Online supplement to: Modern notions of accent-ism: Findings, conceptualizations, and implications for interventions and research on nonnative accents.
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Supplemental Material:

Evaluations of Native versus Nonnative Speakers with Foreign Accents in Germany and Motivations to Respond Without Prejudice

In this supplement, we present an internal meta-analysis of studies on the evaluation of nonnative speakers with foreign accents in Germany, which we conducted in our lab between 2012 and 2018. Based on common procedures in previous research on accent discrimination (see e.g., Deprez-Sims & Morris, 2010; Fuertes, Gottdiener, Martin, Gilbert, & Giles, 2012; Hosoda & Stone-Romero, 2010; Huang, Frideger, & Pearce, 2013), the studies featured employment scenarios or a general impression formation context. For purposes of comparability, we only included results from the basic conditions (e.g., focusing on the "control groups" without additional misattribution instructions) in the meta-analysis. After introducing more detailed information on the method, we will present the results of the *internal meta-analysis* in the first results section, followed by additional results on participants' *motivations to respond without prejudice* against nonnative-accented speakers to provide insights into prevailing personal and general norms. These findings are briefly discussed in the end with a link back to the main document.

Method

General paradigm and dependent variable. In all studies, participants were first introduced to the respective context, which was for the most part an employment scenario featuring a vacant executive position in sales and marketing (see Schoel, Eck, Roessel, & Stahlberg, 2012) or an assistant professorship (adapted from Roessel, Schoel, Zimmermann & Stahlberg, 2019). The context of Study v was on how people form first impressions, and Study vii centered around language as a means for self-presentation with a focus on how

people derive attributes and emotions from a read out text. Participants partially received further demographic or aptitude information on the target person (see Table S1) and listened to an audio recording by the target person who either spoke German natively or nonnatively. Only one person per accent type was presented, and in all studies but one the accent was varied between participants (see Table S1). Accordingly, participants either listened to only one speaker or to two speakers (native and nonnative) in Study ii, which based on a within-participants design. In some studies, information on the speakers' origins that hinted to the accent type (e.g., Turkish) was provided (see Table S1). In all studies, participants were asked to rate the target person. The focal dependent variable for the present meta-analysis was participants' overall judgment, which was captured by hirability ratings or a global item on their general impression. Only in Study vii, no general evaluation was assessed. Therefore, we created an overall evaluation index from attributes (see Table S1) that loaded on the first unrotated factor in a principle component analysis.

Audio material. The audio recordings were embedded in the respective contexts. For studies with an employment scenario, they based on a short self-presentation (see Roessel et al., 2019, for Study i; and Schoel et al., 2012, for Studies ii, iii, iv, and vi). The recording of Study v contained a short greeting (based on Hansen, Rakić, & Steffens, 2014, 2018). The recording of Study vii was the read out text *Northwind and Sun* in German[1] (see also Tsurutani & Selvanathan, 2013). Native and nonnative versions were compiled of the respective standardized text passages. To this end, speakers who genuinely spoke natively without versus with a foreign accent, respectively, recorded the text passages in all studies (verbal-guise procedure).[2] These different speakers were matched along a set of dimensions based on pretests in three of the studies (see Table S1). Study v additionally included

[1] http://prowiki.ids-mannheim.de/pub/AADG/KorpusTeile/LesetexteV1_1.pdf

[2] Among the studies that investigated evaluations of French and Russian accents, Studies iii and iv relied on the same native speakers. Study vi also based on the audio material of these two studies, but exchanged two native and two Russian accented recordings based on a pretest.

recordings created with the matched-guise technique (MGT, Lambert, Hodgson, Gardner, & Fillenbaum, 1960). That is, the same bilingual speakers created both the *native German* and the *German with a nonnative accent* versions. Across studies, the nonnative accents ranged from being viewed relatively negatively (Russian, Turkish) to relatively positively (French, Spanish; Eichinger et al., 2009; Roessel, Schoel, & Stahlberg, 2018; see Table S1).

