Received: 11 October 2021 | Revised: 16 August 2022 | Accepted: 24 September 2022

DOI: 10.1111/jasp.12930

ORIGINAL ARTICLE

Journal of Applied Social Psychology WILEY

US liberals and conservatives live in different (linguistic) worlds: Ideological differences when interpreting business conversations

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Funding information
National Science Foundation

Abstract

When people use language to communicate, their intended meanings are not always conveyed by words alone. Instead, speakers sometimes convey their meaning in a relatively subtle, or indirect, fashion, and this requires some interpretation on the part of the receiver. In this study we investigated differences between US liberals and conservatives in their interpretation of conversation utterances that have these types of potential indirect meanings. Past research demonstrating cognitive differences between conservatives and liberals suggests liberals should be more likely than conservatives to engage in cognitive processes designed to uncover potential indirect meanings. To test this, we created a conversation between two businessmen that contained five types of indirect utterances that were chosen from the pragmatics literature. Participants were asked to rate the likelihood of an indirect interpretation of each of these utterances, as well as two control utterances that did not convey an indirect meaning. In three studies (Total $N = 664$) liberals were significantly more likely to endorse the indirect interpretations of these utterances (but not the control utterances) than were conservatives. Several possible cognitive mediators (Empathy Quotient, Need for Cognition, and Cognitive Flexibility) were examined but did not account for the effect. The results demonstrate an important interactional implication of the cognitive processing differences between liberals and conservatives. Future research should attempt to extend these findings by using different utterances and contexts, as well as examining other potential mediators.

1 | INTRODUCTION

Language lies at the heart of social interaction and is the platform through which we navigate our social world. Human communication, however, is not perfect. People occasionally misinterpret one another and come away with different understandings about the meaning of a conversation, sometimes with dire consequences. An important question, then, is whether there are systematic differences between people in how they interpret conversation remarks. Prior research on this topic has examined gender (e.g., Tannen, 1990) and cultural (e.g., Holtgraves, 1997) differences in conversation interpretation. In contrast, in this study, we consider a different, cultural-level variable, political ideology. We conceptualize political ideology in terms of one's relative position on an abstract liberal-conservative continuum, and we examine differences between liberals and conservatives in how they interpret conversation utterances. Although researchers have studied ideological differences in language production, no one has yet examined ideological differences in how conversation remarks are interpreted. Based on prior research demonstrating certain cognitive and language differences between liberals and conservatives, we argue and demonstrate that liberals are more likely to

endorse possible indirect meanings of conversational utterances than conservatives.

1.1 | Cognitive differences

Researchers have examined a variety of cognitive differences between conservatives and liberals. Perhaps the most well-known line of research in this domain has been the motivated cognition approach taken by Jost and colleagues (for reviews see Jost et al., 2003; Jost, Becker, et al., 2017; Jost, Stern, et al., 2017). The motivational component stems from differences in the need for order and stability (with conservatives demonstrating a higher need), with this need manifesting itself in a variety of cognitive tendencies, primarily centered around differences in overall cognitive complexity. More specifically, conservatives (relative to liberals) tend to display higher levels of dogmatism and intolerance of ambiguity (Farmer et al., 2020), and lower levels of need for cognition (Young et al., 2019) and openness to experience (Fatke, 2017; Sibley et al., 2012). Conservatives are also less likely than liberals to experience cognitive dissonance (Nam et al., 2013) and they tend to have attentional biases toward negative stimuli (Carraro et al., 2011).

One particularly important cognitive difference is a tendency of liberals to engage in reflection and conservatives to prefer intuition. Or, in the terms of dual process models, a tendency for liberals to be more likely to engage in controlled, systematic (System 2) thinking and conservatives to be more likely to engage in automatic, heuristic (System 1) thinking, a difference that has been demonstrated not with self-report measures, but with behavioral tasks such as the cognitive reflection test (e.g., Deppe et al., 2015; but see Kahan, 2013).

Some researchers have suggested that there is a causal link between cognitive thinking style and ideology, arguing that a conservative ideology can arise as a *process* consequence of low-effort thought. For example, Eidelman et al. (2012) conducted four studies examining the attitudinal consequences of disrupting high-effort thought. When the ability of participants to engage in high-effort thought was curtailed (e.g., via time pressure or cognitive load), they endorsed more conservative attitudes, relative to when they were not so constrained. According to Eidelman et al. (2012), individuals who rely on low-effort thinking are more likely to endorse conservatism because its concepts are often easier to process and processing fluency increases attitude endorsement.

Other researchers have argued for ideological differences in cognition that are somewhat independent of a motivational striving for order and stability. For example, Talhelm et al. (2015) demonstrated in a set of five different experiments that liberals, relative to conservatives and moderates, display a more analytic thinking style, a style that has typically been viewed as a component of a western (or WEIRD) thinking style. Importantly, rather than relying on self-report measures, their research used behavioral measures, cognitive tests such as the Triad Categorization Task and Framed Line Task.

