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Children's Use of Accent as a Cue for Cooperative Potential

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy in Psychology

by

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Abstract

In recent years, several studies have shown that 5- and 6-year-old children make social judgments based on accent, consistently displaying a social preference for individuals who speak with a native accent. One theory hypothesizes that this preference to favor individuals who speak like us stems from our evolutionary history, during which accent and other language variations would have been strong, salient cues to group membership, and thus, cues to one's likelihood of cooperative behavior. The current study aimed to test this theory by determining if 5- and 6-year-old children use accent to make judgments about an individual's cooperative potential. Participants completed three tasks that were designed to measure cooperative potential, a social preference task, and a resource allocation task, designed to measure the participants' cooperative behaviors. Contrary to the hypotheses, on two of the cooperative potential tasks, participants did not choose the regional accented speakers as being more likely to cooperate with them. The participants did, however, display a preference for the regional accented speakers on the third cooperative potential task, which involved determining with whom to collaborate and share earned resources. Also contrary to the hypotheses, participants did not display a social preference for the regional accented speakers, nor did they allocate more resources to the regional accented speakers compared to the foreign accented speakers. These results indicate that children may use accent as a cue for cooperative potential in some situations, but not others, and call into question the robustness of children's preference for native-accented speakers.

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I. Introduction

Children's Use of Accent as a Cue for Cooperative Potential

One way children organize and simplify their complex social worlds is through categorizing people into groups with similar others. Research indicates that 3-year-old children primarily rely on an individual's social category membership to predict that individual's future behavior. It is not until theory of mind develops, around age 4, that children begin to utilize the distinctive characteristics of an individual, such as their mood, emotional state, or past behavior, to predict future behavior (e.g., Berndt & Heller, 1986; Chalik, Rivera, & Rhodes, 2014). Similarly, Cimpian and Erickson (2012) found that preschoolers remember information about social categories (e.g., boys eat green beans) better than information about single individuals (e.g., this boy eats green beans).

While social categorization serves as a beneficial way for young children to efficiently process and acquire new social information (Cimpian & Erickson, 2012), it can also have negative, undesired consequences, often laying the foundation for stereotyping, prejudice, and discrimination (e.g., Dunham & Olson, 2016; Macrae & Bodenhausen, 2000). For instance, children and adults tend to categorize others as members of their group (the in-group) or members of a different group (the out-group). Vast amounts of research have shown that both children and adults display in-group favoritism and out-group derogation by benefitting in-group members and harming out-group members in various ways (e.g., Bigler, Jones, & Lobliner, 1997; Buttelmann & Bohm, 2014; Dunham, Baron, & Carey, 2011). For example, 6-year-olds distributed more positive items (e.g., candy or stickers) to an in-group puppet than an out-group puppet, and 8-year-olds, in addition to giving more positive items to an in-group puppet, distributed more negative items (e.g., a spider) to an out-group puppet (Buttelman & Bohm,

2014). Once an in-group versus out-group distinction has been made based on any group difference (e.g., race, gender, hair color, etc.), individuals tend to perceive greater within-group similarities and between-group differences (e.g., Doise, Deschamps, & Meyer, 1978; Rothbart, Davis-Stitt, & Hill, 1997).

Indeed, children do display social preferences for others based on their category membership. Researchers have argued that humans use three primary social distinctions to categorize others: gender, age, and race (e.g., Fiske, 1998; Messick & Mackie, 1989; Stangor, Lynch, Duan, & Glass, 1992); as such, vast amounts of research have examined how children and adults categorize others based on these three distinctions (for reviews see, Kinzler, Shutts, & Correll, 2010; Shutts, 2015) and use them when making social decisions, such as with whom to be friends, with whom to play, with whom to share, or from whom to learn.

More recently, research on children's social preferences has expanded to investigate the influence of language variations such as accent, dialect, and the number of languages one speaks on children's social decision-making. It is now a quite replicable finding that monolingual children up through about 6 years of age display social preferences for unaccented speakers of their native language (e.g., Kinzler, Dupoux, & Spelke, 2007).

In this dissertation, I will first review the literature on children's language-based social preferences. Next, I will discuss a theory based on evolutionary principles that suggests that accent serves as an indicator of cooperative potential, which may influence the development of the native-accent bias. Last, I will discuss a study I conducted to examine if children use accent to shape their perceptions of cooperative potential in other individuals.

A. Children's language-based social preferences

Early work on children's social preferences has found that children are attuned to

differences in gender, age, and race. Children as young as 2 years old prefer to play with other children of the same age and gender (e.g., La Freniere, Strayer, & Gauthier, 1984; Parten, 1933; Shutts, 2015). A few years later, around 4 or 5 years of age, children prefer to play with peers who are the same race (e.g., Aboud, 2003; Kinzler & Spelke, 2011; Shutts, 2015).

In a series of groundbreaking studies, Kinzler et al. (2007) presented pairs of adult faces each linked to a speech sample in either English or French to 6-month-old English-learning infants. They found that the infants reliably looked longer at the English speaker than at the French speaker. Similarly, they found that 10-month-old infants preferred to take a toy offered by a person who had spoken their native language compared to a toy offered by a person who had spoken an unfamiliar, foreign language. Finally, they found that 5-year-old monolingual English-speaking children, when asked with whom they would prefer to be friends, reliably chose the English speaker compared to the French speaker, and even more strikingly, chose a native-accented English speaker compared to a French-accented English speaker.

Following this initial series of studies, many other studies have replicated (e.g., Creel, 2018; Kinzler & DeJesus, 2012; Kinzler & DeJesus, 2013; Kinzler, Shutts, DeJesus, & Spelke, 2009; Souza, Byers-Heinlein, & Poulin-Dubois, 2013) and extended these findings in a variety of different experimental tasks and settings. For example, 12-month-old infants selected food previously favored by a speaker of their native language compared to food favored by a speaker of a foreign language (Shutts, Kinzler, McKee, & Spelke, 2009), and 2.5-year-olds, when given a forced choice, preferentially chose to give an object to a native speaker over a speaker of a foreign language (Kinzler, Dupoux, & Spelke, 2012). Preschoolers imitated the function of a novel object taught to them by a native-accented speaker compared to a foreign-accented speaker (Kinzler, Corriveau, & Harris, 2011) and used labels for novel objects provided to them by

native-accented speakers compared to labels provided by foreign-accented speakers (Corriveau, Kinzler, & Harris, 2012).

