Language influences mass opinion toward gender and LGBT equality

Margit Tavits[a,1] and Efrén O. Pérez[b,c,1,2]

[a]Department of Political Science, Washington University in St. Louis, St. Louis, MO 63130; [b]Department of Political Science, University of California, Los Angeles, CA 90095; and [c]Department of Psychology, University of California, Los Angeles, CA 90095

To improve gender equality and tolerance toward lesbian, gay, bisexual, and transgender (LGBT) communities, several nations have promoted the use of gender-neutral pronouns and words. Do these linguistic devices actually reduce biases that favor men over women, gays, lesbians, and transgender individuals? The current article explores this question with 3 large-scale experiments in Sweden, which formally incorporated a gender-neutral pronoun into its language alongside established gendered pronouns equivalent to *he* and *she*. The evidence shows that compared with masculine pronouns, use of gender-neutral pronouns decreases the mental salience of males. This shift is associated with individuals expressing less bias in favor of traditional gender roles and categories, as reflected in more favorable attitudes toward women and LGBT individuals in public life. Additional analyses reveal similar patterns for feminine pronouns. The influence of both pronouns is more automatic than controlled.

language | gender-neutral pronouns | gender equality | LGBT equality | automatic/controllable processes

In many nations across the globe, gender inequality persists, and men still predominate in society, the economy, and politics (1, 2). One reason for these tenacious disparities is the ubiquity of patriarchal attitudes and beliefs, which privilege males as an orthodox and ascendant social category (1–3). Such views also promote discrimination against heterodox gender groups, such as gays, lesbians, and transgender individuals (4).

To mitigate these biases, many governments have adopted policies that enshrine gender parity and inclusion, such as increased female access to education and employment (5), widened childcare availability (1, 2), reduced gender pay disparities (6), and quotas to boost female political participation and representation (7). These efforts have also spilled into policies ameliorating social and economic discrimination against lesbian, gay, bisexual, and transgender (LGBT) communities (8) while bolstering their political rights (9).

In line with these endeavors, many nations have integrated gender-neutral words into their vocabulary (e.g., *police officer* instead of *policeman*) and promoted gender-neutral pronouns (e.g., *they* instead of *he* or *she*) (10, 11). Sweden aptly embodies these trends: This country formally incorporated the gender-neutral pronoun *hen* into the 2015 Swedish Academy Glossary, which sets norms for Sweden's language (12). Thus, a majority of Swedes now use *hen* alongside the explicitly gendered *hon* (she) and *han* (he) as part of their grammatical toolkit.

Opponents of these initiatives argue that such grammatical innovations hold little sway over people's deeply rooted views about gender and amount to little more than political correctness (10, 12). Alas, even gender-neutral pronouns can bias views and become more associated with males than other gender categories. For example, in English, *they* is promoted as a gender-neutral pronoun, yet some claim that people still associate *they* with males (10, 11) and do the same with generics such as *person* or *human* (13).

Proponents of gender-neutral pronouns counter that such linguistic devices reduce biases favoring men (11), which encourages more positive views of women, homosexuals, and transgender

people. By this view, masculine pronouns privilege the cognitive salience of males at the expense of nonmales (10, 13).* This tradeoff emerges because the mental prominence of 1 group (e.g., *males*) occurs relative to others (e.g., *females*, *gays*, *lesbians*). Thus, gender-neutral pronouns might operate by chipping away at males' mental orthodoxy, allowing nonmale groups to become more pronounced.

This article claims that the reduced salience of males relative to nonmales affects mass opinion toward gender equality in politics. Insofar as masculine pronouns privilege men, this bias will shape speakers' social and political views in a male-centered direction (10, 11, 13). Thus, when pondering civic affairs, speakers using masculine pronouns will be more likely to deem it a male realm, viewing other groups as atypical. Speakers who use masculine pronouns will also be more likely to endorse traditional gender roles, as they align with a male-centered view.

In contrast, gender-neutral pronouns should diminish this promale bias. When speakers who use gender-neutral pronouns think about public affairs, they should be less inclined to consider this a strictly male domain, thereby normalizing other groups' presence. Speakers employing gender-neutral pronouns should also be less supportive of traditional gender roles that privilege males in civic life.

