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# Navigating accent bias in German: children's social preferences for a second-language accent over a first-language regional accent

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Spoken language conveys rich sociolinguistic information about a speaker's language background. Previous research indicates that both monolingual and bilingual children use this information when making social decisions. They prefer local speakers whose accent or variety matches their own over speakers of foreign languages or second-language speakers. What remains unclear is how exposure to diverse linguistic communities affects children's preferences for non-local accents. This study examines social preferences for a regional and a second-language accent as a function of prior exposure to diverse accents and languages, measured on a continuous scale. German-speaking primary-school children (aged 7–10) were asked to choose stickers in a forced-choice task using animated cartoon characters. We replicated the observed social preferences for one's local accent. Interestingly, when the local accent was absent, children socially preferred a second-language accent (American) over a first-language regional accent (Bavarian), even though both accents were equally intelligible and relatively unfamiliar to the children, as determined through a sentence repetition task and a geographical classification task. Children's choices were not explained by continuous measures of accent or bilingual exposure. The results suggest a complex interaction of various factors not limited to the speakers' first- or second-language status.

## KEYWORDS

second-language/foreign accent, regional accent, social preferences, primary-school children, multilingualism, accent bias, social cognition

## 1 Introduction

Second-language (L2) varieties and first-language (L1) dialects often result in inferences about social group membership. Such inferences have been associated with negative consequences for various sociolinguistic and social phenomena, including bias and unfavorable evaluations (e.g., [Gluszek and Dovidio, 2010](#); [Lippi-Green, 2012](#); [Fiedler et al., 2019](#); [Hanulíková, 2019, 2021](#)). Previous research has consistently shown that monolingual children exhibit social preferences for novel speakers of their L1 or local variety over novel speakers of other languages or regional/learner varieties ([Kinzler et al., 2007, 2009, 2011](#); [DeJesus et al., 2017](#)). In addition, children prefer listening to speech that is similar to that of their caregivers, and they also show preferences for peers with similar regional accents over L2 accents ([Weatherhead et al., 2019](#)). These preferences have been observed across diverse developmental stages, and have been applied to bilingual and bidialectal contexts ([Kinzler et al., 2012](#); [Byers-Heinlein et al., 2017](#)).

Children exposed to diverse linguistic environments navigate membership in diverse in-groups, offering a unique perspective on language- and accent-based preferences. Studies exploring language preferences in multilingual contexts indicate that bilingual children may identify with multiple linguistic groups (Reizábal et al., 2004; Wright and Bougie, 2007; Kinzler et al., 2012; Howard et al., 2015; Byers-Heinlein et al., 2017), but exposure to multiple languages or varieties does not necessarily make children more tolerant of linguistic differences (Souza et al., 2013; Paquette-Smith et al., 2019). For instance, Xhosa-speaking children (aged 5–11) in the multilingual context of South Africa preferred speakers of Xhosa over speakers of a foreign language (French; Kinzler et al., 2012). However, those children attending school in English showed social preferences for English over Xhosa, suggesting that social prestige and higher status associated with English co-determine social preferences. Similarly, Souza et al. (2013) compared monolingual and bilingual preschoolers' social preferences for speakers with unfamiliar foreign accents and found—for both groups—preferences for the L1 accent over an unfamiliar L2 accent. Finally, Byers-Heinlein et al. (2017) suggest that bilingual preschoolers vary with respect to their preferences as a result of intersecting factors including the status of the language within the speech community. Children's social environments, including exposure to diverse linguistic communities, can thus shape their preferences. They may develop preferences for accents associated with their local community or groups they identify with, and the acceptance or rejection of others based on accent can impact social dynamics. More recently, a meta-analysis involving 2,680 children from early infancy to 7 years of age revealed consistent preferences for L1 accents, dialects, and languages as opposed to L2 counterparts (Spence et al., 2021). Notably, bilingual children exhibited similar preferences to monolinguals, but the magnitude was somewhat stronger for bilingual children. Furthermore, accents exerted a more pronounced impact on social preferences than dialects and language. Factors such as cultural background, exposure to L2-accented speech, age, and preference measures did not significantly influence the outcomes. If anything, there was only a weak trend for stronger bias among children with more L2-accent exposure. This would suggest that bilingual children and possibly also children with frequent exposure to L2 accents show enhanced perceptual skills to detect subtle phonetic information marking in-group and out-group membership (Spence et al., 2021).

