

## The Effect of Accents on Lexical Entrainment

### Introduction

There are many intrinsic and extrinsic factors that affect language utilization and perception. When engaged in conversation, people are not only passively exchanging information but also continually making inferences about the conversational topics and their conversation partners. Previous research has found that people generate partner-specific referred expressions based on their perception of their conversational partner's knowledge in a conversation, suggesting the impact of one's perception towards their conversational partner on conversations (Fussel & Krauss, 1992). Moreover, evidence on linguistic stereotyping indicates that in conversations, listeners tend to develop specific evaluations towards specific aspects of speech, such as word use and accents (Edwards, 1999). Many studies have demonstrated the link between foreign accents and language proficiency among bilinguals and multilinguals: a study by Flege et al. (1999) on Korean/English bilinguals, whose second language (L2) was English, in the U.S. found that the degree of foreign accent increases with AOA (age of arrival), where all late learners (AOA 7-23) of English (their L2) in the sample show different degrees of foreign accent. Another study on Spanish/Swedish bilinguals by Abrahamsson & Hyltenstam (2009) specifically associated foreign accents with L2 proficiency: all adult learners of Swedish in their sample had detectable foreign accents and none were perceived as having nativelike L2 proficiency. With the observable pattern and knowledge on foreign accents and language proficiency, one may form partner-specific conceptualizations according to the accents of their conversational partners (Brennan & Clark, 1996). These conceptualizations formed during conversations may contribute to an interesting linguistic phenomenon called lexical entrainment, which describes the tendency for people to adopt the lexical choices of their partner in a conversation (Brennan & Clark, 1996; Tobar-Henríquez, 2020). For example, both "table" and "desk" are terms commonly used for describing the furniture that we do work on. Nevertheless, when one refers to the furniture as "that table" in a conversation, there is a tendency for the conversational partner to align to that word choice by also referring to it as "table".

### Research objectives

While many studies on lexical entrainment focus on the interindividual characteristics, such as one's level of prosociality (Gill, Harrison & Oberlander, 2004) and perspective taking abilities (Horton, 2014), I would like to investigate the effect of ongoing psychological evaluations, or inference, of one towards their partner during the conversation. Specifically, this study aims to explore whether perceived foreign accents, which may lead to inferences about conversational partner's social/ethnic identity and language proficiency, would have an impact on lexical entrainment. We expect a positive relationship between the perceived degree of the speaker to have a foreign accent in the English dominant context and the level of lexical entrainment of the interlocutor, since the interlocutor, identifying the foreign accents, would be likely to make an inference about the speaker's identity as a foreigner and be more likely to entrain their word choices in order to carry a conversation than when not identifying the accent.

## Background

### Lexical alignment and speaker nativeness

Our study is inspired by Suffill et al. (2021)'s study on the influence of interlocutor and speaker nativeness on lexical alignment. In their study, Suffill and colleagues investigated the nativeness of speakers and their belief about their conversational partner's nativeness has an effect on their tendency to align to their language behavior and adaptation in a cognitively demanding, spontaneous dialog setting. They recruited a total of 78 participants (42 native English Speakers and 36 non-native English speakers) for the study. In addition, they also recruited four confederates, two native English speakers and two non-native English speakers (native Mandarin speakers), to assist with the experiment. Their language nativeness was characterized and measured. To assess lexical alignment, they generated a list of experimental items, which had both a favored name and a disfavored but acceptable name, as stimuli and filler items that each only had one acceptable name. They designed a route-giving task using these items to measure lexical alignment. During the study, participants were randomly paired with either a native or a non-native English confederate. Each pair completed four rounds of the route-giving task in-person (two rounds for each role alternatively), each alternating role as either the director or the matcher between rounds. The role of the director was to direct the matcher to drop off the cards with item pictures to the supposed locations using a map with landmark icons on it. The role of the matcher was to follow the direction of the director to match the item pictures to the correct location on the map. The lexical choices of the director would be recapped after each