More recently, Buechner et al. (2020) investigated working memory differences between liberals and conservatives, differences that have been argued to underlie variation in cognitive flexibility. They focused on two critical components of working memory: inhibition (overriding information that interferes with existing information) and updating (revising existing representation based on new information). These authors argue that cognitive rigidity typically associated with conservatism is reflective of superior inhibitory processes. In contrast, cognitive flexibility that is typically associated with liberalism reflects superior updating processes. Task performance in three experiments was consistent with this logic. Conservatives performed significantly better at response inhibition tasks and liberals performed better at cognitive updating, effects that were independent of religiosity and intelligence. Importantly, cognitive flexibility, typically associated with liberalism, was positively associated with performance on updating tasks and negatively associated with performance on inhibition tasks.

1.2 | The language of liberals and conservatives

Early research conducted by Tetlock et al. (1983, 1984) demonstrated that right-wing politicians, relative to their left-wing counterparts, tend to use styles of argumentation that are lower in integrative complexity, that is, arguments that are less likely to contain multiple (and potentially conflicting) viewpoints. More recently, Cichocka et al. (2016) reported three studies examining the use of nouns (vs. verbs and adjectives) as a function of political orientation. In the linguistic category model (Semin & Fiedler, 1988, 1991), grammatical categories vary in terms of their level of abstraction, with nouns being the least abstract and verbs (especially action verbs) being the most abstract. These authors argued that because nouns convey greater permanence and stability, their use should be associated with conservatives' need for greater order, certainty, and stability. In three studies, using participants from Poland and Lebanon as well as transcripts of US presidential speeches, conservatism was associated with greater use of nouns.

Other researchers have examined content as well as grammatical differences. For example, Sylwester and Purver (2015) used the Linguistic Inquiry and Word Count program (LIWC; Pennebaker et al., 2015) to examine the tweets of liberals and conservatives. The tweets of conservatives (relative to liberals) more frequently referenced achievement and religion, and the tweets of liberals (relative to conservatives) more frequently referenced uniqueness (via use of first person pronouns) and emotions. Robinson et al. (2017) demonstrated consistent differences between liberals and conservatives in what they termed the mind-body index. Using the LIWC categories of cognitive process (indexing the mind) and biological processes (indexing the body), they created a mind-body index by subtracting the latter from the former. In three studies they examined texts from presidential speeches, posts on political websites, and writing samples produced by laypersons. A consistent pattern emerged across all three studies with liberals scoring significantly higher than conservatives on the mind-body index (indicating relatively greater reference to cognitive than biological processes).

Schoonvelde et al. (2019) examined the (over 300,000) speeches of non-US politicians in terms of linguistic complexity by computing Flesch-Kincaid scores for each speech (higher scores on this measure correspond to higher complexity, as a function of longer words, longer sentences, or both). Cultural (but not economic) liberals displayed significantly higher linguistic complexity than their conservative counterparts.

1.3 | Indirect meaning

A fundamental feature of human linguistic communication is that much meaning is conveyed indirectly. Indirect meaning refers to the times when a speaker's intended meaning cannot be derived solely from a literal reading of their utterance. Jokes, sarcasm, metaphors, hints, and so on, are all examples of indirect meaning. Although there are multiple types of indirect utterances, all of them involve, to varying degrees, an inferential process in order for the recipient to recognize the intended indirect meaning. For example, when Anton asks Hunter what he thought of his presentation, and Hunter replies "It's hard to give a good presentation," Anton will likely infer that Hunter's opinion of his presentation is negative. Note that the literal meaning of "It's hard to give a good presentation" does not convey a negative evaluation; instead, it is only through an inferential process that the likely intended meaning is recognized.

Much research in pragmatics, and especially experimental pragmatics, has been concerned with both the reasons for the use of indirect expressions, as well as their cognitive, neural, and interpersonal consequences (for a book-length review see Noveck, 2018). As an initial attempt to examine variability in the interpretation of these types of utterances as a function of political ideology, we included five different types of indirect forms, all of which have been documented and investigated in the pragmatics literature.

1.3.1 | Indirect requests

Requests are typically face-threatening (i.e., they impose upon the recipient) and for this reason are usually conveyed indirectly. Hence, speakers will typically use a polite (and hence indirect) form (e.g., Could you open the window?) rather than a direct and threatening form (e.g., Open the window). Indirect requests can be performed with both conventional (e.g., Could you open the window?) and nonconventional forms (e.g., "It's warm in here" as a hint for the recipient to open the window). In this study we used a nonconventional form due to its greater ambiguity (i.e., the indirect meaning of conventional forms is almost always recognized).

1.3.2 | Indirect replies

Indirect replies involve violations of the Maxim of Relation, or expectation that interactants will produce utterances that are relevant for the current conversation (Grice, 1975). Violations of this maxim can serve to indirectly convey negative (i.e., face-threatening) information. The reply "It's hard to give a good presentation" in response to the question "What did you think of my presentation?" is a prototypical indirect reply, and the recipient (and observers) will likely reason that the speaker is conveying a negative opinion of the presentation (Bašnáková et al., 2014; Holtgraves, 1998, 1999).

