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# From accent to content: the effect of Spanish accents on message credibility

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The current study tested the potential effect of regional-accented speech on perceived credibility. Canarian and Madrid listeners were presented with a series of audio recordings in which speakers read out loud news items with either a Canarian or a Madrid accent, and they were tasked to rate the credibility of each news item. The within-subject manipulation of accent demonstrated a small but significant effect on credibility judgment, which was not moderated by listener's origin. Specifically, in line with socio-linguistic stereotyping, news items presented in a Canarian accent were judged as less credible on average than news items presented in a Madrid accent. These findings are discussed both within the perspective of cognitive-linguistic theory, and within a sociological perspective.

KEYWORDS

accent, credibility, linguistics, cognition, regional accent

## 1 Introduction

The ability to evaluate the credibility of information sources is as important as it is challenging, especially after the digital revolution resulting in an exponential increase in the number and type of sources (e.g., social networking sites, podcasts) where we get our information from. Such evaluations are guided not only by rational processes, but also by heuristics that are build-in to our cognitive systems (e.g., Gigerenzer and Gaissmaier, 2011). Heuristic decision-making is a fundamental aspect of human cognition, allowing people to make quick, efficient decisions in a variety of contexts. While heuristics are generally adaptive and useful for navigating complex environments with limited information, they can introduce biases and errors.

Language provides numerous heuristic cues that people (mis) use for credibility judgment towards spoken messages. One major cue may be the accent of the speaker in relation to the native accent of the listener. Research indicates that a speaker's accent may shape the level of credibility that a listener assigns to a spoken message, with (heavy) foreign accents being associated with reduced levels of credibility (e.g., Dragojevic and Giles, 2016; Evans and Michael, 2014; Hanzlíková and Skarnitzl, 2017; Lev-Ari and Keysar, 2010, 2012; but see Lorenzoni et al., 2024; Podlipský et al., 2016; Souza and Markman, 2013; Stocker, 2017; Wetzel et al., 2021).

This propensity to trust or distrust a spoken message based on accent has been attributed to several (not mutually exclusive) mechanisms. Two of these mechanisms build on social categorization processes. Hence, first, in-group favoritism is a central aspect of human cognition (Tajfel et al., 1971), and has been demonstrated not only for clear-cut societal distinctions such as religious background and political affiliation, but also for arbitrary,

superficial divisions between groups (e.g., the minimal group paradigm; Diehl, 1990; Hewstone et al., 2002; Abrams and Hogg, 1988; Otten and Moskowitz, 2000; Rubin et al., 2010; Chen and Li, 2009). Speech accent may tap into this natural tendency to favor the more similar appearing in-group members over the relatively different appearing outsiders by rapidly marking in-versus out-group status, influencing how a message is perceived regardless of its actual content or the speaker's qualifications. Below, we will refer to this impact as a bias based on *minimal-group categorization*.

Second, rather than building on mere arbitrary group divisions in general, speech accent may affect credibility judgment via experience-driven formation of group-specific stereotypes and/or stigmas. Such socio-linguistic stereotyping and stigmatization may occur based on either recent or historical socio-economical context. For example, 'standard' accents[1] may be rated more positively (and more credible) than non-standard accents (e.g., Dragojevic et al., 2013, 2021) because popular belief grants them relatively high prestige through their socio-economically dominant background. Hence, accent-driven marking of in-versus out-group may activate ingrained stereotypes and stigmas associated with groups. Below, we will refer to biases in, for example, credibility judgment arising from these ingrained stereotypes as *socio-linguistic stereotyping*.

Finally, a third mechanism builds on the effects of processing fluency, as messages that are easier to process often are evaluated more positively. One interpretation holds that (heuristic) judgment is steered not only by the actual contents of thought (e.g., stereotypes as discussed above), but also by the meta-cognitive experience of processing this content (e.g., Alter and Oppenheimer, 2009; Pearson and Dovidio, 2013). This more general mechanism (for an overview, see Alter and Oppenheimer, 2009) may be at play also for listening to speech in an accent other than your own. The increased effort for the processing of such accent may induce an overall less favorable evaluation of the speaker—which can spill over to the level of perceived credibility of the message. However, even though processing fluency was the mechanism proposed in the seminal paper on accent-based credibility biases by Lev-Ari and Keysar (2010), Lorenzoni et al. (2024) and Frances et al. (2018; Exp. 3) observed no support for the influence of processing fluency when exploring the moderation of the illusory truth paradigm by accent in order to mitigate the influences of social categorization outlined above.