Brazilian children growing up in communities made up of various accents displayed friendship preferences for and allocated more sweets to a puppet who shared their native accent compared to a foreign accent; however Brazilian children growing up in a community with only one accent did not display significant friendship preferences or allocate sweets differentially between the two puppets. The researchers suggest that the difference between the multi-accent and mono-accent communities may be due to children in the multi-accent communities having a stronger ability to differentiate between accents (Cohen & Haun, 2013). Indeed, Wagner, Clopper, and Pate (2014) determined that 5- and 6-year-olds, the majority of whom had no regular contact with someone who spoke English with a non-American accent, had difficulty distinguishing between their native accent (midland American English) and a regional dialect of English (from Lancashire, Great Britain). Somewhat contrarily, Paquette-Smith, Buckler, White, Choi, and Johnson (2019) found that regardless of their amount of accent exposure, Canadian 5- and 6-year-olds were more likely to choose native-accented speakers as friends. This finding was especially strong when their native accent was paired against a foreign accent (Korean), but was also present when their native accent was paired against a regional accent (British).

Even bilingual children display social preferences for native-accented speakers compared to individuals who speak with an unfamiliar, foreign accent (e.g., Kinzler, Shutts, & Spelke, 2012; Souza et al., 2013). DeJesus, Hwang, Dautel, and Kinzler (2017) determined that 5- to 7-year-old bilingual children did not display a social preference for individuals who spoke either of their two languages, but did display a preference for individuals who spoke either of their languages with a native accent compared to a familiar, but foreign accent.

In fact, preferences for native accented individuals are so strong they seem even to supersede preferences based on race. In one study conducted by Kinzler et al. (2009), white 5-year-olds preferred to befriend other white children compared to black children. However, when a white child spoke English with a French accent and a black child spoke with English with a native accent, white participants preferred to befriend the native-accented black child compared to the foreign-accented white child.

While these native-accent and native-language biases are robust, they do not manifest in all circumstances. When other information is available on which children may base their social preferences, the bias is typically overridden. For instance, 4- and 5-year-old children preferred to learn labels for novel objects from native-accented speakers compared to foreign-accented speakers, unless a native-accented speaker had previously provided an incorrect label for a familiar object and a foreign-accented speaker had previously provided a correct label for a familiar object (Corriveau et al., 2012). Similarly, when information about an individual's character or personality, i.e., how nice or mean they are, is provided, children preferred to befriend a nice foreign-accented individual compared to a mean native-accented individual (Kinzler & DeJesus, 2013). Additionally, according to one study, a native accent is valued for more than syntactic and semantic correctness by younger children in terms of social preference, but as children age, they come to prefer syntactic and semantic correctness in foreign-accented speakers compared to native accented speakers who make these linguistic errors (Hwang & Markson, 2018).

B. Accent as a cue for cooperative potential

Spelke (2000) theorized that humans, through evolutionary influences, are born equipped to process information within four basic *core knowledge systems*, one each for the representation

of objects, actions, numbers, and space. Spelke and Kinzler (2007) later proposed a fifth system dedicated to the representation of social partners. It is likely that humans would have evolved a cognitive system for this purpose, as social interaction is a large part of all human societies. In fact, the social brain hypothesis proposes that the reason humans have such large brains in proportion to the rest of their bodies compared to other animals is because of the cognitive demands of forming and living in social groups (Dunbar, 2003). Research shows that even infants are prepared to process and pay attention to social information. Infants prefer to look at faces over other stimuli (e.g., Mondloch et al., 1999) and biological motion over non-biological motion (e.g., Bardi, Regolin, & Simion, 2014). Some infant reflexes and early behaviors occur to draw attention from adults (e.g., reflexive smiling or crying) and create a social bond that will serve to protect the infant and promote their survival (e.g., Simpson & Belsky, 2008).

Perhaps social categorization occurs as a result of having a cognitive system dedicated to social partners and social groups. By categorizing others as in-group or out-group members, our ancestors would have been able to make quick judgments about who would have been more likely to cooperate with or help them and who would have been more likely to compete with or harm them. Research indicates that this type of social categorization, of in-groups and out-groups, is automatic and occurs even in groups that have been assigned arbitrarily. In a classic study, Tajfel (1970) had teenage boys estimate the number of dots in a series of presentations. They were then told that based on their estimations they were either under-estimators or over-estimators; in reality, they were randomly assigned this label. In a subsequent task, the participants were more likely to favor members of their arbitrary group than members of the other group, by assigning a larger profit to in-group members. Since this original study, research using the minimal groups paradigm has found similar results in both children and adults, with

participants favoring the in-group in a variety of ways. For example, 5-year-olds reported liking unfamiliar children in their minimal in-group more than unfamiliar children in the out-group and allocated more coins to unfamiliar minimal in-group members than to unfamiliar out-group members (Dunham et al., 2011). Similarly, 4- and 5-year-olds were more likely to tell a minimal out-group secret to a stranger compared to a minimal in-group secret, even when bribed with stickers for the in-group secret (Misch, Over, & Carpenter, 2016).

Kinzler (2013) argues that language, and accent in particular, serves as a strong cue for social group membership, stemming from early human history. Limited resources would have made it necessary for larger groups of people to break off into smaller groups, with many of these small community groups living within relatively close geographic proximity, making it a necessity to keep track of your coalition members and members of the competing groups (e.g., Cohen, 2012; Hill, 1972). In line with this theory, Cohen (2012) hypothesized that accent could likely have been used as an indicator for cooperative potential, as these smaller community groups would have likely developed unique dialects and speech patterns, even across relatively short geographic distances. According to Cohen (2012) accent would have served as a reliable way to determine cooperative potential in other individuals for several reasons, the most relevant for the purposes of this paper are summarized next. First, accents are easily discriminable, as we have seen in the research outlined in the previous sections of this paper regarding preferences for speakers of particular accents (e.g., Kinzler et al., 2007), thus making it easy to identify someone who is not a member of your group. We see in the accent preferences literature that the preference for native accents gets stronger with age, as children become better at discriminating between accents (Cohen & Haun, 2013; Creel, 2018). Second, an accent is difficult to hide or fake, making it nearly impossible for members of competing groups to fake a native accent for

the purpose of deception. Scovel (1969) argued that adults who learn another language after puberty inevitably develop foreign accents, making them easily identifiable as out-group members. While this idea has become controversial and may not be true of all adults who learn a second language, it is extremely difficult as an adult to learn another language with native-like proficiency (Hill, 1972; Huang, 2014; Ghazi-Saidi, Dash, & Ansaldo, 2015; Singleton, 2003).