1.3.3 | Scalar expressions

Scalar expressions are words that have both a semantic meaning (e.g., the semantic meaning of "some" is "more than one") and a pragmatic meaning (e.g., the pragmatic meaning of "some" is "not all"). The pragmatic meaning is an implicature (or indirect meaning) and, unlike the semantic meaning, is optional (i.e., it can be canceled). For example, it is acceptable to say "Some people liked your talk, in fact everyone liked your talk" but not "Some people liked your talk, in fact no one liked your talk". Research has focused on the processing of scalar expressions, and in general, has demonstrated that contextual factors, as well as individual differences, influence if and when they are computed (e.g., Holtgraves & Kraus, 2018; Nieuwland et al., 2010).

1.3.4 | Negative gradable adjectives

Negated gradable adjectives are terms in which an adjective is negated as a means of conveying an interpretation that is stronger than its literal meaning (often referred to as "negative strengthening"; Giora et al., 2004 ; Ruytenbeek et al., 2017). For example, a sentence like "Don is not kind" can result in the inference that Don is mean. Interestingly, negation is more likely to be strengthened for positive adjectives (i.e., not kind) than negative adjectives (i.e., not mean), an asymmetry that is most likely due to politeness considerations (i.e., negating a positive adjective allows one to convey a negative trait in a less face-threatening manner, a concern that is less salient for conveying a positive trait).

1.3.5 | Conditional offer

In general, conditionals are speech acts that take an If-then form (e.g., if you do x, then I will do y; Haigh et al., 2011). Some speech acts (e.g., threats) are inherently conditional, but hybrids (e.g., conditional offer, conditional promise, etc.) are possible. If the conditional act is implicit (i.e., the performative verb is not used), then its conditional meaning must be inferred (Bonnefon et al., 2013). In many contexts conditions (and this would apply to conditional offers) "invite" the inference that the offer is valid if and only if the condition is satisfied (Geis and Zwicky (1971).

1.4 | Present research

The purpose of this study was to examine differences between liberals and conservatives in the interpretation of indirect conversation utterances. There are multiple types of indirect meanings, and in this study, we focused on the five types described above. Although there are important differences between these forms, they all require some type of effortful, inferential process to recognize the indirect meaning. Hence, what ties them together is that they all require the recipient to go beyond the language itself and infer what a speaker intends to communicate with an utterance. It seems likely that the extent to which this inferential process occurs will vary as a function of political ideology. Specifically, prior research has demonstrated a general tendency for conservatives to engage in low-effort thought, relative to liberals (Jost, Becker, et al., 2017; Jost, Stern, et al., 2017), and to prefer a less complex communication style than liberals (e.g., Schoonvelde et al., 2019). Both patterns suggest that liberals should be more likely than conservatives to engage in inferential processing. Accordingly, we predicted that liberals would be more likely than conservatives to view indirect utterances as conveying an indirect meaning. To test this, we created a conversation containing the five different types of indirect forms described above (indirect request, indirect reply, scalar expression, negative gradable adjective, and conditional offer) and asked liberals and conservatives to rate the likelihood of an indirect interpretation of each.

2 | METHODS

2.1 | Overview

We conducted three studies, all with participants recruited from Prolific. We established, a priori, a minimum of 200 participants (100 self-identified liberals and 100 self-identified conservatives) for the first two studies, and 300 participants (150 self-identified liberals and 150 self-identified conservatives) for the third study. Sensitivity power analyses (power = .80, α = .05) were conducted for the entire data set (N = 700) as well as each separate study (N = 200 or 300). We used the mean correlation between the five indirectness measures as input for the correlation between repeated measures. The first two studies (N = 200) and third study (N = 300) were able to detect small effect size (fs = .10 and .082 respectively); the combined data set (N = 700) was also able to detect a small effect size (f = .05). The studies did vary in terms of the inclusion of additional measures designed to assess potential mediators as well as the final sample sizes, both of which we describe below. All measures, manipulations, and data exclusions for these studies are reported within.

2.2 | Participants

Participants were recruited from Prolific and paid $1.00 for their participation. Prolific prescreening criteria included the following: resident of the United States, at least 18 years of age, did not participate in earlier studies, and political spectrum responses of either liberal (1/2) or conservative (1/2). As a check on political orientation, we also asked participants to report their political orientation in the survey itself. We excluded participants (Ns of 12, 14, and 12 from Studies 1 to 3, respectively) whose response to the survey question deviated from their prescreening response. Analyses were based on the remaining participants (see Table A1 in the Appendix for breakdown of political orientation and gender).

2.3 | Materials

We created a transcript of a conversation between two business executives (see Appendix A). The conversation consisted of 21 total utterances, 5 of which were the target utterances and included an indirect reply, a scalar inference, a negative gradable adjective, an indirect request, and a conditional offer. In addition, there were two direct utterances that served as fillers.