The effect of accent on credibility has mostly been studied by comparing native accent to either (mild or strong) foreign accents (e.g., Dragojevic and Giles, 2016; Evans and Michael, 2014; Hanzlíková and Skarnitzl, 2017; Lev-Ari and Keysar, 2010, 2012; Souza and Markman, 2013; Stocker, 2017; Wetzel et al., 2021). Yet, even within a country, speech-driven credibility effects may be at play. Regional accents are widespread in many countries, and it is of sociological interest to determine their effects on source and message credibility. Studies on this topic are rare, and the few studies that exist, do not

provide equivocal conclusions. For example, Frances et al. (2018) compared different regional accents (i.e., local Spanish accent matching the accent of the listeners, versus a non-local Latin-American Spanish accent) and observed no differences in credibility ratings for spoken trivia statements. In contrast, Reinares-Lara et al. (2016) found that listeners rated a 20-s spoken commercial with a standard Spanish accent more credible than one with a regional Canarian accent. In line with these findings, Hendriks and Van Meurs (2022) explored the speech in vlogs by comparing a standard Dutch accent to a regional Dutch accent. Even though they did not tap into message credibility per se, they observed that the regional accent was evaluated more negatively than the standard accent for several attitudinal measures.
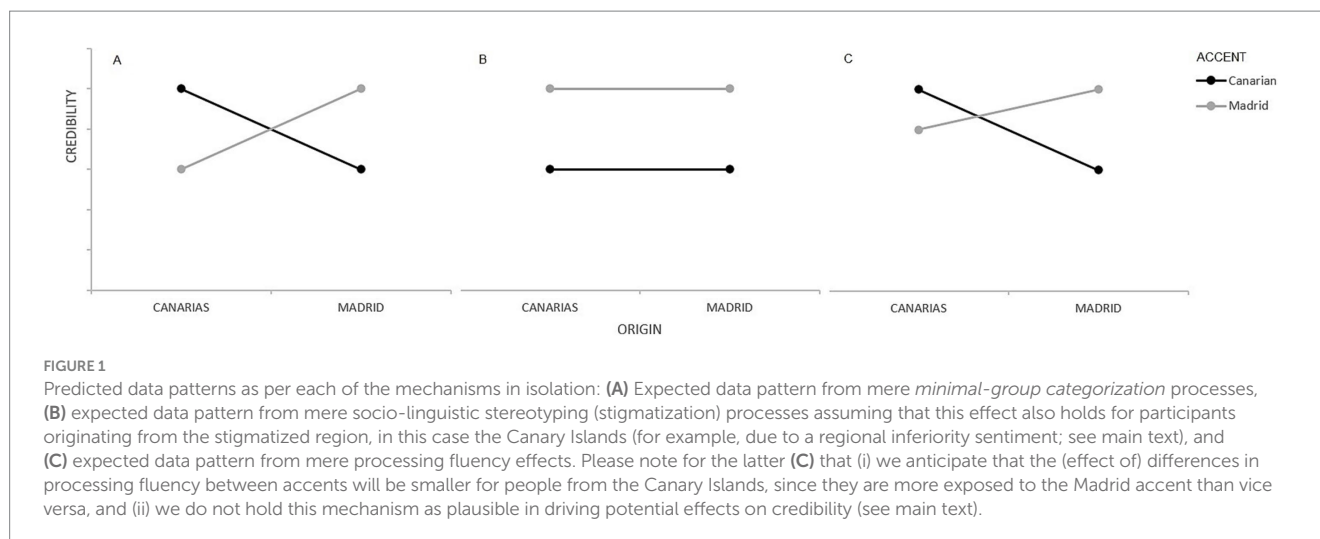
## 1.1 The current study: Canarian versus standard Spanish accent