In all but Study vii, we had assessed participants' ratings of the nonnative speakers' accent strength. In Study i, we had employed a 7-point scale ranging from *no accent* to *strong accent*, which yielded an average rating of $M = 5.47$. Dragojevic, Giles, Beck, and Tatum (2017), who investigated effects of accent strength and had used a similar scale, reported similar ratings for their strong accents ($M = 6.00$). The pretested average perceived accent strength in the studies by Hansen et al. (2014, 2018), who observed downgrading based on Turkish accents in Germany, was $M = 4.80$ (7-pt scale: *no foreign accent at all – very strong foreign accent*). In Studies ii to vi of the present meta-analysis, we had implemented a 7-point scale ranging from *very weak* to *very strong*, where one might expect similar perceptions to yield somewhat lower ratings due to the absent *no accent* option. Accordingly, average ratings ranged from $M = 4.11$ to $M = 5.37$ (averaged across these studies $M = 4.65$). In sum, most of our studies based on accents that would commonly be considered as reflecting a relatively strong accent (only the nonnative-accented speakers in Studies ii and v had average accentedness ratings < 4.50[3]).

[3] These accentedness ratings were assessed within the main studies (as also implemented by Dragojevic et al., 2017). For Study ii, we had additionally pretested the perceived accentedness, which yielded considerably higher ratings ($M = 6.00$, scale: 1 = no nonnative accent, 7 = very strong nonnative accent). Accordingly, subjective accentedness ratings (and their comparability) may vary depending on the focal task in a pretest versus main study (e.g., ratings of voice characteristics vs. person evaluation).

Table S1. Characteristics of the Studies Included in the Meta-Analysis.