2.4 | Procedure

The experiment was conducted on the Qualtrics platform. Participants were told that the purpose of the study was to examine how people interpret conversation utterances, and that they would read a brief transcript of a conversation between two executives. The conversation was presented one utterance at a time and participants pressed the space bar to advance through the conversation. For seven utterances (five targets and two fillers), participants, immediately after pressing the space bar, were presented with an interpretation of the utterance and asked to provide their judgment of the likelihood of that interpretation on a 7-point (1 = Extremely Unlikely to 7 = Extremely Likely) scale. For four of the targets, the judged interpretation was indirect, and for one of the targets (the indirect reply), the interpretation was the opposite of the predicted indirect interpretation (and hence reverse scored).

Following completion of the conversation interpretation task, participants responded to three questions regarding their political orientation (extremely conservative, conservative, slightly conservative, moderate, slightly liberal, liberal, and extremely liberal), social class (poor, working class, middle class, upper-middle class, and upper class) and political party affiliation (Republican, Democrat, Independent, and Other).

In the second and third studies, participants also completed additional measures designed to identify possible mediators. In the second study, they completed the 12-item Cognitive Flexibility Scale (Martin & Rubin, 1995). This is a scale designed to measure individuals' awareness of alternative behavioral options available in a situation. It also measures willingness and self-efficacy in adapting to situations. The Cognitive Flexibility Scale has been demonstrated to have acceptable reliability in the past (α = .81, .72, .73; Martin & Anderson, 1998) and in the present study (α = .84).

In the third study participants completed (in counterbalanced order) a measure of emotional intelligence (EQ-Short; Wakabayashi et al., 2006) and a measure of Need for Cognition (NCS-6; Lins de Holanda Coelho et al., 2020). The EQ-Short is a 22-item version of the Empathy Quotient (Baron-Cohen & Wheelwright, 2004) designed to measure an individual's ability to predict the affective and cognitive states of others. Internal consistency was good for the EQ-Short (α = .90) and similar to previously reported coefficient alphas (e.g., α = .884; Wakabayashi et al., 2006). The NCS-6, a brief version of the 18-item Need for Cognition Scale (Cacioppo et al., 1984), assesses the tendency to engage or enjoy complex cognitive tasks. In the past, the NCS-6 has shown internal consistency of .90 and .86 (Lins de Holanda Coelho et al., 2020). Presently, the six items on the NCS scale had a Cronbach's α of .88.

Finally, we considered that education could mediate appraisals of indirect utterances based on evidence that liberals tend to have higher levels of educational achievement (Pew Research Center, 2016). Therefore, we included an educational achievement item (1 = Less than high school diploma to 7 = Doctorate degree) in both the second and third studies.

3 | RESULTS

We first provide tests of our main hypothesis for each study, followed by analyses that included possible mediators (studies 2 and 3). We then report the results for the combined data set. For our main hypothesis, we examined ratings of the indirect interpretations with a 2 × 5 Political Ideology (PI) by Indirectness Type (IT) Analysis of Variance (ANOVA) with repeated measures for IT. The results for the combined data set are displayed in Figure 1. The means and standard deviations for all utterances, overall and separately for each study, are presented in Table 1.

3.1 | Study 1

Mauchly's test of Sphericity indicated the assumption of sphericity was not met, $X^2(9) = 60.13$, $p < .001$ and so the Greenhouse–Geisser adjustment is used. As predicted, liberals ($M = 5.21$, $SD = 0.68$) were significantly more likely to endorse indirect interpretations than were conservatives ($M = 4.96$, $SD = 0.68$), $F(1, 187) = 6.11$, $p = .014$, $\eta_p^2 = .032$. In addition, there was a significant effect for IT, $F(3.49, 651.88) = 64.81$, $p < .001$, $\eta_p^2 = .26$, indicating different levels of endorsement for the different types of indirect utterances (see Section 3.4 for pairwise comparisons). The PI by IT interaction was not significant, $F(3.49, 651.88) = 0.36$, $p = .811$, $\eta_p^2 = .002$.

3.2 | Study 2

Mauchly's test of Sphericity indicated the assumption of sphericity was not met, $X^2(9) = 34.97$, $p < .001$ and so the Greenhouse–Geisser adjustment is used. Again, liberals were more likely to endorse indirect interpretations ($M = 5.09$, $SD = 0.69$) than were conservatives ($M = 4.84$, $SD = 0.70$), $F(1, 185) = 6.17$, $p = .014$, $\eta_p^2 = 0.032$. There was also a significant main effect for IT, $F(3.62, 670.15) = 43.11$, $p < .001$, $\eta_p^2 = 0.19$, as well as significant PI by IT interaction, $F(3.62, 670.148) = 2.81$, $p = .029$, $\eta_p^2 = .015$. Follow-up tests indicated that the liberal-conservative difference was significant for the indirect replies, with liberals ($M = 4.85$, $SD = 1.21$) being significantly more likely to endorse interpretations of indirect replies than conservatives ($M = 4.23$, $SD =$