Third, the ability to discriminate between a native and non-native accent has an early ontogeny. Humans attend to language and accent very early in development. Even newborn infants are able to distinguish their native language from a foreign language, but not distinguish two foreign languages from one another, indicating that they are paying particular attention to their own native language (Mehler et al., 1988). In addition, as the studies summarized in the first section of this paper show, infants and young children display differential social preferences for individuals who speak with a native accent over a foreign accent (e.g., Kinzler et al., 2007). Once infants are able to distinguish amongst languages, one study found that 9-month-old infants used that ability to infer third-party relationships based on language, expecting two individuals who speak the same language to have a positive social interaction and two individuals who speak different languages to have a negative social interaction (Lieberman, Woodward, & Kinzler, 2017).

Finally, language and accent are salient indicators of the location of an individual's origin, which evolutionarily would have indicated a potential relatedness among individuals. Fitzgerald and Colarelli (2009) found that people are more likely to be altruistic toward genetic relatives over non-genetic relatives or friends when there is a personal cost for the behavior (e.g., loaning them \$10,000 or running into a burning building to save them). This study supports the notion that we are more likely to help a genetic relative at our own detriment to ensure our genes

be passed on. Additionally, research indicates that children do use accent to make judgements about an individual's origin. Children age 3- to 5- believed that people who spoke with the same accent were from the same place and shared cultural norms (Weatherhead, White, & Friedman, 2016). Children were also more likely to categorize native-accented individuals compared to foreign-accented individuals as local (Hwang & Markson, 2018).

C. The ontogeny of cooperation in children

Cohen (2012) defines cooperators as “individuals who bestow benefits on others, potentially at a cost to the self” (pg. 588). Quite a bit of research has examined how children cooperate with others following collaboration, often measured by how children distribute resources amongst themselves and collaborators, or how fair or unfair they judge random distributions of resources following collaborative efforts. Ulber, Hamann, and Tomasello (2015) found that even children as young as 18 months display a preference for egalitarian distribution of resources after acting in collaboration with another individual. In a subsequent study with 3- and 4-year-olds, Ulber et al. (2017) found that following collaboration, children were more likely to reject unequal distributions of rewards, both when the distribution was advantageous (i.e. favored them) or disadvantageous (i.e. favored their collaborative partner).

Fehr, Bernhard, and Rockenbach (2008) examined the development of egalitarianism when collaborative effort is absent in 3- to 8-year-old children. Children were assigned to one of three different cooperation games. The first was a prosocial game in which the participant had a choice between two outcomes: allotting one piece of candy to themselves and one piece of candy to an anonymous child or allotting one piece of candy to themselves and no candy to the anonymous child. In this game, children had a choice between egalitarianism or advantageous inequality (inequality that favors themselves). The second was an envy game where the

participant had a choice between the following two outcomes: allotting one treat to themselves and one treat to an anonymous child or allotting one treat to themselves and two treats to the anonymous child. In this game, children had a choice between egalitarianism or disadvantageous inequality (inequality that disfavors themselves). The third was a sharing game where the participant had a choice between the following two outcomes: allotting one treat to themselves and one treat to an anonymous child or allotting two treats to themselves and no treats to the anonymous child. In this game, children had to decide whether to act in an egalitarian fashion, when doing so was costly to themselves. The researchers found that 3- and 4-year-olds were largely unwilling to share in the sharing game; similarly, a majority of 5- and 6-year olds were also unwilling to share in the sharing game, but shared more often than the 3- and 4-year-olds. Both age groups acted at chance in both the prosocial and envy games, indicating a self- over other-focus and no aversion to advantageous or disadvantageous inequality. In contrast, nearly half of the 7- and 8-year-olds shared in the sharing game, preferring an egalitarian outcome to a selfish outcome. These children also showed a strong preference for the egalitarian outcomes in the prosocial and envy games.

A study by Corbit, McAuliffe, Callaghan, Blake, and Warneken (2017) using samples of children from India and Canada compared children's aversions to inequality following their participation in either a collaborative or an individual task. Children worked in teams or by themselves on the task and then had the opportunity to accept or reject allocations of candy that were equitable or inequitable (advantageous and disadvantageous). Children in both the collaborative and individual task conditions were likely to reject allocations that were disadvantageous; however, only children in the collaborative task condition were also more likely to reject allocations that were advantageous. These tendencies increased with age and

show that children value egalitarianism for collaborative efforts.

Interestingly, group membership seems to influence the likelihood of cooperation and egalitarian behavior. One study found that while children tended to prefer egalitarianism, even evaluating individuals who acted in egalitarian ways (e.g. distributing cookies equally across in-group and out-group members) as nicer than individuals who favored only members of their in-group, they didn't expect individuals to act in egalitarian ways. Instead, they believed that when given the choice, individuals would favor the in-group over egalitarian distribution across group members (DeJesus, Rhodes, & Kinzler, 2014). Toddlers as young as 1.5 years old expected individuals to benefit in-group members during a resource allocation task, but only when resources were limited and there were not enough resources to distribute equally to both the in-group and the out-group (Bian, Sloane, & Baillargeon, 2018). In the Fehr et al (2008) study described above, participants were more likely to make egalitarian choices in the prosocial and sharing games if they were told that the anonymous partner attended the same school (in-group member) compared to a different school (out-group member). In another study, 4- to 6-year-olds distributed more stickers to minimal in-group members than to minimal out-group members (Sparks, Schinkel, & Moore, 2017). Even the presence of an in-group member has been shown to influence children's egalitarian behavior. Five-year-olds shared more stickers with an anonymous child when being observed by a minimal in-group member compared to a minimal out-group member, indicating that children are concerned with portraying an egalitarian reputation to in-group members (Engelmann, Over, Herrmann, & Tomasello, 2013).

D. Current Research

This dissertation examined if children use accent as a cue for determining cooperative potential in other individuals. As summarized earlier in this paper, children are more likely to

bestow benefits, such as positive resources, to strangers who speak their language with their accent (e.g. Cohen & Haun, 2013; Kinzler, Dupoux, & Spelke, 2012). One explanation for this preferential treatment is that children are using accent to determine which stranger belongs to their in-group, and thus, is more likely to cooperate with them in the future.

Most research on cooperation in children has focused on whom children prefer to cooperate with; little research has examined the complementary question regarding children's beliefs about which individuals are most likely to cooperate with them. One study found that 4- to 6-year-olds were more likely to expect cooperative behaviors (for example, sharing their lunch) from minimal in-group members compared to minimal out-group members (Dunham, Baron, & Carey, 2011). Renno and Shutts (2015) found that white participants gave more coins to same-gender and same-race peers, and that favoring these in-group members was correlated with participants' expectations of prosocial behavior from members of their in-groups, such as who would share stickers with them or who would help them up if they fell.