To further contribute to the—so far not robust—empirical database about the impact of regional accent on message credibility, here we present a study in which we compare the influence of accent of spoken news items on listeners' credibility ratings of their content. Specifically, listeners from the Canary Islands or the Community of Madrid were presented with news items that were spoken out loud either in a Canarian accent, or in a standard European-Spanish accent (concretely, the Castilian variant from Madrid).[2] To the best of our knowledge, such within-subject manipulation of accent (i.e., listeners from both regions of origin are presented both with their own and the other accent) has not been done yet for regional accent effects on credibility (as the few previous studies manipulating regional accent were between-subjects studies; e.g. Frances et al., 2018; Reinares-Lara et al., 2016). Importantly, as noted by Lorenzoni et al. (2024), within-subject manipulation of accent could enhance the in-out group categorization process, thus activating more strongly any pre-existing stereotype that is present in the listener. Below we outline scenarios for the current study building on the three mechanisms outlined above. We want to make explicit, though, that these are not hypotheses; they are clarifying scenarios (with different likelihoods each; see above) for mechanisms proposed before in the relevant literature, under the assumption that a mechanism would be at play in isolation from others.

First, an isolated impact of processing fluency would predict a data pattern along the lines of what is depicted in Figure 1C. Both the Madrid participants and the participants from the Canary Islands would require more effort for the accented speech that is not their own, such that credibility would be reduced for this 'other' accent. Yet, we anticipate that the (effect of) differences in processing fluency between accents will be smaller for people from the Canary Islands, since they are more exposed to the Castilian accent than vice versa. As established by Hernández Hernández (2009), the most widespread standard in the media established in the Canary Islands is the Castilian accent, dominating radio and audiovisual communication (cf. Ojeda and Rivero, 2020). Moreover, Canarian communicators still tend to

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FIGURE 1
Predicted data patterns as per each of the mechanisms in isolation: **(A)** Expected data pattern from mere *minimal-group categorization* processes, **(B)** expected data pattern from mere socio-linguistic stereotyping (stigmatization) processes assuming that this effect also holds for participants originating from the stigmatized region, in this case the Canary Islands (for example, due to a regional inferiority sentiment; see main text), and **(C)** expected data pattern from mere processing fluency effects. Please note for the latter **(C)** that (i) we anticipate that the (effect of) differences in processing fluency between accents will be smaller for people from the Canary Islands, since they are more exposed to the Madrid accent than vice versa, and (ii) we do not hold this mechanism as plausible in driving potential effects on credibility (see main text).

imitate the Spanish standard model (Guerrero-Salazar, 2020), as using the Canarian variant remains a burden to work in the Spanish audiovisual industry (Guerrero-Salazar, 2021). Given that previous work has shown that such exposure swiftly reduces the fluency challenge and its impact (Boduch-Grabka and Lev-Ari, 2021), and given that cross-exposure is stronger for Canarian than Madrid listeners, this would anticipate a data pattern such as depicted in Figure 1C.

Yet, there are solid arguments against predicting an impact of processing fluency in the current study. Regional accents differ less from standard accents in terms of processing fluency than is the case for foreign accents (e.g., Floccia et al., 2006; Goslin et al., 2012; Brunellière and Soto-Faraco, 2013)—even though small differences in intelligibility between regional and standard accents may still occur. Indeed, unlike the (unequivocal) indications for an impact of heavy foreign accent, mild foreign accent is typically not observed to affect credibility (e.g., Lev-Ari and Keysar, 2010). If this is due to reduced differences in processing fluency (cf. Lev-Ari and Keysar, 2010), regional accents would also not be expected to drive credibility differences. Additionally, as noted above, exploring the moderation of the illusory truth paradigm by accent in order to explore processing fluency in isolation, Lorenzoni et al. (2024) and Frances et al. (2018; Exp. 3) observed no support for the influence of processing fluency.

Second, an isolated impact of minimal-group categorization would predict a data pattern along the lines of what is depicted in Figure 1A. Since previous work on regional accents did not exploit a within-subject manipulation of accent (i.e., Frances et al., 2018; Reinares-Lara et al., 2016), the effect of minimal-group categorization could not be distinguished from other impacts—such as processing fluency or socio-linguistic stereotyping. The current study is thus the first to enable exploration of this mechanism in regional accents, predicting that participants from each region (Madrid or the Canary Islands) perceive messages in their 'own' accent as more credible (Figure 1A).