Taking together, the findings underscore the need for a nuanced understanding of how linguistic and social factors intersect in shaping early developmental social biases and preferences. While the existing body of research has explored various aspects of social preferences, there appears to be a limited focus on investigations into the factors influencing social preferences for children above 7 years of age. Social preferences for unfamiliar accents may change with age because the ability to comprehend unfamiliar accents continues to develop across the lifespan (Nathan et al., 1998; Bent, 2018; Hanulíková, 2021). In addition, the existing research often overlooks examining both bilingualism and exposure to L1 regional and L2 speech. When these factors are addressed, they tend to be treated in a binary fashion. However, monolinguals and bilinguals do not constitute homogeneous groups, and studies often use very

disparate criteria to define bilinguals. An alternative approach is the use of continuous measures for both exposure to bilingual input and to L1 regional and L2 varieties (e.g., Porretta et al., 2016; De Bruin, 2019; Levy and Hanulíková, 2019, 2023; Levy et al., 2019). The aim of this study was to address this gap and to further explore accent-based social preferences among monolingual and bilingual primary-school children, specifically examining (a) L1 regional and L2 accents of German, and (b) the influence of experience with diverse languages and accented speech. Moving away from a binary classification of children as monolinguals vs. bilinguals, our study adopts a continuous measurement approach to assess active bilingualism and exposure to diverse accents. Employing a forced-choice task, a method similar to the studies reviewed above, we asked primary-school children to choose from which of two speakers they would like a sticker. We measured their preference for speakers of familiar local vs. relatively unfamiliar L2/regional accents, and we assessed their preference for an unfamiliar L2 accent vs. an unfamiliar L1 regional accent. Based on previous findings (Paquette-Smith et al., 2019; Weatherhead et al., 2019; Spence et al., 2021), we hypothesized that children would prefer the familiar local accent (Freiburg) over a relatively unfamiliar regional (Bavarian) or L2 accent (American). We also hypothesized that children would prefer an L1 regional accent over an L2 accent. Furthermore, we predicted that social preferences are modulated by experiential factors such that preferences for the local accent increase among children with more exposure to accented speech and other languages.