If this reasoning is correct, then gender-neutral pronouns will heighten the mental accessibility of nonmales relative to males. In turn, this will increase acceptance of females and LGBT groups in public life, since the latter are also positioned in contradistinction to men (4, 8).† Prior work shows that antigay

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Significance

Evidence from 3 survey experiments traces the effects of gender-neutral pronoun use on mass judgments of gender equality and tolerance toward lesbian, gay, bisexual, and transgender (LGBT) communities. The results establish that individual use of gender-neutral pronouns reduces the mental salience of males. This shift is associated with people expressing less bias in favor of traditional gender roles and categories, as manifested in more positive attitudes toward women and LGBT individuals in public affairs.

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*For example, when a referent's gender is unclear, speakers of tongues with gendered pronouns (where the masculine pronoun is used as a generic) are more likely to perceive them as male (11, 13).

†This pathway from stimulus to cognitive response to evaluations aligns with belief-sampling theories of survey response (25). Here, people's memories are a dense network of interrelated considerations. Upon encountering a survey question, these and other related considerations are galvanized via spreading activation, leading individuals to sample them to form an opinion (26).
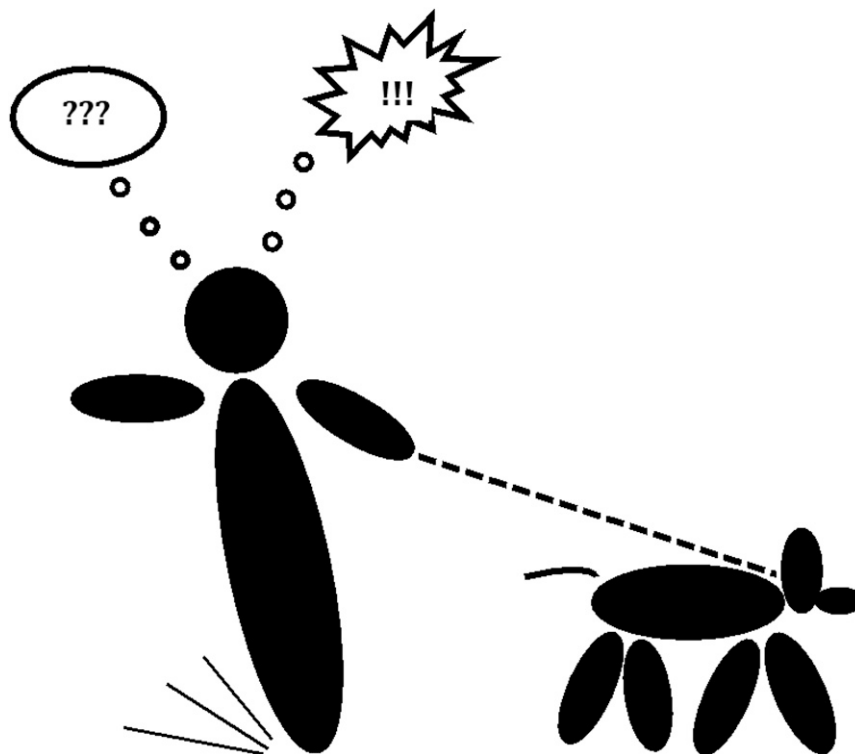
Fig. 1. Image used in experimental conditions.

prejudice is partly rooted in perceived gender role violations (14). If gender-neutral pronouns reduce the relevance of traditional gender roles, then speakers who use these pronouns will be less likely to sense these roles are violated, and more likely to be accepting of LGBT individuals.[‡]

Previous investigations of language effects on gender-related attitudes have compared languages varying in the degree to which speakers are grammatically obliged to designate the gender of objects, finding that speakers of gendered tongues express more conservative attitudes toward gender relations (15) and construe their environs in male-centered ways (16–18). However, previous efforts have not established whether use of specific words, such as gender-neutral pronouns, shape people's judgements. Without this knowledge, the pathways through which language affects people's views about gender remain obscure (15, 18). Prior work has also been unable to fully isolate a linguistic effect from a cultural one because it generally compares tongues that correspond to specific cultural groups. Even if language use is randomly assigned, it is hard to fully assess whether an effect on gender opinions arises from structural nuances between tongues rather than variation in the cultures of language speakers (19). Finally, most studies of language effects on gender views have been performed in laboratories with undergraduates or convenience samples, raising external validity concerns (16–18, 20).