Study	Year	Nonnative Accent Contrast	Study Kind, Context	Participants	Material for Evaluation	Audio Material (Pretest)	Length of Recordings	Information on Origin	Evaluation Dimension (translated from German)
i	2012	**English accent (British, U.S.) vs. native** *between participants*	Online, Employment scenario at a German University	*N* = 143 (107 female, 35 male; M_{age} = 35.06 years, *SD* = 6.87), 93% German native (*n* = 9 nonnative)	Audio recording (answer to a question on why the candidate is a good lecturer with weak vs. strong arguments)	Verbal-guise: 1 female and 1 male per accent condition (no pretest)	47–57 sec	Information: German candidate vs. native language English	Hirability Index: employment *(7pt: certainly not – certainly yes)*, overall impression *(7pt: very negative – very positive),* professional qualification *(5pt Likert-type)*
ii	2012	**Bulgarian accent vs. native** *within participants*	Online, Employment scenario for an executive position	*N* = 98 (74 female, 20 male; M_{age} = 26.54 years, *SD* = 7.74), 90% German native (*n* = 8 nonnative)	First: results of aptitude tests (ambiguous information), Second: audio recording (read out passage from the application cover letter)	Verbal-guise: 1 female and 1 male per accent condition (pretested)	42–45 sec	Information: place of birth: Sofia, Bulgaria vs. Berlin, Germany	Hirability: employment *(7pt: certainly not – certainly yes)*
iii	2012	**Russian accent vs. native** *between participants*	Online, Employment scenario for an executive position	*N* = 50 (35 female, 15 male; M_{age} = 26.04 years, *SD* = 7.86), 98% German native (*n* = 1 nonnative)	Audio recording (read out passage from job application)	Verbal-guise 2 female and 2 male per accent condition (no pretest)	40–46 sec	None	Hirability Index: employment *(7pt: certainly not – certainly yes)* overall impression *(7pt: very negative – very positive)*
iv	2014	**French accent vs. native** *between participants*	Online, Employment scenario for an executive position	*N* = 81 (63 female, 18 male; M_{age} = 24.02 years, *SD* = 4.23), 93% German native (*n* = 6 nonnative)	Audio recording (read out passage from job application)	Verbal-guise 2 female and 2 male per accent condition (no pretest)	41–47 sec	None	Hirability Index: employment *(7pt: certainly not – certainly yes)* overall impression *(7pt: very negative – very positive)*
v	2015	**Turkish accent vs. native** *between participants*	Online, First impressions	*N* = 193 (144 female, 43 male; M_{age} = 26.77 years, *SD* = 7.71, 93% German native, *n* = 13 nonnative)	First: audio recording (short greeting), Second: short personal profile (demographics, work, relationship status, hobbies)	Verbal-guise: 2 female and 2 male per accent condition (pretested) + Matched-guise: 1 female and 1 male (created both versions)	6–7 sec	Information:[1] place of birth: Berlin vs. Istanbul name (matched to place of birth): S. Müller vs. S. Oztürk	First Impression: first impression *(7pt: very negative – very positive)*
vi	2015	**French or Russian accent vs. native** *between participants*	Laboratory, Employment scenario for an executive position	*N* = 105 (68 female, 36 male; M_{age} = 23.19 years, *SD* = 2.56, 96% German native, *n* = 4 nonnative)	Audio recording (read out passage from job application)	Verbal-guise: 2 female and 2 male per accent condition (pretested)	43–48 sec	None	Hirability Index: employment *(7pt: certainly not – certainly yes)* overall impression *(7pt: very negative – very positive)*
vii	2017 2018	**Bulgarian or Spanish accent vs. native** *between participants*	Online, First impressions	*N* = 117 (70 female, 45 male, 2 no resp; M_{age} = 30.90 years, *SD* = 14.16, 97% German native, *n* = 1 nonnative)	Audio recording (read out passage North Wind and Sun)	Verbal-guise: 2 female per accent condition (1 Bulgarian, 1 Spanish, 2 native)	42–48 sec	Information: generic: persons with various linguistic backgrounds had read out the text	First Impression Index: open-minded, active, curious, friendly, fun-loving, conscientious, thorough, helpful, humble, disorganized^{r}, impatient^{r}, rude^{r}, hard-hearted^{r}, ignorant^{r}, jealous^{r}, nervous^{r} *(7pt: not at all – very much)*

Note. Nonnative Accent refers to the accents of nonnative speakers of German (= target persons). The comparison condition always consisted of native speakers of German. *Pretest* (for audio material) refers to prior matching of the speakers regarding voice and perceptual characteristics.

[1] This information was combined with the accent: nonnative accent-Turkish origin vs. native-Turkish origin vs. native-German origin; the latter two conditions were collapsed as they did not yield significant differences.

^{r} reverse-coded.

Motivations to respond without prejudice. We assessed the *i*nternal and *e*xternal *m*otivation to respond without prejudice *s*cales (IMS, EMS; Plant & Devine, 1998) in four of the studies included in the meta-analysis in a short version[4] adapted to nonnative-accented speakers (see Table S2 on the next page). The scales were originally developed in the late 20th century to better understand self-reported attitudes toward Black people, which had grown more positive back then. The two subscales tab into different motivations for unprejudiced behaviors. IMS is to capture attempts for nonprejudiced responding because of personal norms and egalitarian values, whereas EMS is to capture external motivations based on norms and perceived pressure from others (Plant & Devine, 1998). Both have been linked to the "perceived social norms regarding the appropriateness of expressing prejudice" (Crandall, Eshleman, & O'Brien, 2002). The original scales were tailored to prejudice against Black people, but were also adapted to other target groups (e.g., Klonis, Plant, & Devine, 2005; Lemm, 2006; West & Hewstone, 2012).

[4] With three items per subscale instead of five items. It was an aim to keep the scales short and simple because they were assessed in the end of the experiments. Accordingly, the item with the lowest factor loading (Plant & Devine, 1998) was excluded for each scale. Moreover, we excluded two items with a negatively connoted and a technical term, respectively ("PC, politically correct" in the EMS, "self-concept" in the IMS).