These studies provide some evidence that group membership influences children's expectations about cooperative potential; however, no research has examined if children use accent as a cue for cooperative potential. Additionally, while children display social preferences for native-accented speakers, it is unclear if this preference is due to an in-group bias or is driven instead by other variables like the familiarity of the speaker's accent or perceptions of the speaker's social status. Since previous research has indicated that children expect cooperative behaviors from in-group members (both minimal and essential, i.e., gender & race), if children use accent to determine cooperative potential, it would provide evidence that children are using accent as a cue to group membership as well.

In order to determine if children use accent to assess the cooperative potential of other

individuals, participants in the current study completed five tasks, each of which consisted of the presentation of pairs of cartoon faces through a Powerpoint presentation on a laptop computer. Each face was paired with an audio clip of a person speaking accented English. One face within each pair spoke with a local regional (Northwest Arkansas) accent, while the other spoke with a non-native (German) accent. For each task, the participants completed two trials, one with female speakers and the other with male speakers. Following each trial for four of the tasks, participants made a forced-choice judgment between the speakers, indicating for the first three tasks the picture of the person they felt to be more likely to cooperate with them, and for the fourth task the person with which they preferred to play. For the fifth task, the participants distributed seven stickers between the two speakers.

I hypothesized that participants would choose the individuals who spoke with the regional accent significantly more often than chance across all three cooperative potential tasks, if participants identify these individuals as their in-group member. I did not predict a difference between the participants' responses for the male and female trials.

A secondary goal of this dissertation was to determine the relationship between social preference and cooperative potential. In line with previous research on children's accent-based social preferences, I hypothesized the same pattern of results for the social preference task as for the cooperative potential tasks would emerge. I hypothesized that participants would prefer to play with the individuals who spoke with a regional accent significantly more often than chance. I did not predict a difference between the participants' responses for the male and female trials.

A third goal of this dissertation was to determine the relationship between participants' cooperative behaviors and their expectations for cooperative potential in others. In line with previous research on children's resource allocation behavior, I predicted that children would

distribute more stickers to the individuals who spoke with the regional accent than to individuals who spoke with a German accent. I did not predict a difference between the participants' responses for the male and female trials.

Finally, I predicted that all tasks would be correlated, such that children who were more likely to favor the regional speakers would do so across all five tasks, while children who didn't display a preference for either speaker or who favored the foreign speaker would do so across all five tasks.

II. Method

A. Participants

Thirty-nine 5- to 6-year-old children ($M_{\text{age}} = 5.89$; 59% male; 77% White/Caucasian) living in Northwest Arkansas and Tulsa, Oklahoma participated in this study. Nine participants were either multilingual or had exposure to accented speech on a regular basis, as reported by their parents. The results of the study did not differ when these participants were removed from the analyses, so they are included in the analyses presented in this section. This age range and sample size is consistent with previous studies on language-based social preferences in children (e.g., Kinzler et al, 2007).

An a priori power analysis was conducted to estimate sample size, given the effect sizes found in prior research. In previous research studies that reported effect sizes, large effect sizes have been found in studies examining a general social preference for others who speak with a native accent ($d = .8$ or higher), while more moderate effect sizes ($d = .5 - .7$) have been reported in studies examining more indirect measures of social preference (i.e., selective trust). A calculation using G*Power 3.0.1 indicated that a sample of 21 participants was needed to achieve

80% power for an effect size of $d = .5$. Because the cooperative potential measure used in this study had not been examined before, I decided to use a more modest effect size.

Children were recruited from local schools, museums, our lab Facebook page, our community participant database, and the Arkansas Newswire. The recruitment documents can be found in Appendix A. The means and standard deviations for the cooperative potential and social preference trials can be found in Table 1. The means and standard deviations for the resource allocation trials can be found in Table 2. The correlation matrix for all five tasks can be found in Table 3.

B. Materials and Procedure

Children were tested in our lab at the University of Arkansas, in a quiet room at their school, or in a children's museum. Parents were paid ten dollars for bringing their children into our lab for the study; all children were given a sticker or a toy for their participation. Parents or guardians signed a consent form when they arrived at the lab or children's museum, or returned a signed consent form that was sent home to them through their child's school. The consent form can be found in Appendix B.

Participants viewed a PowerPoint slideshow consisting of pairs of same-sex cartoon faces. Each face was paired with an audio clip of a sentence spoken in accented English, indicating that that was how each cartoon spoke. One face in each pair spoke with a local regional accent, while the other face spoke with a German accent. German accents were selected for the foreign accented stimuli because it was relatively easier to recruit native German speakers to contribute audio stimuli for this study than any other foreign accent. Children completed five tasks, each made up of two trials. One trial within each task comprised of female voices, the other trial comprised of male voices. Each task contained different voices for the speech samples

for a total of ten female and ten male voices, to attempt to protect against the participants becoming familiar with the particular voices over the duration of the experiment.

Voices were obtained by recruiting individuals to record themselves speaking ten different sentences. Participants were either given class credit toward their general psychology research requirement or were paid \$10 for their time. Ten female and ten male individuals who grew up within fifty miles of Northwest Arkansas recorded the local regional accent stimuli and ten female and ten male individuals who grew up in Germany, spoke German as their first language, and learned English later in life recorded the German accent stimuli.

The experimenter began each session by asking the participant if they would like to play a game with the experimenter. Once participant assent was obtained, the experimenter then told the participant that they were going to see pictures of different people and listen to their voices. During each trial, the experimenter pointed to the first face of the pair and said one of three counterbalanced statements, (“Here’s one person”, “Let’s listen to him/her”, or “Here’s someone”) and the first audio recording played while that person’s face loomed in size on the screen, to make clear which face went with the voice. After the audio clip finished, the face returned to normal size. The experimenter then pointed to the second face and said one of three counterbalanced statements to match the first, (“Here’s another person”, “Now, let’s listen to him/her”, or “Here’s someone else”) and the second audio recording played as the second face loomed in size. After the second recording finished, the second face returned to normal size. Within each trial, the two faces spoke the same sentence. All sentences were neutral in content and can be found in Appendix C. Participants completed five tasks described in detail in the following paragraphs. One randomized task order was created, with the second order being the reverse of the first. In the second order, the presentation of the two trials within each task and the

audio clip of accented speech that was presented first within each trial was the reverse of order one.