This article reports 3 experiments that resolve these challenges. These studies focus on masculine versus gender-neutral pronouns in Sweden to test a 2-step argument: pronouns prime specific gender categories in memory, which then affect people's opinions about gender roles. This pathway implies a mediated chain from pronouns to long-term memory, and then to attitudes and beliefs. The first 2 experiments reveal that,

compared with masculine pronouns, individuals who use gender-neutral pronouns are less likely to assign a male name to a fictional character, which suggests that gender-neutral pronouns weaken people's mental bias toward men. This reduced salience of males is then associated with people expressing more liberal opinions toward women, gays, lesbians, and transgender individuals (i.e., nonmales) in public life. A third study suggests this pathway is more automatic than controllable, thus ruling out social desirability bias as an alternative explanation. As such, this article paves the way toward further study of language effects on public views of LGBT equality (in addition to gender equality). And, since all study participants share a Swedish culture, these studies isolate language effects from cultural influence. Finally, although this article focuses on the effect of gender-neutral pronouns, additional analyses reveal comparable results for feminine pronouns.

Sweden officially adopted the gender-neutral pronoun *hen* in 2015. This reform sought to improve male–female parity while providing an inclusive way of denoting individuals outside a strict gender dichotomy (12). The debate began in 2012 and lasted through July 2014, when it was decided that *hen* would be adopted the following year. Public acceptance of *hen* grew throughout this time, with survey results from 2015 indicating nearly universal familiarity with the pronoun, widespread positive views about its adoption, and increased public use of this word compared with earlier surveys (12). Thus, by the time of *hen*'s adoption, the issue was no longer politically divisive. In fact, the issue was never intensely ideological, since Sweden's political right includes a feminist movement (12). *Hen* is now viewed positively and is widely used by media and the mass public (12). It is a regularly rehearsed aspect of Sweden's language and is unlikely to prime the controversies stemming from its introduction back in 2012.

[‡]LGBT communities are also the very groups that proponents of gender-neutral pronouns have identified for greater inclusion in both public discourse and public life (12).

Table 1. The mediated influence of gender pronoun use on opinions about gender equality (study 1)

	Effects on mediator	Mediator's influence on political attitudes			
	1. Imagine a Nonmale	2. Knowledge of Female Politicians	3. Profemale Preferences	4. Positive Feelings: Gays	5. Social Acceptance: Gays
Gender-neutral pronoun	0.361 (0.180)*	0.392 (0.165)*	0.019 (0.008)*	0.268 (0.083)*	0.352 (0.086)*
Feminine pronoun	0.465 (0.182)*	—	—	—	—
CFI/TLI	0.961/0.940	—	—	—	—
RMSEA (90% CI)	0.040 (0.020 to 0.058)	—	—	—	—
N	315	315	315	315	315

Table entries are probit coefficients with SEs from a structural equation model (SEM) estimated in Mplus (v.8). Except for Profemale Preferences, all outcomes are modeled as latent variables (see text). Variances of latent variables are fixed to 1.0 to identify the model, thus setting their coefficients' metric to SD units. Profemale Preferences is on a 0 to 1 interval, which sets its coefficient's metric to percentage points. See *SI Appendix*, section 3 for formal tests of mediated effects. *$P < 0.05$, 2-tailed.

Design

Three experiments were conducted with heterogeneous samples of Swedish adults who completed short online surveys. All 3 experiments were approved by the Institutional Review Board of Washington University in St. Louis, St. Louis, MO. Combined, these studies include more than 3,000 individuals ($n = 3,393$) from varied walks of life, ideological leanings, and educational backgrounds, which contributes to generalizability and better establishes whether the effect of language is socially and politically meaningful.

A leading Swedish polling firm, Enkätfabriken, fielded the studies. Swedish adults were invited to participate in online surveys described as focusing on the effects of visual perception, reading comprehension, and creative thinking on political judgment. After consenting to participate by clicking on a study's link, subjects in each experiment (study 1, $n = 315$; study 2, $n = 1,840$; study 3, $n = 1,238$) completed brief pretreatment questionnaires collecting demographic data (e.g., age, education, gender, ideology). These were followed by assignment to treatment. After the treatment in studies 1 and 2, subjects completed a mediator, followed by items appraising political opinions and beliefs about women, gays, lesbians, and transgender people. *SI Appendix*, section 1 provides more information (including question wording) on studies 1 and 2, and *SI Appendix*, section 6 on study 3.

The manipulation in studies 1 and 2 asked subjects to describe an androgynous figure walking a dog (Fig. 1). To validate that the figure was viewed in a gender-neutral manner, study 1 asked subjects to indicate (at the end of the survey) the degree to which the figure they evaluated was clearly male (1) or clearly female (5), with the midpoint (3) suggesting the figure was neither male or female. The figure's mean rating, pooled across subjects, was $M = 2.90$, $SD = 0.70$, suggesting it was generally viewed as gender-neutral.