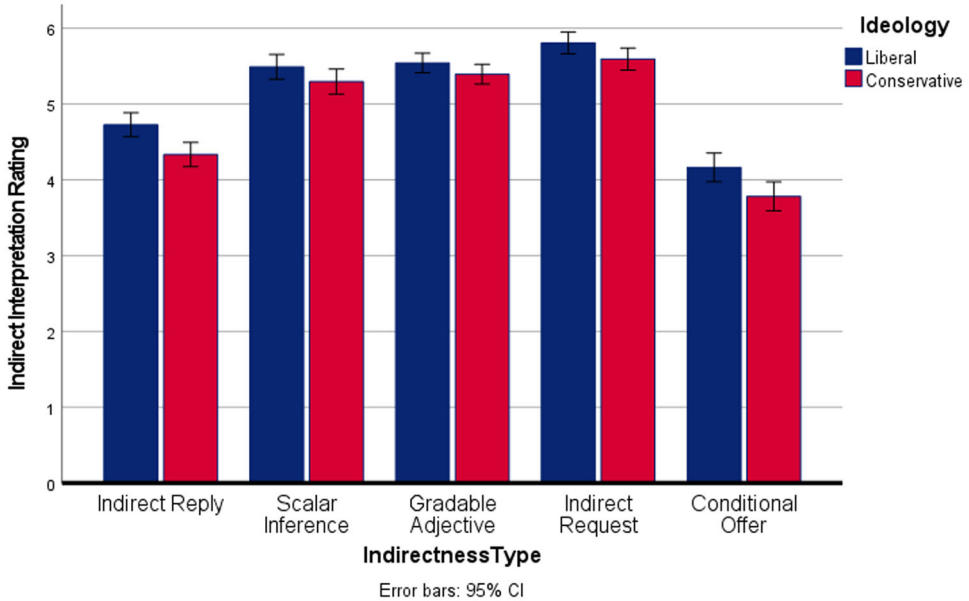

FIGURE 1 Indirectness interpretations as a function of political ideology and indirectness type (studies combined) [Color figure can be viewed at wileyonlinelibrary.com]

TABLE 1 Means (standard deviations) for all interpreted utterances as a function of political ideology

	Liberals	Conservatives
Indirect reply (all studies)	4.70 (1.44)	4.32 (1.46)
Study 1	4.76 (1.45)	4.51 (1.43)
Study 2	4.85 (1.21)	4.23 (1.38)
Study 3	4.57 (1.56)	4.26 (1.52)
Indirect request (all studies)	5.81 (1.22)	5.62 (1.41)
Study 1	5.91 (1.17)	5.55 (1.42)
Study 2	5.73 (1.20)	5.50 (1.46)
Study 3	5.78 (1.27)	5.73 (1.38)
Scalar inference (all studies)	5.49 (1.43)	5.30 (1.55)
Study 1	5.59 (1.32)	5.41 (1.35)
Study 2	5.39 (1.44)	5.18 (1.62)
Study 3	5.50 (1.50)	5.30 (1.63)
Conditional offer (all studies)	4.18 (1.68)	3.77 (1.78)
Study 1	3.97 (1.64)	3.88 (1.76)
Study 2	4.25 (1.64)	3.77 (1.75)
Study 3	4.28 (1.74)	3.70 (1.81)
Gradable adjective (all studies)	5.55 (1.12)	5.37 (1.26)
Study 1	5.80 (0.91)	5.45 (1.07)
Study 2	5.23 (1.33)	5.50 (1.06)
Study 3	5.60 (1.06)	5.24 (1.47)
Direct filler 1 (all studies)	5.52 (1.75)	5.49 (1.98)
Study 1	5.39 (1.80)	5.60 (1.83)
Study 2	5.32 (1.82)	5.33 (1.97)
Study 3	5.72 (1.65)	5.53 (2.08)
Direct filler 2 (all studies)	5.74 (0.96)	5.88 (1.09)
Study 1	5.77 (0.84)	5.85 (1.05)
Study 2	5.66 (0.92)	5.68 (1.18)
Study 3	5.76 (1.06)	6.02 (1.03)

1.38), $t(186) = 3.24$, $p = .001$, $d = .42$. The liberal-conservative difference was not significant for the scalar inference $t(186) = 0.92$, $p = .36$, $d = .14$, negative gradable adjective $t(186) = 1.57$, $p = .12$, $d = .19$, indirect request $t(186) = 1.84$, $p = .24$, $d = .16$, or conditional offer $t(186) = 1.94$, $p = .054$, $d = .33$.

Scores on Cognitive Flexibility were examined as a function of political ideology and scores on the indirect interpretation task. The difference between liberals ($M = 57.13$, SD = 6.40) and conservatives ($M = 57.43$, $SD = 6.89$) was small and nonsignificant, $t(185) = -0.31$, $p = .761$, $d = -.045$, as was the correlation between Cognitive Flexibility and Indirectness Interpretation, $r(185) = -0.05$, $p = .496$ (two-tailed). It appears, then, that Cognitive Flexibility does not contribute to the interpretation difference between liberals and conservatives.