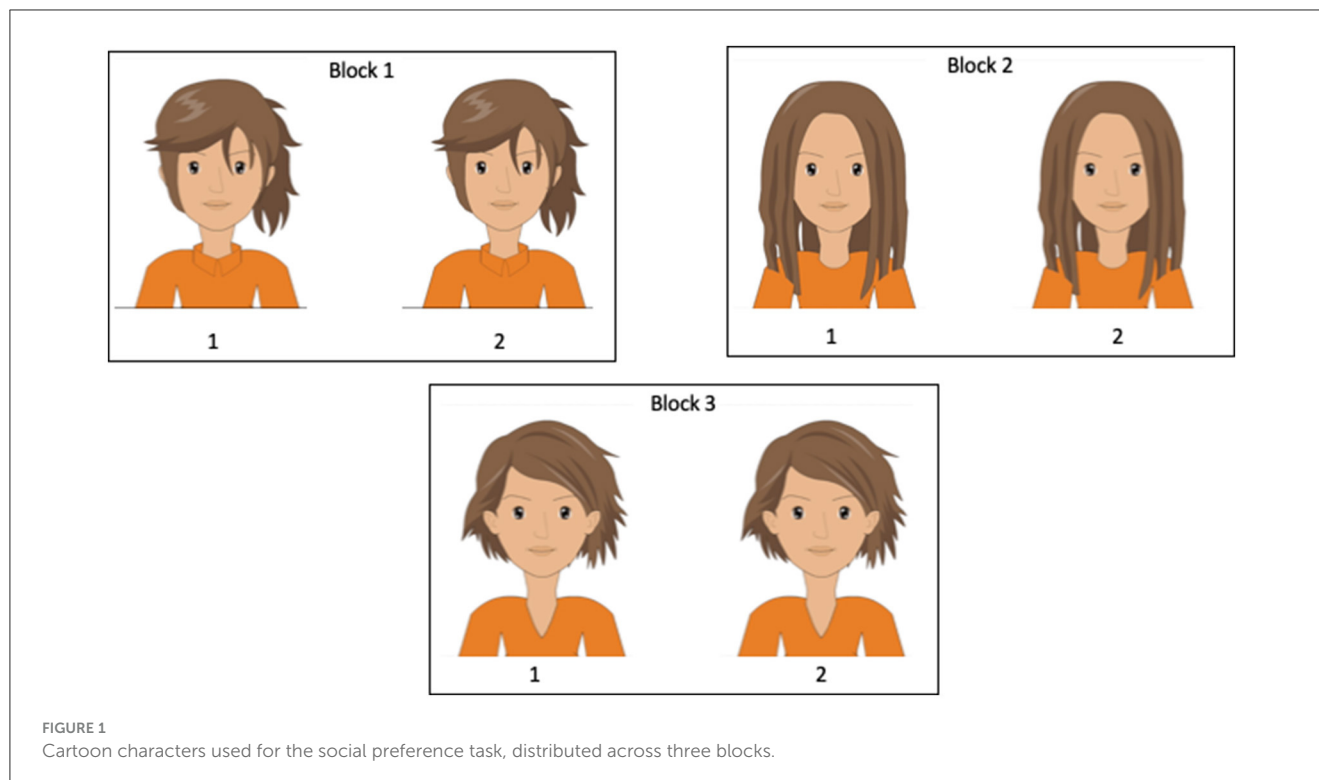
## 2 Methods

### 2.1 Participants

Participants included 35 German-speaking children (16 girls, 19 boys, *Age* 9 years, *sd* = 1, range 7–10) with no articulation or hearing disorders. The data were collected for a subset of children that participated in a different project not reported here (for more details, see Levy and Hanulíková, 2023). The group consisted of 12 monolinguals (*Age* = 8 years 7 months, *sd* = 1 year 1 month) and 23 bilinguals (*Age* 9.2, *sd* = 1) according to their reported ability to understand a language other than German. The age of acquisition of German for bilinguals ranged from 0 to 7 years. On average, children who were not born in Germany have been living there for 4.2 years (range 1.6–6.2). Bilingual children had diverse language backgrounds, including Arabic (5), Kurdish (3), Tamil (3), Turkish (3), English (2), and one each for Albanian, Croatian, Italian, Russian, Spanish, Persian, and Ingush. Each child received a €5 voucher.

### 2.2 Materials and procedure

Children were presented on a laptop with eight social preference trials in a block, using a similar design as Kinzler et al. (2009). In each trial within a block, children saw two identical animated cartoon characters and listened to two corresponding voice clips, each played after each other. Each block contained



the same characters, but the characters differed across the three blocks (see Figure 1). After two distinct voice clips were played in a trial, the experimenter asked children to choose from which of the two speakers they would like a sticker. Children responded by pointing to one of the two characters. There were three blocks each representing a specific accent-pair condition, with each accent being represented by two speakers. In condition 1, the voice clips featured an unfamiliar regional (Bavarian) accent and a familiar local (Freiburg) accent. In condition 2, children heard the local accent and an unfamiliar L2 (American) accent. In condition 3, they heard the Bavarian accent and the American accent. In each block, each accent was presented by two adult speakers. The stimuli consisted of six utterances, two for each block. We used general statements used in previous studies (e.g., “*At school children learn to write,*” “*Winter is the coldest season*”) and translated them into German. Within each block, two sentences were produced by each of the four speakers and were counterbalanced with respect to speaker order. The stimuli were recorded by six female speakers living in Germany (two speakers per accent) in a quiet room at a sampling rate of 44.1 kHz and were later normalized to 70 db A. The utterances were ~2–3 s in length. The American speakers were proficient users of German and had an accent that was perceptually distinct from both the local as well as the Bavarian accent. The local speakers spoke standard German. The American and Bavarian accents are referred to as unfamiliar because we assumed that the children in this study were either not regularly exposed to or not at all familiar with German spoken with an American accent or Bavarian (based on our previous studies, e.g., Levy and Hanulíková, 2019; Levy et al., 2019; Hanulíková, 2021). Despite English’s global spread, it is reasonable to assume that a child who is not proficient in English would not know how an American accent