Table S2. Motivation to Respond Without Prejudice Scales (Plant & Devine, 1998) Adapted to Nonnative-accented Speakers.

Internal motivation items	
German	English translation
Aufgrund meiner persönlichen Werte glaube ich, dass es falsch ist, Akzentsprechende zu stereotypisieren.	Because of my personal values, I believe that using stereotypes about accented speakers is wrong.
Ich versuche mich Akzentsprechenden gegenüber vorurteilsfrei zu verhalten, weil es mir persönlich wichtig ist.	I attempt to act in nonprejudiced ways toward accented speakers because it is personally important to me.
Ich bin durch meine persönliche Überzeugung motiviert, mich vorurteilsfrei gegenüber Akzentsprechenden zu verhalten.	I am personally motivated by my beliefs to be nonprejudiced toward accented speakers.
External motivation items	
German	English translation
Ich versuche mich Akzentsprechenden gegenüber vorurteilsfrei zu verhalten, weil ich entsprechenden Druck von anderen wahrnehme.	I try to act nonprejudiced to accented speakers because of pressure from others.
Ich versuche vorurteilsfrei gegenüber Akzentsprechenden zu wirken, um zu vermeiden, dass mich andere verurteilen.	I attempt to appear nonprejudiced toward accented speakers in order to avoid disapproval from others.
Ich versuche negative Gedanken über Akzentsprechende für mich zu behalten, um negative Reaktionen von anderen zu vermeiden.	I try to hide negative thoughts about accented speakers in order to avoid negative reactions from others.

Note. The instructions stated that the term “accented speakers” refers to people speaking with a nonnative accent. With three items per dimension the scales were shortened compared to five items per dimension in the original scales by Plant and Devine.

Results

An Internal Meta-Analysis

We conducted the meta-analysis across seven studies (N_{total} = 787) with Comprehensive Meta-Analysis 3.3, and specified a random effects model. The effect size of interest was Hedges's *g* with negative values reflecting downgrading of the nonnative speakers. Descriptive statistics are presented in Table S3 and the results of the meta-analysis are presented in Table S4.

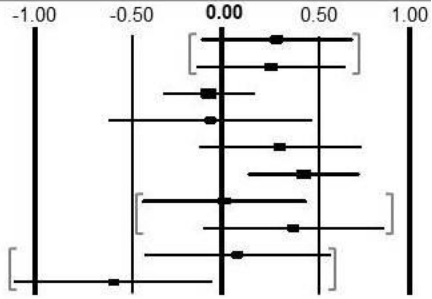
Table S3. Descriptive Statistics for the Studies in the Meta-Analysis.

Study #) nonnative accent type	Native			Nonnative		
	n	*M*	*SD*	*n*	*M*	*SD*
i) British	45	-0,18	1,04	47	0,10	0,84
U.S.				51	0,07	0,83
ii) Bulgarian	98	4,98	1,29	98	4,89	1,26
iii) Russian	26	4,58	1,29	24	4,50	1,10
iv) French	40	4,79	1,10	41	5,15	1,21
v) Turkish	128	4,80	1,35	65	5,34	0,99
vi) French	39	5,05	1,20	38	5,07	1,13
Russian				28	5,45	0,72
vii) Bulgarian	28	5,16	0,89	33	5,22	0,68
Spanish	31	5,71	0,65	25	5,32	0,68

Note. Higher ratings reflect more favorable evaluations on the respective dependent variable (for Study I, scores are z-standardized; range for all other studies: 1 – 7).

Table S4. Meta-Analysis Results for the Nonnative Accent–Native Contrast of Seven Studies.