Third, an isolated impact of socio-linguistic stereotyping would predict a data pattern along the lines of what is depicted in Figure 1B. The Canarian accent may be stigmatized as a lower-prestige accent than the Madrid accent, and such socio-linguistic stereotyping may spill over to message credibility judgments—negatively affecting the credibility for spoken messages with Canarian accent, independent

of the listener's origin. We believe that there are good reasons for an impact of socio-linguistic stereotyping in the current study. Since its conquest by the kingdom of Castilla in the 15th century, the political, sociocultural, and economical references of Canarias were those of the center of Spain. This centralization of the national power became even stronger with the dictatorship of Francisco Franco in the 20th century. One of the main goals of the government was to unify Spain not only in politics but also in culture. In this line, national languages other than Castilian were forbidden and accent variants from central Spanish were corrected in school and rejected in public domains. As an example, aspiring broadcaster in Canarias had to take courses to modify their accent to work in the state radio channel (Mesa, 2020). By end of the 20th century, different academic works highlighted the low self-esteem of Canarian speakers regarding their own variety of Spanish (e.g., Trujillo Carreño, 1981; Ojeda, 1981; Morera Pérez, 1990). In the last 30 years, cultural and government initiatives, as the creation of the Academia Canaria de la Lengua in 2005, have been made to change this linguistic stigmatization. Those initiatives have led to a change by Canarian speakers that have started to evaluate the Canarian variant as prestigious (Armas Marrón, 2002; Morgenthaler García, 2008). Yet, the Castilian variant remains evaluated as the most prestigious (Cestero Mancera and Paredes García, 2022), with its speakers showing a higher income, educational level, and work status (Cestero Mancera and Paredes García, 2015; Hernández Cabrera and Samper Hernández, 2018). This evaluation of status related to accent seems to be based not only on the historical relation between the two regions, but also on the current socio-economical differences existing between the Canary Islands and Madrid, with the former being both historically and currently lagging in terms of income per inhabitant, employment rate, school dropout prevention, and relative wealth (Instituto Nacional de Estadística, 2024).

Overall, as outlined above, we do not predict processing fluency to have an impact in the current study. Yet, we predict an effect of socio-linguistic stereotyping to occur not only for the participants from Madrid, but also for participants from the Canary Islands that originate from the stigmatized region. This would result in a data pattern as depicted in Figure 1B, with credibility being rated as lower for the Canarian than the Madrid accent (i.e., a main effect of accent on credibility). In a previous study, Reinares-Lara et al. (2016) observed a stigmatization effect of Canarian accent on credibility for

listeners from Madrid—but not for listeners from the Canary Islands (even though the effect was in the same direction in absolute numbers). Yet, whereas Reinares-Lara et al. (2016) employed a between-subject design, the within-subject manipulation of accent in the current study is assumed to boost the activation of stereotypes that are present in listeners from both origins, as the 'other' accent now serves as a salient reference. Besides the impact of socio-linguistic stereotyping, as a more exploratory aspect of the current study we will also analyze the impact of minimal-group categorization—which in isolation would result in a data pattern as depicted in Figure 1A (i.e., an interaction effect in which listener origin moderates the impact of accent on credibility). Please note, however, that both predicted effects can also occur in combination, in which case we would observe both a main effect of accent, and its moderation by origin of the listener.

## 2 Method

### 2.1 Design

A mixed-design experimental study was conducted with Accent (2; Canarian versus Madrid speakers) as an independent within-subjects variable, Origin (2; Canarian versus Madrid listeners) as an independent between-subjects variable, and Credibility Rating as a dependent variable.

### 2.2 Participants

Before starting the experiment, using G*Power (Faul et al., 2009) we aimed to determine the number of participants predicted to be needed for a power of 0.90 to detect either the main effect of the within-subject factor (Accent), or the interaction effect of our 2×2 mixed design. The critical alpha value was set to 0.05, the correlation among repeated measures was set to 0.50, and the nonsphericity correction was set to 1. Because of a lack of reference studies to make an informed estimation of the effect size, we calculated the number of required participants for a small-medium effect size of Cohen's $f = 0.15$. This resulted in an estimated required sample size of $n = 120$.

A total of 175 participants were recruited for the study from two Spanish universities (Atlántico Medio University in Gran Canaria, n = 90; Higher Education Center for Teaching and Educational Research of Camilo José Cela University in Madrid, n = 85). Recruitment was carried out through social media and posters in both universities' campus. All participants signed an informed consent form before taking part to the study that was approved by the Institutional Review Board of both institutions.[3] They received a payment of €8 for their participation.