round to be encoded. Figure 1.1 shows the experimental structure of each round of the task. Participants were assigned as matchers in Round 1&3 and directors in Round 2&4. Their lexical use in describing the pictured items during their direction-giving dialog was recorded and assessed. According to the result of their R analysis, a general entrainment effect was found, where participants in general, regardless of nativeness, were more likely to use a disfavored name after a disfavored prime from the last round after a favored prime. Moreover, a significant effect of confederate nativeness was found in this entrainment effect: both native and nonnative participants showed stronger entrainments towards non-native confederates, whose native language was not English, than native confederates. Nevertheless, no significant relationship was found between participant nativeness and entrainment. The results indicated that the speech nativeness of the speaker, characterized by accents, had an effect on language entrainment in a spontaneous dialog setting. The results of Suffill et al. (2021)'s study is convincing due to the relatively large level of significance of the result ( $p = 0.01$ ). However, an apparent limitation of their study is the individual effects of confederates to their subjects. Since conversations carried in the study were all spontaneous despite following a general script, the individual characteristics of the confederates when having a conversation with the subjects, such as their tones and speed of talking, could vary among each trial and potentially confound the result. Our study aims to assess the same effect of accents on lexical entrainment in a different setting, specifically in a non-spontaneous, controlled communicative environment using a different method of measurement.

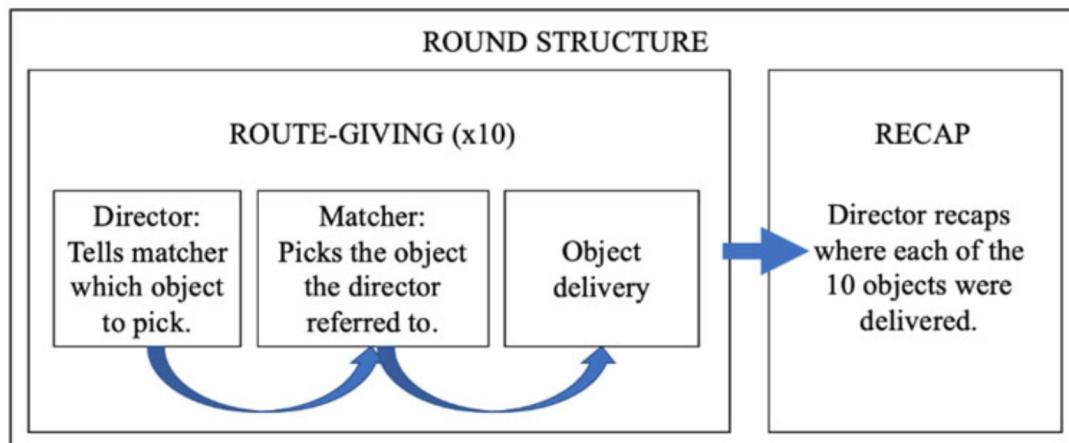


Figure 1.1: An example of the experimental structure of Suffill et al. (2021)'s route-giving task. Subjects and the confederates took roles interchangeably.

## Monolingual Individual Differences in Lexical entrainment

The current study employs the research method of Tobar-Henríquez (2020)'s study in measuring lexical entrainment. The study of Tobar-Henríquez (2020) assessed individual differences in lexical entrainment among British English monolinguals in a remote experimental setting. Similar to that of Suffill et al. (2021), Tobar-Henríquez also generated a list of targeted items, each with a favored and disfavored name, and 14 filler items using norming tasks. The targeted items and filler items were mixed. All items were represented in pictures. Different from that of Suffill et al. (2021), Tobar-Henríquez conducted two rounds of online picture matching-and-naming tasks, each consisting of 28 naming trials and 28 matching trials. During the tasks, participants were informed that they were paired with randomly selected human partners to complete the tasks, where they either needed to match the targeted picture named by their partner by clicking on the picture (matching trial) or name a presented picture by typing out the name (naming trial). An example of the tasks is shown in Figure 2.1.



Figure 2.1: An example of the matching task and the naming task used in Tobar-Henríquez (2020)'s study.

In reality, all pictures and names were generated automatically through computer software. The two trials were displayed interchangeably. Figure 2.2 shows an example of the experimental

procedure.