sounds in German. The term “accent” refers to pronunciation because none of the six speakers made changes to the syntax or vocabulary. The video clips featured three animated cartoon characters, all girls with a positive emotional expression (generated via Pixton at pixton.com, see Figure 1). The pre-recorded sentences were embedded in these clips using iMovie software. There were six experimental lists, counterbalancing the experimental blocks, speaker order, and cartoon characters.

Upon completion of the social preference task, a subset of children participated in two further control tasks, the order of which was counterbalanced across the experimental lists. A total of 16 children (nine bilinguals and seven monolinguals) completed an intelligibility task. They were asked to repeat two semantically unpredictable utterances for each of the six speakers (e.g., “*The big cup praises the sea,*” “*The angry horse is writing in green,*” “*A strange traffic light is knitting,*” “*A king is pointing to the school*”), with each speaker presenting a different pair of two sentences within a list. Sentences were counterbalanced such that each speaker produced each sentence and each speaker appeared in the first trial and last trial equally across experimental lists. In the other task, 22 children (15 bilinguals and seven monolinguals, with one additional monolingual excluded for not completing the task) listened to one of the sentences from the social preference task (e.g., “*In autumn, the leaves change their color*”) and classified the geographic background of the speakers. They chose from the following categories: the speaker is from here (Freiburg), from another part of Germany, from another country. Children were tested individually in a quiet room in their primary school.

Children’s language experience was assessed via a parental and teachers’ questionnaire in order to calculate each child’s weekly exposure to regionally accented German, foreign-accented

TABLE 1 Mean (standard deviations, sd, in brackets), and range of experience with other languages than German, regional varieties and foreign accents for monolinguals and bilinguals (in % of weekly exposure).

Group	Regional accents		L2 accents		Other languages	
	Mean (sd)	Range	Mean (sd)	Range	Mean (sd)	Range
Bilingual	7.96 (8.6)	0–37.4	8.6 (10.9)	0.2–35.8	46.4 (15.7)	19.4–68.97
Monolingual	20.5 (16.6)	0–50	3.3 (4.13)	0.3–14.6	2.3 (6.2)	0–22.4

German, and languages other than German. We computed a weekly percentage value by determining the number of hours each child spent with different accents and different languages in a regular week, expressing it as a percentage of their total waking hours (for more details, see Levy and Hanulíková, 2023). Table 1 provides a descriptive summary of the weekly exposure.

## 2.3 Statistical analysis

Children's responses were coded in a binary fashion. Performance in each of the three conditions was compared to chance using a generalized linear mixed-effects regression (glmer, implemented in R package lme4, Bates et al., 2019) with a binomial distribution. Speaker preference was the dependent variable. Random intercepts for participants were included. For each condition, an intercept model was set up to test whether the preference for one speaker over another differed from chance level. In a logistic regression, a significant intercept indicates that the estimated value differs from equal outcome group probabilities. Each control predictor was then added separately and compared to the intercept model. All continuous control variables were scaled and centered. The following control variables were considered: experience with foreign accents, experience with regional accents, experience with other languages than German, age, and gender. Since none of these variables improved the model fit, they were excluded from the final models. From the original 840 observations across the three conditions, 12 trials were excluded due to failure to select a speaker (1.4% of all data points). For the intelligibility task, the dependent variable was coded in a binary fashion as correct or incorrect repetition of a word. Random intercepts for participants and items were included.