Cooperative Potential Tasks

In the first of three cooperative potential tasks, referred to as a reverse resource allocation (RRA) task, after the participants listened to the voices, two cookies appeared below each face. Participants were told that each person had two cookies. The experimenter then pointed to each person in turn and asked the participant, “Who do you think is more likely to share one of their cookies with you, this person or this person?” This task was designed to answer the complementary question of a resource allocation task, “Who is more likely to allocate resources to you?”

For the second cooperative potential task, referred to as a collaborative potential (CP) task, after the participants listened to the voices, participants were told to imagine they were going to be participating in a contest to build the biggest tower out of blocks, and the winning pair would earn a prize to share. The experimenter then asked, while pointing to each face in turn, “Who do you want to choose to be your partner for the tower-building contest?” This task was designed to examine who participants would rather collaborate with, when they would be sharing an earned reward for their effort.

For the third cooperative potential task, referred to as a helping potential (HP) task, after the participants listened to the voices, the participants were told to imagine that they had fallen down on the playground. The experimenter then asked, “Who do you think is more likely to help you up?” This task was designed to examine who participants thought would be more likely to offer them help. Each task was designed to measure a different component of cooperation. The responses for each trial were recorded on a data sheet by the experimenter.

Social Preference Task

The social preference (SP) task used was based on a similar task developed by Kinzler et al. (2007). After the participant listened to the voices, the experimenter asked, “Which of these people do you want to play with?” Participants’ responses were recorded on a data sheet by the experimenter.

Resource Allocation Task

For the resource allocation task, after the participant listened to the voices, the experimenter handed them 7 stickers and placed a small tray in front of each face. The experimenter told them, “Here are seven stickers for you to share with each of these people. Put the stickers you want to give this person in this tray.” The experimenter pointed to the first face and tray. “And put the stickers you want to give this person in this tray.” The experimenter pointed to the second face and tray. The participant was told that they could distribute the stickers however they’d like. The number of stickers distributed to each person was counted and recorded on a data sheet by the experimenter.

III. Results

Cooperative Potential

Paired samples *t*-tests revealed that participants’ preferences in all three cooperative potential tasks did not differ as a function of the speaker’s sex ($M_{\text{Male_RRA}} = .44$, $M_{\text{Female_RRA}} = .51$, $t(38) = .829$, $p = .41$; $M_{\text{Male_CP}} = .69$, $M_{\text{Female_CP}} = .62$, $t(38) = -1.00$, $p = .32$; $M_{\text{Male_HP}} = .49$, $M_{\text{Female_HP}} = .54$, $t(38) = .572$, $p = .57$). For this reason, the male and female trials for each task were summed together.

One sample *t*-tests were conducted for each task in order to compare participants’ responses to chance performance. For each trial within each task, participants’ responses were

coded as a 0 if they chose the German accented person or a 1 if they chose the regional accented person. Because the trials were summed together, scores for these tasks could be 0 (if the participant chose the German accented speaker for both the male and female trials), 1 (if the participant chose the regional accented speaker for one of the trials and the German accented speaker for the other trial), or 2 (if the participant chose the regional accented speaker for both the male and female trials). As such, chance was set to 1. Results showed that responses to the reverse resource allocation task ($M = .95$), $t(38) = -.39$, $p = .7$, and the helping potential task ($M = 1.03$), $t(38) = .19$, $p = .85$ did not significantly differ from chance. Children chose the regional accented speakers significantly more than chance in the collaborative potential task ($M = 1.31$), $t(38) = 2.31$, $p = .026$, $d = .37$. The analytic strategy described here is what has been done in a similarly designed study (DeJesus, Rhodes, & Kinzler, 2012).

Scores on the reverse resource allocation task were significantly correlated with scores on the collaborative potential task, $r = .45$, $p = .005$, and the helping potential task, $r = .42$, $p = .008$. The collaborative potential task was also significantly correlated with the helping potential task, $r = .55$, $p < .001$. An internal consistency analysis was conducted on the three cooperative potential tasks and revealed a Chronbach's alpha of $\alpha = .73$. According to George and Mallery (2003), this value should be interpreted as an acceptable internal consistency score. While it isn't a particularly strong relationship, the three tasks did interrelate in a manner that is consistent with the assumption that these three tasks are tapping into the same underlying concept.

Social Preference

A paired samples t -test revealed that participants' social preferences did not differ as a function of the speaker's sex ($M_{\text{Male}} = .56$, $M_{\text{Female}} = .46$), $t(38) = -.892$, $p = .38$. For this reason, responses for the male and female trials were once again summed together. A one sample t -test

was conducted on the summed trials to compare participants' mean responses to chance. Responses were coded in the same way as the cooperative potential tasks, so chance was once again set to 1. Results showed that participants' responses did not differ from chance, indicating that they did not display a preference for the speakers of either accent ($M = 1.03$), $t(38) = .227$, $p = .82$. Furthermore, performance on the social preference task did not significantly correlate with the reverse resource allocation task, $r = .09$, $p = .58$; the collaborative potential task, $r = .12$, $p = .47$; nor the helping potential task, $r = -.05$, $p = .78$.

Resource Allocation

For this task, two of the participants were removed from the analysis, one due to experimenter error and the second because the participant refused to distribute all seven stickers. A paired samples t -test determined that participants' resource allocation did not differ in response to the speaker's sex for the regional accent trials nor for the German accent trials ($M_{\text{RegMale}} = 3.73$, $M_{\text{RegFemale}} = 3.68$), $t(36) = -.247$, $p = .81$; ($M_{\text{GerMale}} = 3.27$, $M_{\text{GerFemale}} = 3.32$), $t(36) = .247$, $p = .81$. For this reason, the male and female resource allocation trials for each accent were summed together. A second paired samples t -test revealed that while approaching statistical significance, participants did not allocate more stickers to the regional accented speakers ($M = 7.41$) than the German accented speakers ($M = 6.54$), $t(36) = 1.75$, $p = .09$. In addition, neither the mean number of stickers allocated to the regional accented speaker, $t(36) = 1.63$, $p = .11$, nor the mean number of stickers allocated to the German accented speaker differed significantly from chance, $t(36) = -1.61$, $p = .07$.

The number of stickers allocated to the regional accented speakers did not correlate significantly with any of the cooperative potential tasks nor the social preference task. The number of stickers allocated to the German accented speakers was significantly inversely

correlated with the reverse resource allocation task, $r = -.37$, $p = .025$, but was not significantly correlated with the other two cooperative potential tasks, nor the social preference task. This finding indicates that the children who believed that the regional speakers were more likely to share their cookies distributed fewer stickers to the German accented speakers.