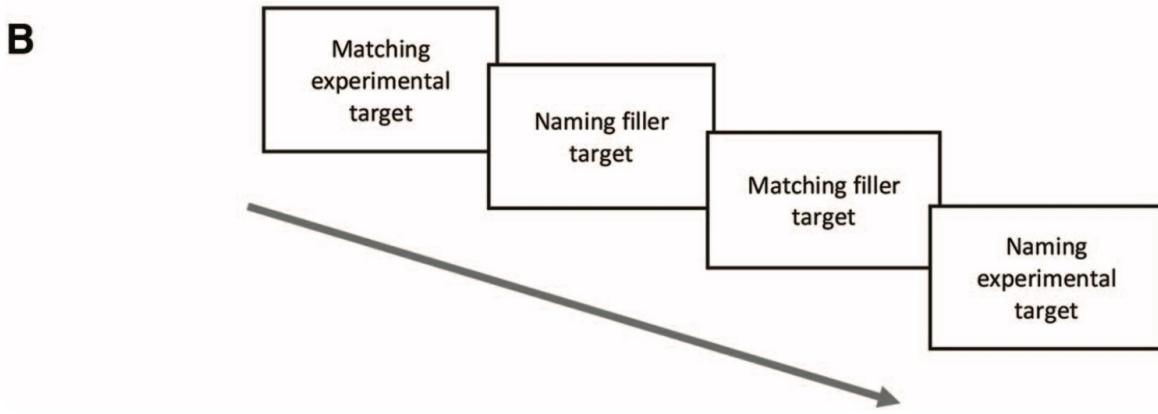


Figure 2.2: An example of the experimental structure of the picture matching-and-naming task used in Tobar-Henríquez (2020)'s study.

In addition to the original trials, the whole study was replicated on 60 new participants recruited using the same criteria in a more longitudinal setting, where the second session was conducted a week after the first one. Both studies showed relatively high test-retest reliability with significant positive correlations between the two sessions. The study results displayed evidence for language entrainment under both short-term and long-term conditions: in the first study, the percentage of utilization of disfavored names was 36% for the critical naming trials averagely across two sessions, and the percentage was even higher (41% of the trials on average) for the second study. In both studies, the disfavored names were used significantly more frequently compared to when they were used in the spontaneous naming task, which was the norming condition. While there were apparent individual differences across data, the study results effectively indicated the presence of short-term and long-term lexical entrainment effects in British English monolinguals. Nevertheless, Tobar-Henríquez's study offered limited insights on the underlying psychological mechanism of the entrainment effect. The present study will like to further investigate the effect of subject-specific inferences on lexical entrainment by adding the variable of the presence of foreign accents to the original research method carried by Tobar-Henríquez (2020).

## **Proposed Research**

The planned experiment will examine the effect of the presence of foreign accents, which stimulate interlocutors' inferences about the speaker's identity, on lexical entrainment. The study will be conducted in the U.S. context casting a diverse population, including monolinguals, bilinguals, and multilinguals with different language backgrounds. The study will be carried online through an online experimental platform called Gorilla. Three types of tasks will be used, including a picture matching-and-naming task to assess spoken entrainment, a verbal fluency task to assess language proficiency, and an AX-CPT task to measure individual differences in cognitive control ability. Two background questionnaires will also be administered.

## **Participants**

We plan to recruit 60 participants of different language backgrounds in the U.S. via various methods, including email, SONA, and posting on Reddit and course discussion boards. Participants will be required to be proficient in English regardless of whether their first language (L1) is English, since the study and the instructions will be presented in English. Their English proficiency will be measured through a verbal fluency task, where subjects would be given a semantic category and be asked to generate words that fall under that category. The language backgrounds and English dominancy will be assessed through the Language Experience and Proficiency Questionnaire (LEAP-Q) (Kaushanskaya et al., 2020). We will also recruit two bilingual speakers, whose L1 are not English (Spanish and Mandarin), to record the stimuli. The foreign accent levels of the speakers will be assessed among experimenters in the lab blindly using a foreign accent rating scale. After norming, their pronunciations of the unfavored names of the targeted items and names of filler items will be recorded and processed as audio clips to be used as audio stimuli in the picture matching-and-naming task.