Subjects were randomly assigned to 1 of 3 treatments directing them to describe this character's activity in 3 sentences by using masculine (*han*), feminine (*hon*), or gender-neutral (*hen*) pronouns[§]: "Please use the text boxes below to describe in 3 sentences what the person in the image is doing. Please be as specific as possible and provide as much detail as you can. In your description of this individual, it is important that you use the pronouns '[he/she/they]' and '[his/her/their].' This will help to standardize the accounts provided by all participants in this survey, which will make them easier to interpret."

Posttreatment, subjects in studies 1 and 2 completed our mediator, Imagine Nonmales, which reflects the degree to which the treatments affect the mental salience of nonmales relative to males. Subjects were instructed: "The next exercise requires you

to use your creativity and composition skills. Here is a beginning of a story: 'Today, I met a person who is interested in running for a political office. This person is...'" Subjects were then asked to "complete the story by giving this person a first name and describing in 2 sentences what happens next." Replies were coded as "0" if subjects provide a male name and "1" for all others. Picking a male name implies that males are mentally salient relative to nonmales, while picking a nonmale name means they are not. Although subjects could report unisex names (e.g., Kim), the latter have low incidence in Sweden, with most given names being clearly male or female. Since the proportion of unisex names across studies 1 and 2 is small (<2%), we expect that gender-neutral pronouns will operate by reducing the salience of men while increasing the salience of nonmales in general (i.e., women and nonbinary individuals), thus yielding a more gender-balanced mix of names.

Following our mediator, subjects answered several items appraising their perceptions of nonmale groups and their role in society and politics. Prior research informed the construction of these items, which tap into attitudes about gender roles and gender bias in different ways, including attitudes about women's participation in politics and political leadership roles, hostility to gays and transgender individuals, and social and political acceptance of these individuals (1, 4, 14, 15).

Attitudes about women in politics were appraised in 2 ways. First, insofar as the salience of nonmales promotes cognitive inclusion of women, subjects should find it easier to recall female political leaders. Knowledge of Female Politicians was therefore tested via 3 quiz-like items asking subjects to name a "current member of Riksdag," "a Swedish politician who you find inspiring," and, "an effective leader in world politics today." Replies are coded as "1" if subjects name a female and "0" otherwise.[¶]

Second, preferences for women in politics were more directly tapped to assess whether the salience of nonmales breaks the mental image of politics as a traditionally male realm, making political inclusion of women more acceptable. Subjects answered 8 statements about (fe)males in politics, which are formulated into a scale of Profemale Preferences. These statements were: "Recruit more women to ministerial positions," "Increase the number of women on the Riksdag Committee on Defense," "Appoint a well-qualified woman to be Minister of Gender Equality," and "Boost the number of women on the Riksdag Committee on Health and Welfare." These statements were also asked about men, with the order of male and female items randomized within participants. Replies occurred on scales from 1 (strongly disagree) to 5 (strongly agree). To more reliably detect any systematic trends

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[§]For studies 1 to 2, *SI Appendix*, section 2 shows that pretreatment variables are balanced.

[¶]The second item in this series was asked only in study 1.

Table 2. The mediated influence of gender pronoun use on opinions about gender equality (study 2)

	Effects on mediator	Mediator's influence on political attitudes			
	1. Imagine a Nonmale	2. Knowledge of Female Politicians	3. Profemale Preferences	4. Positive Feelings: Gays	5. Social Acceptance: Gays
Gender-neutral pronoun	0.249 (0.076)*	0.210 (0.082)*	0.027 (0.004)*	0.292 (0.034)*	0.273 (0.034)*
Feminine pronoun	0.587 (0.074)*	—	—	—	—
CFI/TLI	0.976/0.957	—	—	—	—
RMSEA (90% CI)	0.035 (0.028 to 0.042)	—	—	—	—
N	1,840	1,840	1,840	1,840	1,840

Table entries are probit coefficients with SEs from a structural equation model (SEM) estimated in Mplus (v.8). Except for Profemale Preferences, all outcomes are modeled as latent variables (see text). Variances of latent variables are fixed to 1.0 to identify the model, thus setting their coefficients' metric to SD units. Profemale Preferences is on a 0 to 1 interval, which sets its coefficient's metric to percentage points. See *SI Appendix*, section 3 for formal tests of mediated effects. *$P < 0.05$, 2-tailed.

across these items, average replies to male-focused items are subtracted from average replies to female-focused items, thus yielding a gauge of relative preference for women.[#]

The remaining outcomes center on LGBT groups. Specifically, subjects' affective reaction to these groups (Positive Feelings: Gays) was measured by asking them to rate gays and transgender people on scales from 1 (very unfavorable) to 7 (very favorable). If nonmales are mentally salient, then subjects should deem LGBT groups as less atypical, with feelings toward them becoming more positive.