Data from six participants was excluded from analyses, either because of technical malfunctioning ($n = 4$) or because the participant recognized the voice of one of the speakers ($n = 2$). Moreover, in order to have a strong manipulation of in-versus out-group speakers, two

exclusion criteria were set. First, to counter weakened sense of in-group sentiment due to acculturation, data from participants that lived outside their region of origin (i.e., Canary Islands for Canarian participants, or the autonomous community of Madrid for Madrid participants) for 5 years or more, was excluded from analyses ($n = 6$), as self-reported identification with a heritage culture may start off from 5 years of exposure (e.g., Cheung et al., 2011). Second, data from participants was excluded from analyses if a participant with Canarian origin reported to have formally resided in Madrid, or vice versa, independent of duration ($n = 4$), as this would deflate the specific in-versus out-group factor that is at the core of the current study.

Hence, the data of 159 participants was included in the analyses below. These participants had a mean age of 23 years ($SD = 6.64$), and all provided informed consent prior to participation.

### 2.3 Materials and task

Spoken audio messages in the current study were presented to participants under the cover story of being either fake news items scripted by the researchers, or authentic news items taken from news actual sources (see cover story in Appendix A, translated here to English from the original text in Spanish). In reality, all audio news items were 'fake news' scripted by the researchers. This material took the approach of measuring bias by accent in an indirect way (i.e., not asking directly for ratings on speaker's credibility; cf. Reinares-Lara et al., 2016) as in the study by Frances et al. (2018; Exp. 2), but replacing the trivia statements used in the latter study by longer scripts to increase accent exposure (cf. Reinares-Lara et al., 2016).

The written scripts of the 40 different news items used in the current study can be found in Appendix B. All the news have an average number of words of 64.5 ($SD = 3.9$), with a minimum of words of 55 and a maximum of 70 and followed the same structure regarding their composition: A first sentence with the headline (when, what and where happened), then a paragraph with a short summary of the story, and finally a closing sentence with the consequences of the event.

Each of the 40 fake news items was recorded while being read out loud by four different female speakers: two speakers with a standard Spanish accent (both originating from and having lived most of their lives in Madrid), and two speakers with a Canarian accent (both originating from and having lived most of their lives on the Canary Islands). The average duration of the complete set of 160 audio recordings (including all items and speakers) was 22.67 s ($SD = 1.872$), with a minimum duration of 17 s and a maximum duration of 29 s. In order to not complicate the research design with gender as an additional factor, we deliberately chose to only include female speakers. Care was taken to have all audios being similar in terms of quality, volume, and intonation (i.e., mimicking a formal news reading).

From the entire set of 160 audios, each participant was presented one-by-one with 40 audios (each news item presented only once) through Open Sesame software (Mathôt et al., 2012). The 40 audios presented to each participant always contained 20 audios each for both accents, and across participants it was made sure to counterbalance the mapping between specific news items and specific speakers (i.e., each news item was equally often presented across all participants, and equally often for each of the speakers that recorded the items).

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3  Atlántico Medio Institutional Review Board Code: CEI/02-003; Higher Education Center for Teaching and Educational Research Institutional Review Board Code: TER/0105.

Participants were informed that each news item was read out aloud either by a speaker from Madrid or a speaker from the Canary Islands (the Canarian accent can be confused with a Latino accent by non-speakers of this accent, so the two accents used were informed explicitly up front). Participants were informed that some of the news were false and other true and their task was (a) to listen to a news item, and then (b) indicate to what extent the news item seemed authentic on a 6-point Likert scale with 0 being "totally false" and 5 being "totally authentic." Responses were made with the keyboard, using the buttons 0, 1, 2, 3, 4, and 5. Finally, (c) to verify the participant's engagement with and comprehension of the audio content, a 3-alternative multiple choice question about the news item content was presented on screen, and the participant had to answer the question via a mouse click response to the selected alternative (see Appendix B for the question that corresponded to each news item). A participant went through this cycle for 40 different news items each.
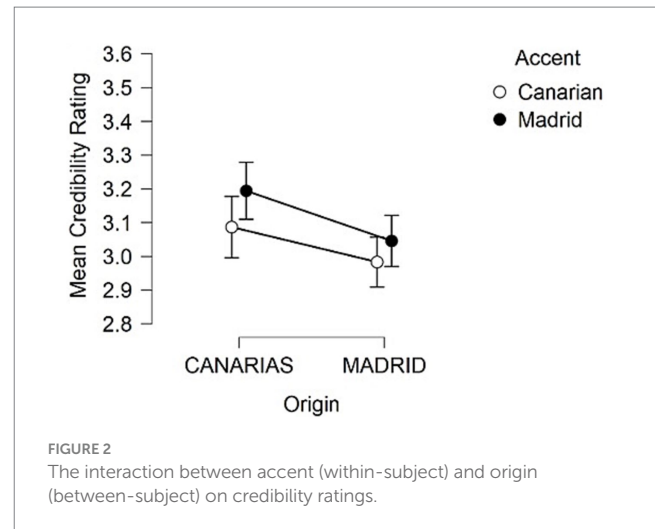
## 2.4 Procedure