## **Procedure**

Participants will be completing the study online under monitor through Zoom. Similar to that of Tobar-Henríquez (2020)'s study, they will first be asked to complete the picture matching-and-naming task with two partners from the dataset. The audio recordings from the two foreign accented speakers described above will be played as partner's choices for participants to complete the matching task. In the naming task, they will be asked to name the pictures shown and record their responses through microphones. Each participant will complete two sessions of mixed picture matching-and-naming task, one with each speaker's recordings.

Each session includes 4 trials of each stimulus, 2 for the matching task and 2 for the naming task. 14 targeted stimuli and 14 filler stimuli will be used in each session in mixed order. After the picture matching-and-naming task, participants will complete a mini questionnaire about their perceptions on the speakers' level of foreign accents and inference about speakers' identity and English proficiency. After the mini questionnaire, participants will complete a verbal fluency task to assess their English proficiency and an AX-CPT task to measure their cognitive control ability. At the end of the study, participants will be asked to complete the Language Experience and Proficiency Questionnaire (LEAP-Q) (Kaushanskaya et al., 2020) about their language background, experience, entropy and propensity. Questionnaires are placed after the main task (picture matching-and-naming task) to prevent priming. The whole experiment will last 45-60 minutes.

### **Measurement**

The level of entrainment for each stimulus, which is the accented audio recording of the name of the targeted item shown in the picture, will be measured by recording the number of times where participants used the same names as the confederates/their partners. The audio recordings of participants' responses will be saved and coded into texts. The collected data on level of entrainment will be compared with the baseline data without the intervention of accents. We will be using both Tobar-Henríquez (2020)'s data and the data collected in our Bilingualism, Mind, and Brain Lab, in which the same experiments were conducted on English/Spanish and English/Mandarin bilinguals without the variable of accents (text-only stimuli) as baseline data. If any significant relationship was found, further secondary analysis on the individual influence of participants' language backgrounds and entrainment on phonetic levels using the audio recording of participants' responses will be conducted.

### **Predictions**

In alliance with Suffill et al. (2021)'s study findings, we hypothesize that despite individual differences, participants will, on average, present greater levels of entrainment to both stimuli (Spanish-accented stimuli and Mandarin-accented stimuli) based on their perception and inference of their partners' identity and English nativeness compared to the baseline data, where no clue is given about the identity and English proficiency levels of the partners. Since participants would generate perceptions about the identities of the speakers as foreigners. We speculate that as they generate such perceptions, they would also make inferences about their

English proficiency level as foreigners to be inferior compared to native English speakers. In order to maintain conversations properly, we suspect that participants, regardless of language background, would naturally tend to entrain the words of foreigners more.

### **Budget**

- Participants' compensation for completing the experiment: \$15/person \* 60 subjects = \$900
- Other expenses
  - UROP Poster Presentation Materials: \$60.00
  - Other Office Supplies (print-outs, papers, pens, etc): \$40.00
- Total Amount Request: \$1,000

### **Timeline**

- Spring 2022
  - Turn in the proposal for review
  - Recruit 2 speakers to record audio stimuli
  - Measure foreign accent levels of the speakers
  - Work with speakers to record audio stimuli
  - Design the tasks on Gorilla
  - Design the mini participant perception questionnaire
- Summer 2022
  - Finalize recording audio stimuli and embed them into the task design
  - Finalize the experiment and questionnaire design
  - Pilot the experiment and questionnaires
  - Begin recruiting participants in the U.S.
  - Begin running the experiment with recruited participants
- Fall 2022
  - Continue recruiting participants
  - Continue running the experiment
  - Begin coding audio responses
  - Begin data cleaning
  - Begin analyzing the collected data

- Begin project write-ups
- Winter 2022
  - Finish data collection
  - Finish data cleaning and analysis
  - Finalize project write-ups
  - Prepare for the UCI Undergraduate Research Symposium presentation

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