3.3 | Study 3

Mauchly's test of Sphericity indicated the assumption of sphericity was not met, $X^2(9) = 54.78$, $p < .001$ and so the Greenhouse–Geisser adjustment is used. Again, liberals endorsed indirect interpretations ($M = 5.15$, $SD = 0.76$) to a greater extent than conservatives ($M = 4.85$, $SD = 0.76$), $F(1, 287) = 11.15$, $p = .001$, $\eta_p^2 = .037$. There was also a significant main effect for the IT variable, $F(3.64, 1043.98) = 78.03$, $p < .001$, $\eta_p^2 = .214$. The PI by IT interaction was not significant, $F(3.64, 1043.98) = 1.34$, $p = .253$, $\eta_p^2 = .005$.

Total scores on the EQ and NCS-6 scales were examined as a function of political ideology and scores on the indirect interpretation task. There was a significant, positive correlation between EQ and Indirectness Interpretation, $r(287) = 0.19$, $p < .009$ (two-tailed). Hence, individuals scoring higher on the Empathy Quotient scale were more likely to endorse indirect interpretations. However, the difference between liberals ($M = 24.08$, $SD = 9.44$) and conservatives ($M = 23.30$, $SD = 7.85$) on the EQ scale was not significant, $t(277.18) = 0.763$, $p = .44$ (two-tailed), $d = .090$. The correlation between Need for Cognition and Indirectness interpretation was not significant, $r(287) = 0.09$, $p = .13$ (two-tailed), nor was the difference between liberals ($M = 21.74$, $SD = 5.28$) and conservatives ($M = 20.78$, $SD = 5.79$), on this measure $t(287) = 1.47$, $p = .143$ (two-tailed), $d = .17$. We conducted an Analysis of Covariance (ANCOVA) in which we included both EQ and NC as covariates. In that analysis the effect of ideology on interpretation remained significant, $F(1, 285) = 10.30$, $p = .001$, $\eta_p^2 = .035$. Overall, then, neither EQ nor NCS-6 appears to be significant mediators of the effect of ideology on interpretation.

3.4 | Combined studies

Ratings of Indirect Interpretations were analyzed with a 2 × 5 × 3 Political Ideology (PI) by Indirectness Type (IT) by Study ANOVA with repeated measures for the IT variable. Mauchly's test of Sphericity was significant indicating the assumption of sphericity was not met, $X^2(9) = 199.73$, $p < .001$, therefore Greenhouse–Geisser was used.

Overall, liberals ($M = 5.15$, $SD = 0.73$) were more likely to endorse indirect interpretations than were conservatives ($M = 4.88$, $SD = 0.73$), $F(1, 658) = 21.84$, $p < .001$, $\eta_p^2 = .032$. The IT by PI interaction was not significant, $F(3.65, 2401.60) = 1.04$, $p = .384$, $\eta_p^2 = .002$, indicating that the effect of ideology on interpretation was consistent over indirectness type, as can be seen in Figure 1. To explore this further we tested the effect of ideology separately for each indirectness type. The liberal-conservative difference was significant (two-tailed) for the indirect reply $t(663) = 3.39$, $p = .001$, $d = .26$, gradable adjective, $t(663) = 1.98$, $p = .049$, $d = .15$, and conditional offer, $t(663) = 3.08$, $p = .002$, $d = .24$, and marginally significant (two-tailed) for the scalar inference, $t(663) = 1.69$, $p = .092$, $d = .13$, and indirect request, $t(6647.365) = 1.82$, $p = .069$, $d = .14$. We examined whether liberals and conservatives would vary in their interpretation of the two direct filler items. They did not. The difference between

liberals (M = 5.63, SD = 1.09) and conservatives (M = 5.6, SD = 1.21) was small and not significant, $F(1, 663) = 0.453$, $p = .501$, $\eta_p^2 = .001$.

There was a significant main effect for the IT variable, $F(3.65, 2401.60) = 173.34$, $p < .001$, $\eta_p^2 = .21$. The results of follow-up pairwise comparisons (with a Bonferonni adjustment) are presented in Table A2 in the appendix. In this analysis, there were significant ($p < .001$) differences between each of the indirectness types, except for the difference between scalar inferences and negative gradable adjectives. Finally, the PI by Study interaction, $F(2, 658) = 0.11$, $p = .895$, $\eta_p^2 = .000$, IT by Study interaction, $F(7.3, 2401.60) = 0.85$, $p = .553$, $\eta_p^2 = .003$. and IT by PI by Study interaction were not significant, $F(7.3, 2401.60) = 1.68$, $p = .106$, $\eta_p^2 = .005$.