Social and political acceptance of homosexuals (Social Acceptance: Gays) was measured by asking subjects to place themselves on 7-point scales, each anchored by 2 statements: same-sex marriages are harmful vs. beneficial to society, same-sex couples cannot vs. can successfully raise children, gays and lesbians should be discouraged vs. encouraged to run for seats in parliament, and fewer vs. more gays and lesbians should be considered for ministerial positions. These items are coded so that higher values reflect more favorable opinions. When nonmales are mentally salient, it is anticipated that individuals will be less likely to apply traditional gender roles and be less biased in favor of men, leading to greater LGBT acceptance.

Results

Since we are interested in the effect of gender-neutral pronouns and the degree to which it is associated with a decrease in bias toward men, the analyses mainly focus on the comparison between the gender-neutral (*hen*) and masculine (*han*) conditions, with the latter as the baseline. The results are derived from mediation analyses conducted via Mplus, which allow one to simultaneously evaluate the impact of both treatments on our suite of dependent variables through the same mediator. Apart from the relative index of Profemale Preferences, all outcomes are modeled as latent variables, which filters out random measurement error from the estimates. Profemale Preferences is indexed in percentage points; all other estimates are scaled in SD units.

Study 1 (*n* = 315). Table 1 reports results from study 1. Compared with subjects who used *han* (he) to describe the androgynous figure, those who used *hen* (gender-neutral) are more likely to complete the open-ended sentence (Imagine Nonmales) with a nonmale name (0.361; $P < 0.045$). This heightened accessibility of nonmales is then associated with downstream consequences

for people's opinions about gender equality. With nonmales in mind to a greater degree, subjects express greater Knowledge of Female Politicians (0.392; $P < 0.017$) and stronger Profemale Preferences (0.019; $P < 0.022$).[||] This implies that gender-neutral pronouns prime nonmales in memory, which then leads people to express more positive attitudes toward women in politics.

As predicted, the effects of gender-neutral pronouns spill into the realm of LGBT politics. The gender-neutral pronoun *hen* raises the salience of nonmale categories, which is then associated with people expressing more positive feelings toward gay and transgender individuals (0.268; $P < 0.001$), as well as more favorable opinions about the social and political inclusion of these groups (0.352; $P < 0.001$). *SI Appendix*, section 3 reports bootstrap tests further establishing that these mediated paths from gender-neutral pronoun, to imagining nonmales, to our outcomes are reliably different from zero (21).

This paper's main focus is the contrast between gender-neutral and masculine pronouns, but one can also compare feminine and masculine pronouns as another test of the claim that pronoun use primes certain gender categories in memory. By this reasoning, employing feminine pronouns (compared with masculine ones) should also decrease the mental salience of males and increase that of nonmales. Table 1's results suggest the effects of feminine pronouns parallel those of gender-neutral pronouns: both heighten the salience of nonmales in memory, which is then associated with people expressing more liberal opinions toward women and LGBT groups in politics. Indeed, the effects of feminine and gender-neutral pronouns in this sample are statistically indistinguishable, given the overlapping 95% confidence intervals (CIs) for these estimates (gender-neutral pronouns: 0.361 [95% CI, 0.008 to 0.713]; feminine pronouns: 0.465 [95% CI, 0.108 to 0.823]). This similarity is striking, as feminine pronouns have clear associations with biological female gender, but gender-neutral pronouns do not. *SI Appendix*, section 3 includes path diagrams visually depicting these mediated effects of pronoun use.