The procedure was the same for both centers of recruitment. When arriving to the lab, participants signed an informed consent. Next, they were instructed about the task they were going to perform. Then they performed the credibility rating task on their 40 audios, which took approximately 20 min. Finally, they were debriefed, thanked and paid for their participation.

## 3 Results

A mixed ANOVA was performed on mean Credibility Rating with Accent (2; Canarian versus Madrid) and Origin (2; Canary Islands versus Madrid listeners) as independent variables. Credibility ratings were only considered for news items that had been answered correctly on their corresponding multiple choice question (results were very similar when considering both correctly and incorrectly answered items). After excluding the data from one participant due to being an outlier (i.e., credibility rating falling more than 3 IQR below Q1), Credibility Rating was approximately normally distributed for each of the 2×2 = 4 conditions. Hence, the analysis was performed on a total of 158 participants, with 79 participants originating from each of the two regions of origin (i.e., autonomous community of Madrid and Canary Islands). Figure 2 depicts the credibility ratings for all combinations of the independent variables.

There was a significant main effect of Accent, $F(1,156) = 4.0$, $p = 0.046$, $n_p^2 = 0.025$, indicating on average higher credibility ratings for spoken messages with the Madrid accent ($M = 3.12$) than for spoken messages with the Canarian accent ($M = 3.04$). This supports an impact of socio-linguistic stereotyping, with the Canarian accent being stigmatized independent of the listener's origin. However, the effect size is small, and a $BF_{10} = 0.825$ of the main effect of Accent indicates mere anecdotal evidence. There was no significant main effect of Origin, $F(1,156) = 1.4$, $p = 0.241$, $n_p^2 = 0.009$, nor a significant interaction effect, $F(1,156) = 0.28$, $p = 0.597$, $n_p^2 = 0.002$ (see Figure 2). The latter provides no support for minimal-group categorization, and a $BF_{01} = 4.9$ for the interaction indicates moderate support for the absence of this process.



FIGURE 2
The interaction between accent (within-subject) and origin (between-subject) on credibility ratings.

Finally, above we reported on our motivated decision to exclude data from participants that lived 5 years or more away from their region of origin. Even though the parameter of 5 years was set before data collection, it is partially an arbitrary choice (as it is only loosely based on previous studies; Cheung et al., 2011) that we did not pre-register. Hence, for the sake of completeness, we here add that adopting alternative durations of 'time lived away' as the threshold for this criterion, statistical support for an impact of socio-linguistic stereotyping was maintained only when tested one-sided (i.e., $p$ values of the main effect of Accent fluctuated between $p = 0.05$ and $p = 0.09$, depending on the specific alternative duration that was chosen).

## 4 Discussion

Accents are powerful heuristic cues that can significantly impact the perception of a speaker's credibility. These cues are shaped by cultural, social, and contextual factors, and can lead to biases both positive and negative. In line with the notion that the perception of a speaker's credibility may spill over to the content they present, foreign accent has been demonstrated to influence the perceived credibility of spoken message (e.g., stories, trivia statements; e.g., Dragojevic and Giles, 2016; Evans and Michael, 2014; Hanzlíková and Skarnitzl, 2017; Lev-Ari and Keysar, 2010, 2012; Reinares-Lara et al., 2016). However, there also exist several failures to demonstrate this effect of foreign accent on credibility (e.g., Souza and Markman, 2013; Stocker, 2017; Wetzel et al., 2021). Indeed, for mild foreign accents little to no support exists for an effect on credibility (Lev-Ari and Keysar, 2010).