Effects of the Order of Presentation

Independent samples t -tests were conducted to determine if any of the trials differed significantly as a function of the two orders in which the tasks and trials were presented. These analyses revealed that all three of the cooperative potential trials and the social preference trial with female speakers differed significantly by order of presentation. The mean responses for the female reverse resource allocation trial ($M_1 = .32$, $M_2 = .70$) differed significantly by the order of presentation, $t(37) = -2.53$, $p = .016$, as did the female cooperative potential trial ($M_1 = .37$, $M_2 = .85$), $t(37) = -3.46$, $p = .001$, the female helping potential trial ($M_1 = .32$, $M_2 = .75$), $t(37) = -2.94$, $p = .006$, and the female social preference trial ($M_1 = .74$, $M_2 = .2$), $t(37) = 3.89$, $p < .001$.

In a series of follow-up analyses, one-sample t -tests were conducted on the aforementioned trials in order 1 and in order 2, separately. Responses for each trial were coded as a 0 if the participant chose the German accented speaker or a 1 if the participant chose the regional accented speaker. As such, chance was set to .5.

In order 1, all three of the female-voiced cooperative potential trials showed a non-significant trend toward favoring the German accented speaker, ($M_{RRA} = .32$), $t(18) = -1.68$, $p = .11$; ($M_{CP} = .37$), $t(18) = -1.16$, $p = .262$; ($M_{HP} = .32$), $t(18) = -1.68$, $p = .11$. In order 1, children chose the regional accented female-voiced cartoon on the social preference trial ($M = .74$) significantly more often than chance, $t(18) = 2.82$, $p = .035$.

In order 2, the opposite pattern appeared for all four trials. For the female-voiced reverse resource allocation trial ($M = .70$), children's responses were trending toward a preference for the regional accented speaker, $t(19) = 1.90, p = .072$. Children chose the regional accented speaker on the female-voiced collaborative potential trial ($M = .85$) significantly more often than chance, $t(19) = 4.27, p < .001$, as well as on the female-voiced helping potential trial ($M = .75$), $t(19) = 2.52, p = .021$. Children chose the German accented speaker on the female-voiced social preference trial ($M = .20$) significantly more often than chance, $t(19) = -3.27, p = .004$. These results indicate an opposite pattern of responding on these trials for participants in order 1 compared to participants in order 2. A possible explanation for these findings is explored in the following section of this paper.

IV. Discussion

Over the last decade, numerous studies have shown that 5- and 6-year-old children make social judgments (e.g. friendship selections, whom to trust, and to whom to give resources) based on language and accent. One theory hypothesizes that this preference to favor individuals who speak like us stems from our evolutionary history, during which accent and other language variations would have been strong, salient cues to group membership, and thus, cooperative potential. The current study aimed to test this theory by determining if 5- and 6-year-old children use the accent with which another person speaks to make judgements about that individual's potential to cooperate with them.

Three tasks were designed to examine three aspects of cooperative potential. The first task examined who children believed would share resources with them, the second task examined with whom children preferred to collaborate and share earned resources, and the third examined who children believed were more likely to offer them help. Additionally, this study

aimed to replicate the robust finding that children display social preferences for native-accented speakers and determine if these novel cooperative potential tasks would correlate with the social preference measure. Finally, this study aimed to determine if children's perceptions of cooperative potential correlated with their own cooperative behavior during a resource allocation task.

Contrary to my hypotheses, on two of the cooperative potential tasks, 5- and 6-year-olds did not choose the regional accented speakers as being more likely to share a resource with them nor more likely to help them. The participants did, however, display a preference for the regional accented speakers when determining with whom to collaborate and share earned resources. These results suggest that the children in this study did not use accent to determine the likelihood of cooperative behavior in terms of one's likelihood to share resources and one's likelihood to offer help; however, children may use accent when making a decision about with whom to collaborate, particularly when an earned resource would need to be distributed between collaborators.

It may be that accent only serves as a cue for one aspect of cooperative potential, that is, when concerns for egalitarian distribution of earned resources are present following collaborative effort, and not for the other two hypothesized aspects of cooperative potential, which concern sharing of resources or receiving help when you have fallen. As discussed earlier in this paper, children behave in a more egalitarian manner when distributing resources to an in-group member over an out-group member (Corbit et al., 2017). Perhaps children are more likely to expect egalitarian behavior following collaboration with in-group members than with out-group members. Additionally, research has indicated that as children age and gain more experience with accented speech, their ability to differentiate between accents increases (Cohen & Haun,

2013; Creel, 2018; Wagner et al, 2014). Perhaps, evolutionarily, there is a mechanism for using accent to determine cooperative potential, but this mechanism is dependent on experience with accented speech.

To the best of my knowledge, this was the first study to experimentally test the predictions generated by this theory, and more research is needed to make any broad conclusions. Future research may want to focus specifically on examining the different aspects of cooperative potential in isolation, developing a different methodological paradigm, maybe one in which children actually participate in a collaborative game, and on using older children, or children with a great deal of exposure to a variety of accented speech as participants, as they may be better able to discriminate between differing accents.

Surprisingly, and contrary to the current hypothesis and prior research findings, the 5- and 6-year-old participants in this study did not display a social preference for the regional accented speakers compared to the German accented speakers. Similarly, participants in this study did not allocate more stickers to the regional accented speakers compared to the German accented speakers. The results of these tasks provide some doubt into the robustness of children's native-accent bias.

There are a few possible reasons as to why children in this study did not display a native-accent bias, as they have in numerous studies to date. This was the first study on children's accent-based social preferences, to my knowledge, to use a German accent as the comparison accent. Most of the research done prior to this study has used French or East Asian accents as the foreign accent comparisons, or has used English accents as a regional accent comparison to an American accent, which serves as the native accent for the American samples. It is possible that there was something different about the German accents used in this study that have impacted

the results and decreased the likelihood of the native-accent bias. For example, it is possible that a German accent sounds more similar to an American accent than does a French accent. Some research indicates that children struggle to differentiate between some accents (Cohen & Haun, 2013; Wagner et al, 2014). Perhaps children in this study were unable to differentiate the German accents from the regional accents. Future research may benefit by utilizing a manipulation check to ensure that children are able to discriminate between the accents present in the study.