Study 2 (*n* = 1,840). Study 2 replicates study 1 with a larger sample of Swedish adults. Table 2 shows that compared with masculine pronouns, gender-neutral pronouns have a positive impact on the mediator, Imagine Nonmales (0.249; $P < 0.001$). In turn, this heightened salience of nonmales is associated with greater Knowledge of Female Politicians (0.210; $P < 0.011$) and expressions of Profemale Preferences (0.027; $P < 0.001$).[**] This mediation pattern extends to opinions about LGBT groups: The salience

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[#]One might argue that men's presence in conventionally feminine domains can erode gender norms and lend prestige to these posts. If true, then some subjects might agree with, say, increasing the number of men on the Health and Welfare Committee, without necessarily being "antifemale." For us, however, the key test is whether agreement with these items varies systematically by whether the focus is on (fe)males, which our scaling procedure allows. We thank reviewer 2 for encouraging us to clarify this point.

[||]This last result is similar if the scale items are analyzed individually (*SI Appendix*, Table SI.4.1).

[**]This last result is similar if the scale items are analyzed individually (*SI Appendix*, Table SI.4.2).

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Table 3. Influence of pronoun treatments on survey completion times (seconds)

	Completion times (without covariates)	Completion times (with covariates)
Gender-neutral pronoun	−5.526 (25.030)	1.034 (24.472)
Feminine pronoun	21.042 (24.862)	25.006 (24.307)
Age	—	5.617 (0.587)*
College education	—	−44.761 (19.974)*
Constant	751.869 (17.772)*	499.128 (35.458)*
N	1,840	1,834

Table entries are ordinary least squares coefficients with SEs in parentheses. *$P < 0.05$, 2-tailed.

of nonmales is associated with more favorable feelings toward gays, lesbians, and transgender individuals (0.292; $P < 0.001$) and positive opinions about their social and political inclusion (0.273; $P < 0.001$). *SI Appendix*, section 3 further establishes that these mediated pathways are reliably different from zero.

As in study 1, analysis of feminine pronouns (compared with masculine ones) also reveals a positive effect on the mediator (0.587; $P < 0.001$), Imagine Nonmales. This heightened salience of nonmales is then associated with subjects reporting more inclusive attitudes toward women and LGBT groups. The main difference between studies 1 and 2 is the size of the treatment effects on the mediator. The impact of feminine pronouns on Imagine a Nonmale in this larger sample is about double the effect of gender-neutral pronouns. These effects are distinguishable from each other (gender-neutral pronouns: 0.249 [95% CI, 0.101 to 0.397]; feminine pronouns: 0.587 [95% CI, 0.442 to 0.733]), which implies that feminine pronouns exert a stronger effect than gender-neutral pronouns. However, across both studies, gender-neutral and feminine pronouns yield similar directional effects: they heighten the salience of nonmales, which is then associated with favorable shifts in political opinions about women and LGBT individuals. *SI Appendix*, section 3 includes relevant path diagrams visually depicting these mediated patterns.

Ruling Out Social Desirability. These effects appear to be driven by pronoun use, but perhaps assignment to gender-neutral pronouns heightens social desirability bias, which is then associated with people expressing opinions they think others value. We cast some doubt on this proposition in 2 ways.

First, if gender-neutral pronouns sharpen social desirability, then subjects should take more time to report their opinions; that is, the question-answering process should be more controlled and effortful, rather than automatic and effortless (22). For study 2, our survey partner gathered, in seconds, the time it took for subjects to complete the entire survey. Table 3 reports an analysis of these completion times, using a pair of ordinary least squares regressions (see also *SI Appendix*, section 5 for plots of mean completion times across pronoun conditions). The first model tests the impacts of gender-neutral and feminine pronouns on completion times, finding null effects ($P > 0.05$). These persist when adding age and college education as covariates (second model).[††] In short, these tests do not support a social desirability mechanism.

Second, a third online study was administered ($n = 1,238$) by Enkätfabriken to directly test for social desirability bias. This experiment is discussed in detail in *SI Appendix*, section 6.[‡‡] Swedish adults were randomly assigned to report the first names they think of when they hear *han* (masculine pronoun), *hon* (feminine pronoun), or *hen* (gender-neutral pronoun). This manipulation was crossed with a speeded response treatment, in

which a random half of subjects listed names in 15 s or less, and others at their own pace. By constraining some subjects' ability to reply, a more automatic form of thinking is tapped, which is less prone to social desirability (22).