## 3 Results

Figure 2 provides a descriptive summary of the social preferences. Children were significantly above chance level to take a sticker from the Freiburg speakers than the Bavarian speakers [ $M = 82.5\%$ ,  $b = -1.99$ ,  $SE = 0.31$ ,  $z = -6.37$ ,  $p < 0.001$ ]. Upon closer examination of individual endorsement preferences, 29 out of the 35 children favored the local speakers more than 50% of the time, with only five children endorsing the two types of speakers equally often and one child displaying a preference for the Bavarian accent. Similarly, when presented with a choice between the local speakers and the American speakers, children significantly preferred stickers from the local speakers [ $M = 77.6\%$ ,  $b = -1.38$ ,  $SE = 0.21$ ,  $z = -6.62$ ,  $p < 0.001$ ]. Among the 35 children, 30 endorsed the local speakers more than 50% of the

time, with only three children endorsing the two types of speakers equally often, and two children preferring the American speakers most often. Interestingly, children were significantly more likely than chance to endorse the American speakers over the Bavarian speakers [ $M = 61.4\%$ ,  $b = -0.74$ ,  $SE = 0.32$ ,  $z = -2.28$ ,  $p = 0.022$ ]. Among the 35 children, 18 endorsed the American speakers more often, seven children endorsed the two types of speakers equally often, and 10 children preferred the Bavarian accent most often. None of the control variables improved the model fit, indicating that the observed social preferences in this group of children were not influenced by factors such as experience with accented speech or bilingualism. To further explore preferences across the six speakers, endorsement rates were collapsed over all three conditions (Figure 3), revealing that both Freiburg speakers were endorsed most frequently (27.6 and 26.4%), followed by the two American speakers (14.9 and 12.6%) and Bavarian speakers (10.3 and 8.12%).

To assess whether the results could be explained by differences in intelligibility of each accent and speaker, the proportions of correctly repeated words across 12 sentences were calculated. Descriptively, overall accuracy was higher for the familiar Freiburg accent (98.2%, range 97.2–99.1) compared to the American (93.8%, range 90.2–97.3) and Bavarian (93%, range 90.8–95.2) accents. The model confirmed higher intelligibility for the familiar accent than both the American accent [ $b = -1.42$ ,  $SE = 0.61$ ,  $z = -2.32$ ,  $p = 0.02$ ] and the Bavarian accent [ $b = -1.40$ ,  $SE = 0.60$ ,  $z = -2.33$ ,  $p = 0.02$ ]. No difference was observed between the two unfamiliar accents ( $p > 0.9$ ).

To assess familiarity with the accents, children were asked to classify each speaker's origin—whether the speaker was from here (from Freiburg), another part of Germany, or another country. If a child chose another country, in which German is one of the official languages, it was treated as a classification of another L1 regional variety. Children demonstrated high accuracy in classifying the two local speakers (82 and 86%, respectively). The regional and L2 speakers were classified as non-local with accuracy ranging from 82 to 87%. However, children exhibited relatively low accuracy in identifying the regional speakers (41 and 45%, respectively) or L2 speakers (32 and 50%, respectively), indicating limited familiarity with the L2 accent and the regional variety.

## 4 Discussion

Numerous studies have consistently demonstrated that both monolingual and bilingual children exhibit preferences for speakers who share their language or accent, as opposed to those speaking a foreign language or a L2 accent (Kinzler et al., 2007, 2009, 2011; Souza et al., 2013; DeJesus et al., 2017; Spence et al., 2021). The