Much fewer studies have addressed the impact of regional accents on credibility. So far, the support is mixed (Frances et al., 2018; Reinares-Lara et al., 2016). To contribute to this literature, here we tested the effect of regional Canarian accent versus the standard Spanish accent on credibility ratings of (fake) news items, in listeners from both the Canary Islands and Madrid. Based on the main mechanisms of impact described in the literature and their predicted data patterns, we observed moderate support *against* minimal-group categorization to impact credibility judgment. The current study was the first to be able to explore such impact in an appropriate design for regional accents, as previous work on regional accents employed a between-subject manipulation of accent (Frances et al., 2018;

Reinares-Lara et al., 2016). Future studies are needed to corroborate this initial finding, but it seems that categorizing a person as in-versus out-group member purely based on accent either (a) does not automatically trigger in-group favoritism as has been shown for other salient distinctive features (e.g., ethnicity, race), and/or (b) that such in-group favoritism does not spill over to credibility judgment of a source.

As a second main finding, our within-subject manipulation of accent indicated reduced credibility for spoken messages with the Canarian accent as compared to spoken messages with the Madrid accent, independent from the origin of the listener (Canary Islands or Madrid). Even though the effect size was small, this finding corroborates the findings by Reinares-Lara et al. (2016), who also observed reduced credibility ratings for Canarian versus standard Spanish accent. However, our findings also diverge from theirs in the sense that the effect of accent in the current study was not moderated by the listener's origin—whereas Reinares-Lara et al. (2016) observed the effect mainly for listeners from Madrid (and not for listeners from the Canary Islands). As noted above, we believe that our within-subject manipulation of accent has boosted the activation of stereotypes in the current study, potentially accounting for the diverging findings in the study by Reinares-Lara et al. (2016) who employed a between-subject manipulation.

At first impression, our finding on the impact of accent contrast those of Frances et al. (2018; Exp. 2), who reported no differences in credibility for trivia statements that were read out loud by Spanish speakers from Spain or Spanish speakers from Latin-America. Yet, several reasons may account for this discrepancy. First, Frances et al. (2018) took care to minimize effects of socio-linguistic stereotyping by selecting accents with more or less equal prestige. Second, shorter trivia statements provide less exposure to accent than the news items (in the current study) or radio commercials (Reinares-Lara et al., 2016) in studies that observed an effect, suggesting that it would be interesting to target exposure time as a central research topic in future studies.

It is of interest to note that the small but significant effect of accent on credibility was not moderated by listener's origin—suggesting that this bias also holds for Canarian listener's from the stigmatized region itself. The potential existence of negative socio-linguistic stereotyping with regard to the Canarian accent may be placed in the broader picture—as a symptom of a more general set of stereotypes towards Madrid and the Canary Islands. Living in the African ultraperipheral area of Spain, Canarian people have historically perceived people from mainland with higher status than themselves (Rodríguez et al., 2005). Spain has historically been (still is) a country with a clear centralization of power in Madrid, not only as the site of the national political power but also in culture and general development (Pérez et al., 2020). During the 20th century, studying in mainland Spain (and especially Madrid) became a sign of socio-economical status and prestige for Canarian people. Even in our days, with six universities running in the Canary Islands, more than 20% of students leave their home-region to study in the Iberian Peninsula, half of them going to Madrid (Ministerio de Ciencia, Innovación y Universidades, 2024). This has inspired several efforts to restore the unbalance. For example, cultural and educational initiatives are taken to incorporate the Canarian heritage to the school syllabus transversally as well as with regard to specific subjects (e.g., History of Canary Islands, the creation of the

Academy of the Canarian Language). Additionally, Canarian universities are developing step by step to reduce the need of moving to mainland for higher education. Despite these initiatives ongoing, the current study suggests that current and/or historical stigmas may remain towards the Canary Islands. Future studies are needed (a) to replicate our findings in order to further strengthen such conclusions, and (b) to map out the contextual factors that moderate and mediate the negative impact of the Canarian accent on credibility as well as on other types of judgment (e.g., likeability, competence).

## 4.1 Limitations and recommendations for future studies

Above we have interpreted the impact of intra-language accent on credibility as a direct effect. Hence, current and/or historical stigmas may remain towards the Canary Islands, such that any cue (like accent) that activates social identity may bias judgment to the content of a message. However, there are several factors that may potentially mediate the effect of speaker origin on message credibility. For example, social identity may only indirectly bias credibility judgment via perceived pleasantness, perceived competence, or perceived sociability. Let us use the example of perceived pleasantness of a voice. This feature has been shown to (directly or indirectly) affect credibility (Burgoon et al., 1990). Moreover, there are effects of accent on perceived pleasantness (e.g., Hernández Cabrera and Samper Hernández, 2018; Méndez Guerrero, 2023). Overall, then, mere vocal qualities of the speaker can mediate the effect of accent on message credibility. Such potential mediators could be assessed directly in future studies to obtain a more nuanced perspective on the precise mechanisms at work in stigmatization effects on credibility.