We analyze whether subjects report nonmale name(s) (coded as 1) or not (coded as 0) by estimating 2 probit models reported in Table 4. Model 1 shows that assignment to the *hon* (feminine pronoun) and *hen* (gender-neutral pronoun) conditions reliably increases expression of nonmale name(s) relative to the *han* (masculine pronoun) condition. This aligns with the original result that gender-neutral and feminine pronouns heighten the salience of nonmales. Model 2 shows this pattern is unchanged by whether one reports names under a time constraint, as evidenced by nonsignificant interaction terms ($P > 0.05$; see *SI Appendix*, section 6 for accompanying plot). If social desirability was present, this timing manipulation should have reliably moderated the effect of pronoun use. It does not, which suggests that social desirability is unlikely driving the main results, and that these pronoun effects reflect a more automatic response.

Pronouns and the Mental Salience of Gender Categories. The evidence so far supports the claim that gender-neutral pronouns significantly reduce the mental salience of males relative to nonmales. Here, this effect is unpacked by exploring whether gender-neutral pronouns lead people to think about gender in a less binary way, as evidenced by unisex names. This is a hard test because, as mentioned earlier, only about 2% of respondents across studies 1 and 2 reported a unisex moniker (e.g., Kim, Robin). Despite this, when pooling across studies 1 and 2 ($n = 2,155$), 51% of the unisex names offered across both studies appear in the gender-neutral condition compared to only 26% in the masculine and 23% in the feminine conditions. This aligns with the expectation that gender-neutral pronouns heighten the salience of nonbinary gender.

Study 3 sheds further light on whether gender-neutral pronouns heighten the salience of nonbinary gender (see *SI Appendix*, section 6 for more discussion and tests). The share of unisex names in study 3 is highest in the gender-neutral pronoun condition, at 32%, compared with 1% in the masculine pronoun condition and 0.5% in the feminine pronoun condition. The data also show that in the gender-neutral condition, unisex names are the most frequently offered category of names (32%) compared with male (24%) or female (17%) ones. This evidence further shows that gender-neutral pronouns also heighten the salience of nonbinary gender.

Discussion

Three experiments suggest that language is meaningfully associated with the construction and maintenance of attitudes toward gender roles and categories. Compared with masculine pronouns, gender-neutral ones decrease individuals' mental bias in favor of men, and enhance the salience of women and other heterodox gender groups in speakers' minds. This effect has significant downstream consequences, as it is associated with individuals expressing political opinions that are more gender equal and

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[††]Age is correlated with slower completion times and a college education is associated with faster ones, as one might expect.

[‡‡]*SI Appendix*, section 6 includes design details, name codings, and balance tests.

Table 4. Time constraints negligibly impact name reports by pronoun condition

	Report nonmale names	Report nonmale names (interaction with timing treatment)
Gender-neutral pronoun	1.790 (0.132)*	1.866 (0.197)*
Feminine pronoun	3.391 (0.154)*	3.320 (0.219)*
Timed response	0.110 (0.096)	0.165 (0.235)
Gender-neutral × timed	—	−0.159 (0.265)
Feminine × timed	—	0.201 (0.316)
Constant	−1.841 (0.128)*	−1.872 (0.178)*
N	1,238	1,238

Estimates are from probit models with robust SEs. *$P < 0.05$, 2-tailed.

tolerant of LGBT individuals. Comparable results also emerge for feminine pronouns.

Critically, these results are less prone to the charge that culture, rather than language, causes them. Distinguishing language from culture allows researchers to more fully isolate its independent influence on cognition. This is crucial because in prior research, language and culture have worked in unison to affect expressed opinions in similar directions. Across all 3 studies, culture is held constant by focusing on adults who inhabit the same cultural context. By prying apart language from culture a bit more, these studies help to further establish that language effects on cognition are real and uniquely tied to structural features of a tongue.

These findings also make a theoretical contribution by specifying that gender-neutral language influences attitudes and beliefs about gender equality and tolerance toward LGBT individuals by decreasing the cognitive salience of males (and increasing the salience of nonmales). This is a significant improvement over prior literature, which has demonstrated that language impacts evaluations and judgments, but has not illuminated the mechanisms through which these effects happen. By looking at gender and LGBT equality, this article shows that gender-neutral language can increase the acceptance of nonbinary LGBT individuals. This is an important advancement in the theory and scope of language effects and contributes to our understanding of LGBT tolerance, which is a major political issue.

Finally, the results uncovered here bode well for policymakers and practitioners who believe that inequities between men, women, and those who do not fit these traditional gender categories should be minimized, if not eliminated (1, 7–9, 23, 24). Indeed, insofar as combatting patriarchy is considered a normatively worthy endeavor, the evidence here suggests that mere changes in words can, in fact, help societies more closely adhere to this ideal.