3.5 | Social class and education

We conducted exploratory analyses to examine whether reported social class and education levels might play a role in our results. Few participants reported being either lower class (N = 25) or upper class (N = 21) and so we collapsed across these two categories and created a three-level class variable (poor/working N = 210; middle N = 302; upper middle/upper N = 153). Political ideology did vary as a function of class with the middle class containing a higher percentage of conservatives (57.3%) than either the lower (42.4%) or the upper (45.2%), class, $X^2(2, N = 665) = 12.74$, $p = .002$. However, when we included Class as a variable in the ANOVA, the Ideology effect remained significant, $F(1, 658) = 20.51$, $p < .001$, $\eta_p^2 = .030$, and neither Class, $F(2, 659) = 0.05$, $p = .949$, $\eta_p^2 = .000$ nor the Ideology by Class interaction, $F(2, 659) = 0.05$, $p = .953$, $\eta_p^2 = .000$ were significant

In terms of education (studies 2 and 3 only; recoded into BA degree vs. no BA degree), there was no difference between liberals (59.5%) and conservatives (62.3%) in the percentage with a BA degree, $X^2(1, N = 476) = 0.41$, $p = .52$. Moreover, when education was included as a variable in the ANOVA, the Ideology effect remained significant, $F(1, 472) = 16.42$, $p < .001$, $\eta_p^2 = .034$, and neither Education, $F(1, 472) = 0.62$, $p = .432$, $\eta_p^2 = .001$, nor the Ideology by Education interaction, $F(1, 472) = 0.02$, $p = .892$, $\eta_p^2 = .000$ were significant.

4 | DISCUSSION

A substantial body of research has demonstrated a variety of differences between liberals and conservatives including, for example, differences in consumer choices (Farmer et al., 2020), artistic taste (Wilson et al., 1973), humor (Wilson, 1990), moral judgments (Graham et al., 2009; Haidt & Graham, 2007), personality (Fatke, 2017), and even taste sensitivity (Ruisch et al., 2021). Despite the depth and breadth of this research, the interactional consequences of these differences have been under-researched. In this project we examined some of the communicative consequences of the differences between liberals and conservatives, focusing specifically on differences in the interpretation of conversation utterances. In three separate studies, we found consistent evidence that individuals reporting a liberal political orientation are more likely to endorse indirect interpretations of utterances than individuals reporting a conservative political orientation.

Importantly, in this study, we included a range of different types of indirect utterances, and for the most part, the conservative-liberal difference was roughly the same for each. Hence, the effect is not unique to one type of indirect remark. Indirectness, of course, is ubiquitous and there are many other types of indirectness. For example, many types of humor (e.g., satire) depend on indirect meanings for their effect. Consistent with our findings, other researchers have reported an ideological difference in humor comprehension and appreciation (Wilson, 1990; Young et al., 2019). Young et al. (2019), for example, found conservatives, relative to liberals, to be less appreciative of both irony and exaggeration, an effect that was partially mediated by lower need for cognition among the conservative participants. There are, of course, other genres (e.g., poetry) that trade on indirect meaning and for which there may be ideological differences that future research can attempt to explore.

Prior research on ideological differences in language use has focused on language production, that is, differences between liberals and conservatives in terms of how they talk. A relatively consistent pattern has emerged, with conservatives tending to speak more concretely and less abstractly, that is, to use more nouns than verbs (Cichocka et al., 2016). As well, the language of conservatives tends to be lower in complexity (Schoonvelde et al., 2019) and with relatively fewer references to cognitive processes (Robinson et al., 2017). Preferences for speaking indirectly are usually associated with the tendency to interpret the remarks of others indirectly (Holtgraves, 1997). Hence, our findings regarding ideological differences in the interpretation of indirectness are quite consistent with prior research demonstrating ideological differences in language production.

Although we provide a clear demonstration of liberal-conservative differences in the interpretation of utterances with an indirect meaning, we did not identify the specific underlying mechanism(s) that might explain this effect. In this study, we explored what we considered to be likely potential mediators. Both of the demographic variables that we examined—class and education—were unrelated to indirectness interpretation. On the other hand, of the cognitive mediators we examined, there was a significant relationship between scores on the measure of empathy (EQ) and indirectness interpretation. This relationship makes theoretical sense, as empathy involves the motivation and ability to read people and understand their meanings. Although this mediator correlated with indirectness interpretation as expected, it did not significantly covary with ideological orientation (although it was in the predicted direction).

Finally, we note here several limitations of this study. First, we used an overall measure of ideology, and we did not differentiate between social and economic liberalism and conservatism. Past research (e.g., Crowson, 2009), however, suggests that this may be an

important dimension. For example, in the research of Schoonvelde et al. (2019), the difference between liberals and conservatives in terms of linguistic complexity occurred only for cultural liberals versus conservatives, and not for economic liberals versus conservatives. Future research examining ideological differences in conversation interpretation, including attempts to identify possible mediators, should try to include this dimension.

Second, the utterances that we examined in this study occurred within the specific conversational context of two male, business executives discussing a range of issues pertaining to their respective concerns. Conversational meaning depends heavily on the context (e.g., business setting vs. informal chat), as well as characteristics of the speaker such as gender, age, and so on (Holtgraves, 2013). Hence, there is the possibility that the pattern of results that we observed in these studies may be partly a function of the context. Future research is required to test the generalizability of these results in different contexts and with different speakers.

Third, in these studies, we examined the interpretation of five different types of indirect utterances. There are, of course, other indirect forms that can and should be examined, especially since different cognitive and neural processes are sometimes involved in their comprehension (Holtgraves, 1999). Prime candidates in this regard would be certain types of humor such as satire, as well as sarcasm and irony, all forms that have been investigated in the past and for which progress has been made in identifying the processes involved in their comprehension.