Indeed, with an eye on potential effects of factors (e.g., perceived pleasantness, perceived competence, perceived sociability) that we did not measure in the current study, one major limitation of the current study relates to the relatively small sample of voices used for the current study. Previous studies in this domain have used more than 20 different speakers (e.g., Frances et al., 2018; Lorenzoni et al., 2024). In the current study we only used two different voices per accent, running the risk of spurious influences from individual voices. For example, the effect of accent on credibility that was observed here, could be explained if—accidentally—the voices of the Madrid speakers were on average perceived to be more pleasant to listen to than the voices of the Canarian accent speakers. Yet, one relevant aspect of previous studies on the effect on accent on perceived pleasantness—as one of the potentially confounding variables that we failed to control for—counters this concern of confounding. These studies showed that listeners from both the Canary Islands and various other parts of Spain perceive the Canarian accent as more pleasant (Hernández Cabrera and Samper Hernández, 2018; Méndez Guerrero, 2023). As such, this would in itself have predicted an opposite data pattern than what we obtained in the current study, with both types of listeners judging as more credible the messages spoken by speakers from the Canary Islands.

Moreover, assessing these control variables in future studies may be challenging. Given the above notion of potential mediation, it would be highly challenging to obtain these measures in a clean manner—independent of accent-mediated influences of social identity on these

very factors themselves (e.g., the effect of accent on perceived pleasantness; Hernández Cabrera and Samper Hernández, 2018; Méndez Guerrero, 2023; Santana-Marrero, 2018). One way to approach this would be to use recordings of the speaker voices on isolated vowel phonemes that share their phoneme realization between the different accents, and let these be rated on pleasantness (i.e., preventing an impact of accent). Alternatively, future studies could replicate the current findings using a matched-guise technique, in which recordings of a single person's voice in different accents are believed to stem from different speakers. This, too, would be challenging in terms of finding speakers that can intentionally switch between accents (cf. Reinares-Lara et al., 2016), however, and selecting appropriate matched guises would greatly benefit from evaluation by 'linguistically naive' native listeners (cf. Nejjari et al., 2019).

Interestingly, as mentioned above, several studies have shown that the Canarian variant is rated higher than the one of Madrid in direct questions about affective (pleasant/unpleasant) features of the accent (Hernández Cabrera and Samper Hernández, 2018; Méndez Guerrero, 2023; Santana-Marrero, 2018). Nevertheless, in the studies by Méndez Guerrero (2023) and Santana-Marrero (2018), when the same participants were asked to rate the level of culture and education, the intelligence, or the work position of the speakers (i.e., tapping into indirect effects of accent), speakers with the accent of Madrid were rated higher than the ones with Canarian accent. These effects of accent align with our result in which news items spoken with the Madrid accent were rated as more credible. Indeed, it is possible that the effect of accent on credibility in the current study was mediated by these factors (i.e., level of culture, level of education, intelligence).

No support for a role of processing fluency was observed. This is in line with our expectations outlined above. The literature more generally already does not provide strong support for an impact of processing fluency between native and foreign accents (e.g., Lorenzoni et al., 2024). As such, we assumed that the milder differences between regional and standard accents in the current study would be anticipated to contribute even less. To confirm this, it would be interesting to execute a high-powered replication study on Canarian versus Madrid accent using the illusory truth paradigm to isolate processing fluency effects (cf. Lorenzoni et al., 2024).

Finally, we did not include theoretically interesting individual differences measures, such as age, political orientation (e.g., conservative versus liberal), et cetera—which may all moderate the effects of accent on credibility ratings between Canarian and Madrid speakers because they may determine the intensity and direction of stigmas. Indeed, in terms of societal impact described above, future explorations of these individual differences may be critical in determining the instances in which effect sizes are the largest.

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## Data availability statement

## Author contributions

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## Conflict of interest

The authors declare 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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## Supplementary material

The Supplementary material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fcomm.2024.1497131/full#supplementary-material

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