Study	*N*	Nonnative Accent	Method	Design	Evaluation dimension
i)	143	British	VG	between	Hirability
		U.S.			Hirability
ii)	98	Bulgarian	VG*	within	Hirability
iii)	50	Russian	VG	between	Hirability
iv)	81	French	VG	between	Hirability
v)	193	Turkish	VG* + MGT	between	Impression
vi)	105	French	VG*	between	Hirability
		Russian			Hirability
vii)	117	Bulgarian	VG	between	Impression
		Spanish			Impression



		Hedges's *g*	*SE*	95% CI [LL;UL]	*p*
Model:	Random	0.12	0.10	[-0.08; 0.32]	.24

Note. Positive values of Hedges' *g* indicate more positive evaluations of nonnative-accented speakers, and negative values indicate more negative evaluations of nonnative-accented speakers compared to native speakers. The effect size for the within-participants design in Study iv) is based on the standard deviation of difference scores of native and nonnative speaker ratings. For Study i and vi, the nonnative–native contrasts refer to the same native comparison group, and were, therefore, combined in the random effects model. The subgroups in Study vii, which base on only one speaker per accent were also combined, as indicated by the brackets. Design refers to the presentation of speakers. VG = verbal guise technique. MGT = matched-guise technique. * = matched speakers based on pretesting. CI = confidence interval. LL = lower limit. UL = upper limit.

As evident across the seven studies—with different accents, designs, and methodologies—no significant downgrading effects emerged for nonnative-accented speakers on the study level (the only exception emerged in the nonnative Spanish-native subgroup comparison of Study vii). If anything, the overall effect tended toward a descriptive upgrading of the nonnative-accented compared to native speakers.

A tendency for heterogeneity of effects across studies was indicated by the Q-statistic: $Q(6) = 11.91$, $p = .06$, and the estimated proportion of variance attributable to true heterogeneity: $I^2 = 49.61$, but the descriptive variability appears unsystematic. Only with a focus on studies with matched speakers (Studies ii, v, vi), it appears by tendency that the within-design of Study ii might have allowed participants to calibrate their answers to show almost zero bias (see also de Souza, Pereira, Camino, de Lima, & Torres, 2016), and in Studies v and vi, participants seemed to overcorrect for the stigmatized accents (Turkish and Russian). This is in line with findings of overcorrection tendencies being particularly likely for stigmatized targets (e.g., Axt, Ebersole, & Nosek, 2016; Hofmann, Gschwender, & Schmitt, 2005; Mendes & Koslov, 2013)—albeit this descriptive interpretation is a very cautious one based on the small set of studies (with different contexts, length of audio recordings, etc.).

The only significant negative comparison emerged for ratings of a Spanish accented speaker compared to a native German speaker in Study vii. Notably, this study implemented only one speaker per accent (in contrast to the other studies with at least two speakers per accent), and the difference appears to less reflect downgrading of the Spanish-accented target than an exceptionally positive evaluation of the German native speaker (see Table S3). This finding points to the relevance of pretesting materials (optimally only based on the voice with accent variations not embedded), or to aim at investigating language as a random factor with many speakers (Clark, 1973; Judd, Westfall, & Kenny, 2012).

Motivations to Respond without Prejudice

The absent downgrading of nonnative speakers contrasted prior research (see main document). Therefore, we assessed motivations to respond without prejudice (see Table S2 for the items) from Study iv onwards. The descriptive statistics for all samples are displayed in Table S5. The average scores consistently suggest high internal motivation to respond without prejudice (significantly above the mean of the scale, *p*s < .001) and relatively low external motivation (significantly below the mean of the scale for Studies iv to v: *p*s < .05; for Study vii: $p = .10$). EMS has been linked to levels of prejudice (with feelings of external pressures likely linked to the perception of overly negative reactions, see also Perry, Murphy, & Dovidio, 2015), and typically yields lower scores compared to IMS (Lai et al., 2016; Plant & Devine, 1998).

Table S5. Descriptive Statistics for IMS and EMS Across Studies.