In this study, we examined individual differences in the interpretation of conversation remarks. Although we focused on political ideology, there are likely other variables that may be related to how someone interprets remarks in a conversation. One such variable that we examined in this study was empathy, and we did find a positive relationship between empathy and the endorsement of indirect meaning. It is likely that there are other demographic (e.g., cultural orientation) and personality (e.g., Neuroticism) variables related to the tendency to recognize indirect meanings. Examining these variables will facilitate the construction of a theoretically coherent picture of how people differ in their interpretation of conversation remarks.

A critical issue during Donald Trump's first impeachment trial was the meaning of "I'd like you to do us a favor though," an utterance Trump said to the President of Ukraine. In general, Democrats were more likely than Republicans to view this utterance as a conditional offer, and hence evidence of an impeachable offense. Similarly, liberals and conservatives tended to have different interpretations of the meaning of the phrases Black Lives Matter and All Lives Matter. Obviously, political motivation explains a large part of these differences. But possibly not all. Our results suggest a differing sensitivity to the nuances of communication, differences that may sometimes be noise, and at other times may have profound interpersonal consequences. Exploring these differences, we hope, will contribute to our understanding of how liberals and conservatives can come away from the same conversation with different interpretations of what was said and meant.

ACKNOWLEDGMENT

Support for this study was provided by a grant from the National Science Foundation (BCS-1917631).

CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in ICPSR at https://www.openicpsr.org/openicpsr/project/133861/version/V1/view. All data collected for this project, as well as all reported analyses, are available at Open ICPSR. All materials used in the project are presented in Appendix A.

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How to cite this article: Holtgraves, T., & Bray, K. (2022). US liberals and conservatives live in different (linguistic) worlds: Ideological differences when interpreting business conversations. *Journal of Applied Social Psychology*, 1–10. https://doi.org/10.1111/jasp.12930

APPENDIX A

Conversation Transcript

Instructions

The transcript that you will read is a brief conversation taking place between two business executives, Mr. Anderson (referred to as Mr. A) and Mr. Brown (referred to as Mr. B). Their conversation will be presented one remark at a time and you should push the space bar to advance through the conversation. At certain points during the conversation, a screen will appear asking you to interpret the prior remark. Simply provide your judgment, and then the next remark will appear. Continue in this manner until the end.

Mr. A: Thanks for taking my call. I really appreciate it.

Mr. B: No problem. And congratulations on your new acquisition.

Mr. A: Thanks. And of course, we really appreciated ***all*** of your help!

Interpretation (Filler): Mr. A did not think Mr. B was very helpful.

Mr. B: We were happy to do it.

Mr. A: So what did you think of our company rollout?

Mr. B: Well, it's hard to do those well.

Interpretation (Indirect Reply): Mr. B. thought the rollout went well.

Mr. A: Yeah, I know. Sometimes it is.

Mr. B: Hopefully things will start picking up and you'll do really well.

Interpretation (Filler): Mr. B truly does hope that things pick up for Mr. A.

Mr. A: I'm also wondering, what are your thoughts about interest rates? Do you think they'll be raised anytime soon?

Mr. B: Well, some people think they'll be raised soon.

Interpretation (scalar term): Mr. B is saying that not everyone thinks they'll be raised soon.

Mr. A. That's pretty much where we are too.

Mr. B: I think most people feel that way. How's your new chairman working out?

Mr. A. He's new and not so nice.

Interpretation (negative graded adjective): Mr. A thinks his new chairman is very mean.

Mr. A: So, I heard that the new contract is almost finished.

Interpretation (Indirect request): Mr. A is asking Mr. B if the contract is almost finished.

Mr. B: Well, we're almost ready to sign.

Mr. A: Oh, that's fantastic!

Mr. B: I would like you to do us a favor, though.

Interpretation (Conditional offer): Mr. B is saying he'll sign the contract if Mr. A does a favor for him.

Mr. A: Of course. Just let us know.

Mr. B: Great. We'll be in touch then.

Mr. A: Excellent. Talk to you later.

Mr. B: Bye.

See Tables A1 and A2.

TABLE A1 Breakdown of political orientation and gender for all studies

Political orientation										
	Liberal					Conservative				Total
Study	Male	Female	Nonbinary	Other	Total	Male	Female	Nonbinary	Other	Total
1	45	49	2	1	97	54	38	0	0	92
2	39	53	1	0	93	57	37	0	0	94
3	86	57	1	0	144	72	72	0	0	144
Total	170	159	4	1	334	183	147	0	0	330

TABLE A2 Pairwise comparison *t* values and effects sizes (Cohen's *d*) for indirectness type (combined studies)

	Indirect reply	Scalar inference	Gradable adjective	Indirect request	Conditional offer
Indirect reply		11.52* (0.45)	13.65* (0.53)	15.84* (0.61)	5.99* (0.37)
Scalar inference			0.95 (0.04)	4.33* (0.17)	15.93* (0.62)
Gradable adjective				3.88* (0.15)	19.03* (0.74)
Indirect request					21.92* (0.85)

*$p < .001$.