, demonstrated here as perceived “meanness” or “niceness”, can affect phonetic accommodation in young children. It may well be that children are
employing some of the same strategies adults use in perceiving both the speech and social identities of interlocutors, and that this can mediate their own speech productions. Indeed, these findings lend themselves to further questions, including the difference in imitative behaviour across genders in each condition, as well as across ages for the boys. While these results continue to be discussed as the manuscript is prepared and acoustic data is analyzed, some potential explanations for our findings may point to differences in language use, sensitivity to social norms and/or the awareness of social identities.

Learning Experience

Throughout the course of my work on this project, I have gradually transitioned from working solely on segmenting sound files to being an invited author on the working manuscript, taking on more responsibility and gaining confidence along the way. I have prepared stimuli, coded an experiment, scheduled and run subjects, organized data, discussed statistics, presented preliminary findings at UBC’s Multidisciplinary Undergraduate Research Conference and provided feedback on abstracts submitted to external conferences. Being so extensively involved in a project such as this allows for valuable insight into the research process that simply isn’t available in the majority of undergraduate courses. This experience has better prepared me to take on research projects of my own, such as my honours thesis, which I recently began work on. I am very excited to put the skills I’ve acquired to good use!

I have also become more actively involved in the Linguistics department through attendance at weekly Speech In Context lab meetings, where I have learned about the importance of continual discussion and inquiry. I feel as though I am now more connected to an academic community that extends beyond my peers. I also am extremely grateful to have been given the opportunity to grow under the direction of Dr. Babel, who has consistently provided me with encouragement and support, and perhaps most wonderfully, has treated me as a part of a collaborative team of researchers. I have always believed it important, where possible, for research to cross not only institutional lines, but also disciplinary lines -- life and the phenomena we study are so rarely compartmentalized in the way that university departments are. While collaboration can be an uncomfortable process at times, there are undoubtedly things to be learned, as each researcher brings a specific knowledge of the literature, methodological practices and current theories to the project. This can lend itself to inspired discussion, especially when trying to make sense of resulting data. As an undergraduate, it has been very rewarding to be a part of such a process.

We do research because we have questions that we seek answers for, but what we find is often complex and messy. Before engaging with research on this level, such a reality would have frustrated me; I have learned that every result is interesting, as is the process of data collection, interpretation and discussion. I am very grateful to AURA for providing me with the opportunity to work and grow from my research experience in Dr. Molly Babel's lab. Thank you!
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Bibliography