	IMS			EMS		
Study	α	*M*	*SD*	α	*M*	*SD*
iv) (*N* = 81)	.78	6.24	0.79	.58	3.46	1.40
v) (*N* = 193)	.76	6.27	0.90	.69	3.38	1.58
vi) (*N* = 105)	.80	6.16	0.96	.67	3.62	1.60
vii) (*N* = 117)	.69	6.09	1.00	.77	3.73	1.77

Note. IMS / EMS = internal / external motivation to respond without prejudice. Higher ratings indicate a higher motivation (1 = low, 7 = high).

The picture with high IMS scores suggests prevalent personal norms and a general normative climate that does not freely tolerate discrimination against nonnative-accented speakers (Crandall et al., 2002). It shall be noted that no consistent moderation of evaluations by IMS and EMS was found in the respective studies (the sample sizes were relatively low, which precluded investigating multiplicative effects of IMS and EMS). However, this finding may not be surprising in light of the fact that ≥ 90% of participants evidenced high average IMS scores (≥ 5 on the 7-point scale). Accordingly, the variance was restricted. On a psychological level, this further aligns with previous inconsistent findings on the moderating role of such

motivations, which may be explained in terms of salient norms against prejudice that could foster calibrated evaluations (across participants) given the opportunity for control (see Friese, Hofmann, & Schmitt, 2009; Monteith, Arthur, & McQueary Flynn, 2010). Accordingly, an aggregate-level view across a wider range of studies and contexts could be informative.

Discussion

The meta-analysis synthesized seven studies on the evaluation of nonnative foreign-accented speakers compared to native speakers conducted by our lab, with common employment/first-impression scenario approaches. We did not find systematic evidence for downgrading of nonnative speakers. Moreover, internal motivations to respond without prejudice—as assessed in the four most recent samples—were consistently high. These findings from Germany corroborate the notion that discrimination against nonnative-accented speakers is not as acceptable or openly displayed as has commonly been assumed (see main document). In studies with matched speakers based on a pretest, there were even signs of correction tendencies for stigmatized accents. It is noteworthy that the samples were not only comprised of students. It is open for future research to investigate the climate in different samples over time systematically. For instance, Axt et al. (2016) reported smaller pro-minority biases in more diverse samples.

The high values on IMS—on average, almost reaching the upper scale endpoint—and moderate values on EMS imply a consensus on tolerance toward nonnative-accented speakers (see Crandall et al., 2002). The values are comparable to those obtained in prior research on skin-color-based prejudice (see Forscher, Mitamura, Dix, Cox, & Devine, 2017; Plant & Devine, 1998). It is unfortunate that no past longitudinal data on these motivations is available to attest to a potential shift in norms similar to those observed for racial and ethnic prejudices. In 2012, when we conducted the first studies included in the present meta-analysis—with findings pointing to generally benign evaluations—student mobility had increased remarkably

(DAAD/DHWZ, 2016). Also, migration has markedly increased since 2011 (Statistisches Bundesamt, 2015). Most migrants in Germany use German as a regular means of communication; among nonnatives, about half speak German even at home (Grieß, 2015; Ortel Mobile, 2014), implying a high prevalence of nonnative accents. These developments may have fostered awareness and sensitivity regarding reactions toward nonnative-accented speakers. The necessity to speak foreign languages, with increasing international mobility among those who constitute the listeners in studies, may likely add another crucial factor (see also Hansen et al., 2014). Similarly, Dewaele and McCloskey (2015) reported on more lenient attitudes toward nonnative accents with exposure to greater linguistic and ethnic diversity in childhood and one's workplace in their international survey study. Future longitudinal large-scale meta-analysis may link shifts in the societal climate and diversity to accent attitudes.

For now, the present findings instill hope for increasing tolerance toward nonnative-accented speakers. However, "hidden" biases may surface in various ways and under various circumstances. See the main document for a discussion.

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