1. R. Inglehart, P. Norris, *Rising Tide* (Cambridge University Press, Cambridge, 2003).
2. T. Iversen, F. Rosenbluth, *Women, Work, and Politics* (Yale University Press, New Haven, 2010).
3. J. Sidanius, Y. Peña, The gendered nature of family structure and group-based anti-egalitarianism: A cross-national analysis. *J. Soc. Psychol.* **143**, 243–251 (2003).
4. W. W. Wilkinson, Threatening the patriarchy: Testing an explanatory paradigm of anti-lesbian attitudes. *Sex Roles* **59**, 512–520 (2008).
5. E. Duflo, Women empowerment and economic development. *J. Econ. Lit.* **50**, 1051–1079 (2012).
6. C. Goldin, A grand gender convergence: Its last chapter. *Am. Econ. Rev.* **104**, 1091–1119 (2014).
7. D. Z. O'Brien, R. Johanna, Gender quotas and women's political leadership. *Am. Polit. Sci. Rev.* **110**, 112–126 (2016).
8. D. McGoldrick, The development and status of sexual orientation discrimination under international human rights law. *Hum. Rights Law Rev.* **16**, 613–668 (2016).
9. A. Reynolds, Representation and rights: The impact of LGBT legislators in comparative perspective. *Am. Polit. Sci. Rev.* **107**, 259–274 (2013).
10. C. Everett, *Linguistic Relativity* (De Gruyter, Berlin, 2013).
11. S. Sczesny, M. Formanowicz, F. Moser, Can gender-fair language reduce gender stereotyping and discrimination? *Front. Psychol.* **7**, 25 (2016).
12. M. Gustafsson Sendén, E. A. Bäck, A. Lindqvist, Introducing a gender-neutral pronoun in a natural gender language: The influence of time on attitudes and behavior. *Front. Psychol.* **6**, 893 (2015).
13. D. Stahlberg, S. Sczesny, Effects of the generic use of the masculine pronoun and alternative forms of speech on the cognitive visibility of women [in German]. *Psych. Rund.* **52**, 131–140 (2001).
14. K. Lehavot, A. J. Lambert, Toward a greater understanding of antigay prejudice: On the role of sexual orientation and gender role violation. *Basic Appl. Soc. Psych.* **29**, 279–292 (2007).
15. E. O. Pérez, M. Tavits, Language influences public attitudes toward gender equality. *J. Polit.* **81**, 81–93 (2019).
16. L. Boroditsky, L. A. Schmidt, W. Phillips, "Sex, syntax, and semantics" in *Language in Mind: Advances in the Study of Language and Cognition*, D. Gentner, S. Goldin-Meadow, Eds. (MIT Press, Cambridge, 2003), pp. 61–79.
17. M. D. Sera, C. A. H. Berge, J. del Castillo Pintado, Grammatical and conceptual forces in the attribution of gender by English and Spanish speakers. *Cogn. Dev.* **9**, 261–292 (1994).
18. B. D. Wasserman, A. J. Weseley, Qué? Quoi? Do languages with grammatical gender promote sexist attitudes? *Sex Roles* **61**, 634–643 (2009).
19. Y. Y. Hong, M. W. Morris, C. Y. Chiu, V. Benet-Martínez, Multicultural minds. A dynamic constructivist approach to culture and cognition. *Am. Psychol.* **55**, 709–720 (2000).
20. D. Laitin, *Politics, Language, and Thought* (University of Chicago Press, Chicago, 1977).
21. P. E. Shrout, N. Bolger, Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychol. Methods* **7**, 422–445 (2002).
22. K. A. Ranganath, C. T. Smith, B. A. Nosek, Distinguishing automatic and controlled components of attitudes from direct and indirect measurement methods. *J. Exp. Soc. Psychol.* **44**, 386–396 (2008).
23. D. Broockman, J. Kalla, Durably reducing transphobia: A field experiment on door-to-door canvassing. *Science* **352**, 220–224 (2016).
24. J. K. Taylor, D. C. Lewis, D. P. Haider-Markel, *The Remarkable Rise of Transgender Rights* (Univ. of Michigan Press, Ann Arbor, 2018).
25. M. Lodge, C. S. Taber, *The Rationalizing Voter* (Cambridge University Press, New York, 2013).
26. R. Tourangeau, L. J. Rips, K. Rasinski, *The Psychology of Survey Response* (Cambridge University Press, New York, 2000).