Similarly, the strength of the accent of the speakers recruited to record the German accented stimuli may have been more subtle than the accents of the speakers used in the previous research on children's language-based social preferences. This brings up an interesting question: how much does the strength of one's accent contribute to children's accent-based social preferences? Individuals who speak with an accent vary in how strong that accent sounds to native speakers. Research has not yet examined how the strength of one's accent influences the native-accent bias. One explanation for the existence of the native-accent bias may have to do with the ease of processing heuristic, which indicates that we prefer things that are easier for us to process cognitively (e.g., Schwarz et al, 1991; Winkielman & Cacioppo, 2001). Listening to and trying to understand individuals who speak with stronger accents may be more cognitively taxing, which may be a reason why children prefer others who speak with native accents. It is possible that the German accents used in this study were easier for children to process than the accented speech used in previous research.

Finally, the number of stickers allocated to the German accented speakers was significantly inversely correlated with the reverse resource allocation task. This finding indicates that the children who believed that the regional speakers were more likely than the German

accented speakers to share their cookies distributed fewer stickers to the German accented speakers. A study by Renno and Shutts (2015) found that white participants gave more coins to same-gender and same-race peers, and that favoring these in-group members was correlated with participants' expectations of prosocial behavior from members of their in-groups. The finding in the current study lends some additional evidence to the idea that children's own cooperative behavior is related to their perception of the likelihood of cooperative behavior in return.

V. Limitations and Conclusions

There are several limitations to this study that may have influenced the results. To the best of my knowledge, this was the first study to use avatar-like cartoons as stimuli instead of images of real children or adults while testing children's language-based inferences and decision making. This decision to use these stimuli was made for two reasons. The first reason was that although it is easier to record adult than child voice stimuli, it seems strange to ask children to make a decision about with whom they'd rather play when choosing between adult faces. Thus, it is reasonable to ask whether the results of studies that use adult faces for children's social preference judgments are ecologically valid. While attempting to correct this by using stimuli that the children may have been more familiar with in terms of play, the use of cartoon stimuli may have somehow changed the dynamic of the experiment and, hence, children's responses.

The second reason for using cartoon faces over real faces is that it is easier to control the physical similarities and differences within each pair of faces; however, one potential reason why there were significant differences between the two orders of presentation for the female-voiced stimuli may have been because children found one cartoon face more attractive than the other within the pair, and this preference for physical appearance was stronger than any preference that may have existed for the native accents. While the cartoon faces within each pair had the same

base characteristics, it is possible that children viewed one face as more attractive. Future research using cartoon faces should assess the attractiveness of each face within a pair to ensure that they are roughly equal in attractiveness.

This finding calls into question the strength of the native-accent bias, as physical attractiveness, a variable that hasn't been examined to my knowledge within the accent preference literature, may have a stronger influence on children's social preferences, particularly for female speakers, than in-group cues, like accent. Interestingly, many of the studies published on children's native accent bias do not report the effect sizes for their results. The few that do report either very large effects ($d = .9$ or higher) or more moderate effects ($d = .5 - .7$) (Myers-Burg, 2020). It is possible that those studies that do not report effect sizes have found smaller effects with their samples.

An alternate explanation for the order effects is that children were displaying a primacy bias for the first speaker they heard or a left-side bias for the speaker presented on the left side of the screen. Indeed, in three of the four tasks that showed an effect of the order of presentation, the individual chosen was displayed on the left side of the screen and was the first individual to speak within a pair. This explanation is unlikely, however, due to the fact that these same effects of order were not seen in the male-voiced trials. If children were displaying a primacy bias or left-side bias, then these biases should have been present across all eight trials, regardless of the sex of the speakers within the trial, and they were not. This provides some supporting evidence that children's choices were based on some feature of the cartoon image (such as attractiveness), which was the only other variable that remained constant within each trial between both orders of presentation.

This finding brings up an interesting question that needs to be examined in future

research on children's language-based preferences: To what extent does the gender of the speaker play a role in children's social preferences based on language and accent? The results of this study would suggest that accent is a stronger factor on which to base social judgments for male speakers and a less important factor on which to base social judgments for female speakers for whom other cues, such as physical attractiveness, may be more important. There is some evidence that shows that accent may only guide social decisions in the absence of other pertinent information (e.g., who is nice and who is mean) (Kinzler & DeJesus, 2013). Additionally, much research has examined the halo effect, which occurs when an individual who possesses one positive quality (e.g. physical attractiveness) is believed to possess additional positive qualities as well (e.g. Dion, Berscheid, & Walster, 1972; Forgas, 2011; Zebrowitz & Franklin, 2014). Perhaps the native-accent bias is less likely to occur when the accented speaker is attractive.

Based on the results of the current study, accent may not serve as an evolutionary cue for all aspects of cooperative potential. It may be a stronger cue when determining who to choose as a collaborator when resources earned through the collaborative effort will need to be distributed. In addition, children's own cooperative behavior may be related to their expectations of the likelihood of receiving cooperation in return. However, due to the limitations described earlier in this section, more research is needed to further examine the predictions generated by this theory.

Additionally, this study did not contribute to the growing body of research indicating that children display strong preferences for other individuals who speak with the same accent that they do, providing some doubt into the robustness of this finding. Additional research is necessary to determine which factors are important in overriding the native-accent bias, such as physical attractiveness and the strength of one's accent, and to determine how the native-accent bias differs for male and female speakers.

VI. References

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VII. Appendices

A. Table 1

Means and standard deviations for the male-voiced, female-voiced, and summed trials of the three cooperative potential tasks and the social preference task

	Male Speakers		Female Speakers		Summed	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
RRA	.44	.50	.51	.50	.95	.83
CP	.69	.47	.62	.49	1.31	.83
HP	.49	.51	.54	.51	1.03	.84
SP	.56	.50	.46	.51	1.03	.71

Note. The reverse resource allocation task has been abbreviated to RRA, the collaborative potential task has been abbreviated to CP, the helping potential task has been abbreviated to HP, and the social preference task has been abbreviated to SP.

B. Table 2

Means and standard deviations for the male- and female-voiced and the summed trials of the resource allocation task

	English Speakers						German Speakers					
	Male		Female		Summed		Male		Female		Summed	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Resource Allocation	3.73	.77	3.68	1.20	7.41	1.52	3.27	.77	3.32	1.20	6.54	1.50

C. Table 3

Correlations for the three summed cooperative potential tasks, the summed social preference task, and the summed resource allocation task

	RRA	CP	HP	SP	RA Regional	RA German
RRA	1	.445**	.418**	.093	.320	-.369*
CP		1	.552**	.121	.261	-.296
HP			1	-.045	.321	-.323
SP				1	.309	-.311
RA Regional					1	-.976**
RA German						1

Note. The reverse resource allocation task has been abbreviated to RRA, the collaborative potential task has been abbreviated to CP, the helping potential task has been abbreviated to HP, the social preference task has been abbreviated to SP, and the resource allocation tasks have been abbreviated to RA.