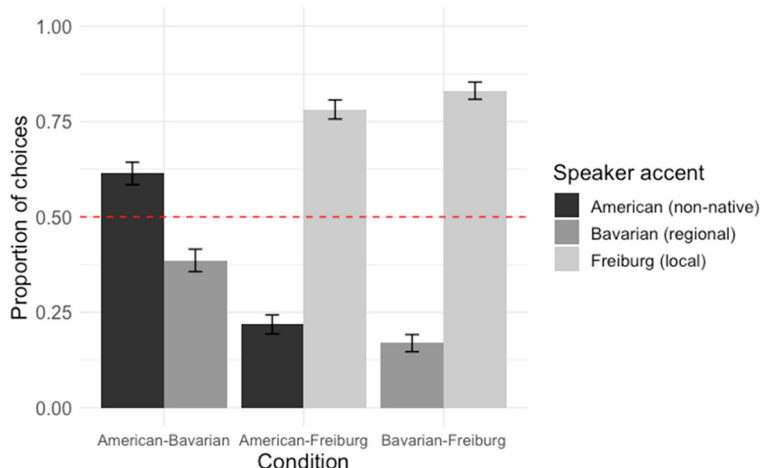


FIGURE 2 Proportion of trials on which children endorsed one over the other accent within condition. The red line indicates chance level.

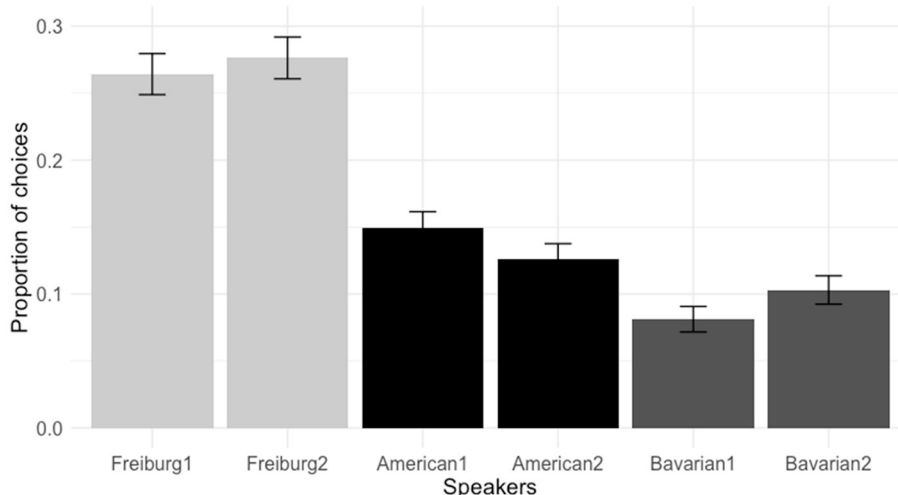


FIGURE 3 Proportion of endorsements for each speaker collapsed over all conditions.

aim of the present study was to examine accent-based preferences among bilingual and monolingual primary-school children in Germany and to extend the existing research to older children and unfamiliar regional and L2 accents of German. Because only a few studies examined the extent to which environmental factors affect linguistically-based social preferences, this study considered factors related to children’s weekly experience with diverse languages and diverse accents using a continuous measurement.

The results align with the existing literature, indicating that children exhibit social preferences (i.e., by accepting a sticker) for speakers of their local variety compared to a L2 accent or to a non-local regional variety. All children showed similar preferences, irrespective of their exposure to other varieties or languages. In contrast to previous studies, children also showed an unexpected preference for American-accented German (L2 accent) over Bavarian-accented German (L1 regional accent). This preference cannot be attributed to differences in

speaker intelligibility, as accent did not significantly impact sentence repetition performance. Furthermore, the influence of familiarity, social prestige, or status associated with English-speaking individuals on children’s choices (as observed in Kinzler et al., 2012) seems limited, considering the low classification accuracy of the speakers. It appears that the ability to geographically classify speakers is still developing in this group of children, suggesting that social preferences are probably shaped by cues other than broad group membership (such as L1 vs. L2). Future studies may consider additional accents with varying degrees of familiarity and/or perceived prestige.

An alternative explanation pertains to the acoustic and perceptual cues of the accents themselves. Several studies have demonstrated that factors such as familiarity, listening effort, and pronunciation distance can influence how individuals, including children, respond to L2 accents and regional varieties (Van Engen and Peelle, 2014; Bent, 2018; Hanulíková, 2019, 2021; Levy et al.,

2019; Weatherhead et al., 2019; Bent et al., 2021). Listening effort is associated with varying processing load for different degrees of acoustic mismatch between speech produced by a speaker and a listener's variety (Van Engen and Peelle, 2014). Levy et al. (2019) used Levenshtein distance to measure such mismatches, revealing that children may face greater difficulties identifying words in an unfamiliar L1 regional accent than a L2 accent. These effects of pronunciation distance have been replicated and extended to other L1 and L2 varieties (Bent et al., 2021; Hanulíková, 2021), challenging the widespread view that L1 speech is generally more intelligible, cognitively less effortful, and socially more preferred than L2 speech. Moreover, Weatherhead et al. (2019) underscore the role of prosodic patterns that can affect preference judgments. Indeed, upon inspection and descriptive evaluation of the recordings by three trained research assistants, the intonation and reduction patterns of the American speakers seemed closer to Standard German than those of the Bavarian speakers (similar to Levy et al., 2019). This perceived similarity might have increased social preferences for the American speakers over Bavarian speakers, which is in contrast to what we expected based on previous studies (e.g., Paquette-Smith et al., 2019; Weatherhead et al., 2019; Spence et al., 2021). This calls for further research to examine the conditions under which L1 regional and L2 accents are perceived as perceptually closer to one's own speech. Future research could delve into these factors, exploring the role of pronunciation distance between the listener's and the speakers' accents, as well as varying degrees of perceived social prestige, to better understand the nuanced mechanisms influencing social preferences for unfamiliar L2 speech and unfamiliar regional speech.

In contrast to our prediction, children's prior experience with accented speech and bilingualism did not shape their social preferences. This result is in line with findings from several studies (e.g., Souza et al., 2013; Spence et al., 2021) but contradicts others suggesting that bilingual children's language- and accent-based social preferences can be influenced by factors such as the social prestige and higher status associated with certain languages (Kinzler et al., 2012), or by in-group/out-group dynamics within a bilingual speech community (Byers-Heinlein et al., 2017; Spence et al., 2021). It is worth noting that most of these studies treat bilingualism or exposure to L2 speech categorically and consider only one of these two factors (Spence et al., 2021). The present study employed a continuous measurement of bilingualism and exposure to diverse L1/L2 accents. Explorative analyses with a binary variable (monolingual vs. bilingual) did not reveal an effect of bilingualism either, though it should be pointed out that the monolingual sample was fairly small. The highly heterogeneous backgrounds of children in our sample may have increased variability in how they responded to unfamiliar accents. Additionally, the pronunciation distance between different languages and accents of the speaker and listener varies, which could limit general conclusions. This limitation should be addressed in future studies by increasing the sample. Furthermore, it would be interesting to compare different age groups, because processing of unfamiliar accents continuously develops across the lifespan (Nathan et al., 1998; Bent, 2018; Hanulíková, 2021), and experience with other languages as well as accented speech shape this process (Levy et al., 2019). Children's social environments, including exposure to diverse

linguistic communities, might nevertheless shape their preferences for unfamiliar varieties that sound similar to the one they know or that simply are experienced as less effortful to listen to.

Taken together, the present results showed social preference toward the familiar over unfamiliar accent irrespective of bilingual exposure and experience with L2 accents or regional accents. Interestingly, children exhibited preference for an unfamiliar L2 accent over an unfamiliar L1 regional accent. This result adds a nuanced perspective to the existing literature on accent preferences in primary-school children, with broader implications for understanding the social acceptance of L2 and regional speakers. The findings hint at the multifaceted nature of accent-based preferences, extending beyond the simple binary of L1 and L2 distinctions and delving into the perceptual efforts associated with different varieties.

## Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

## Ethics statement

The studies involving humans were approved by Ethics Committee of the University of Freiburg (Nr. 308/19). The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

## Author contributions

AH: Writing – original draft, Writing – review & editing, Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization.

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## Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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