** Correlation is significant at the .01 level

* Correlation is significant at the .05 level

E. Appendix B. Consent Form

Children's Language-Based Social Preferences Word Play Extends an Invitation to Participate in Child Development Research

Principal Researcher: Rachel Stevens, M.A.

Faculty Supervisor: Dr. Douglas Behrend

Your child is invited to participate in University of Arkansas research on children's language-based social preferences. It is designed to be a fun game for children to play. This research will happen at our research lab at the University of Arkansas campus, your child's school, daycare, or afterschool program, or at a children's museum and will take approximately 30 minutes.

Your child's participation is voluntary. Please read the attached information sheet carefully before deciding whether to allow your child to participate. Please feel free to call or email Dr. Douglas Behrend, the faculty supervisor of this study, at 479-575-4256 or dbehrend@uark.edu or Rachel Stevens, the principal researcher, at 479-575-5819 or rmsteven@uark.edu. If you permit your child to participate, please fill this form out. We must also have your child's assent to participate in this study.

Compensation: \$10 for your time.

I have read the above statement and have been able to ask questions and express concerns, which have been satisfactorily responded to by the investigator. I understand the purpose of the study as well as the potential benefits and risks that are involved. I understand that participation is voluntary. I understand that significant new findings developed during this research will be shared with me and, as appropriate, my child. I understand that no rights have been waived by signing the consent form. I have been given a copy of the consent form.

Permission to Participate

Name of Child

Child's Birth Date (mm/dd/yy)

Child's Gender: _____

Child's Race/Ethnicity: _____

Is your child multilingual (please circle)? Yes No

If yes, what percent of the time do they use each language? _____

Is your child consistently exposed to English spoken with a regional or foreign accent (please circle)? Yes No
(E.g., a strong Northern or Southern accent, or someone who speaks English as a second language)

If yes, where is(are) the speaker(s) from and how often do they hear the accented speech?

Printed Name of Parent or Guardian
future research opportunities in our lab!

Parent's email (if you would like to hear about

Signature of Parent or Guardian

Date

INFORMATION ABOUT THE RESEARCH

What is the purpose of this study? The purpose of this research is to examine if children make various social preferences based on accent. Children will see a series pairings of cartoon faces presented on a computer. Each face will be linked to a short audio clip of accented English. Following each audio clip, your child will be asked to make a social judgement. There are five tasks. For the first task, they will be asked to choose the person they'd rather play with; in the second task, they will be asked to indicate on a map where they think that person lives in relation to themselves; in the third task, they will be asked to indicate the person they would prefer to learn information from (e.g., the name of a novel object); in the fourth task, they will be asked to make a judgment based social status (e.g., who has more friends or resources); and in the last task, they will be asked to make judgments of who would be more likely to help them out (e.g., by sharing a cookie, helping them clean up a mess, or acting as a partner in a competition).

What are the possible risks and discomforts? To the best of our knowledge, your child's participation is no more harmful or risky than everyday experiences. The minimal risks could be boredom with the game or concern about answering correctly.

Will my child benefit from taking part in this study? Children usually enjoy playing a stimulating and fun game one-on-one with our researchers.

What are the options if I or my child does not want to take part in the study? If you do not want your child to be in this study, you may refuse to allow him/her to participate. Your child may refuse to participate even if you give permission. If your child decides to participate and then changes his/her mind, your child may quit participating at any time. Your child will not be penalized or lose any benefits/rights if you refuse to allow participation or if your child chooses not to participate.

Does my child receive any payment or reward for taking part in this study? You and your child will receive \$10 compensation for your time.

Who will see the information my child gives and how is my child's confidentiality protected? Information from each child is combined with others in the study. When this research is shared with the scientific community, children are not identified individually. Children's information is kept on a password secured computer in a locked laboratory on the campus of the University of Arkansas. Data will be kept confidential to the extent allowed by the law and University of Arkansas policy.

Will my child and/or I know the results of the study? At the conclusion of the study you will have the right to request feedback about the results. You may contact the Principal Researcher, Dr. Doug Behrend, at 479-575-4256. You may keep this information page for your files.

What if I have questions or my child has questions? Please do not hesitate to ask any questions you have before giving permission for your child to participate.

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F. Appendix C. Sentence Stimuli

1. There is a park near the school.
2. It is nice outside today.
3. An apple is a delicious fruit.
4. French fries are made from potatoes.
5. The pilot flew the airplane.
6. Some people drink coffee in the morning.
7. They made scrambled eggs for breakfast.
8. The stars look bright in the night sky.
9. There are lots of clouds in the sky today.
10. The girl puts syrup on her pancakes.

G. Appendix D. IRB Approval Letter



To: Rachel M Stevens
 BELL 4188
From: Douglas James Adams, Chair
 IRB Committee
Date: 05/13/2019
Action: **Expedited Approval**
Action Date: 05/07/2019
Protocol #: 1902175667A001
Study Title: Children's accent-based social preferences
Expiration Date: 04/01/2020
Last Approval Date: 05/07/2019

The above-referenced protocol has been approved following expedited review by the IRB Committee that oversees research with human subjects.

If the research involves collaboration with another institution then the research cannot commence until the Committee receives written notification of approval from the collaborating institution's IRB.

It is the Principal Investigator's responsibility to obtain review and continued approval before the expiration date.

Protocols are approved for a maximum period of one year. You may not continue any research activity beyond the expiration date without Committee approval. Please submit continuation requests early enough to allow sufficient time for review. Failure to receive approval for continuation before the expiration date will result in the automatic suspension of the approval of this protocol. Information collected following suspension is unapproved research and cannot be reported or published as research data. If you do not wish continued approval, please notify the Committee of the study closure.

Adverse Events: Any serious or unexpected adverse event must be reported to the IRB Committee within 48 hours. All other adverse events should be reported within 10 working days.

Amendments: If you wish to change any aspect of this study, such as the procedures, the consent forms, study personnel, or number of participants, please submit an amendment to the IRB. All changes must be approved by the IRB Committee before they can be initiated.

You must maintain a research file for at least 3 years after completion of the study. This file should include all correspondence with the IRB Committee, original signed consent forms, and study data.

cc: Douglas A Behrend, Investigator
 Madison Rose Myers-Burg, Investigator