

# The Effects of Ideology Attribution and Political Attitudes, Tolerance, and Perception of Polarization

Melissa N. Baker<sup>a</sup>, Ingrid J. Haas<sup>b,c</sup>

<sup>a</sup>*Department of Political Science, University of California, Merced*

<sup>b</sup>*Department of Political Science, University of Nebraska-Lincoln*

<sup>c</sup>*Center for Brain, Biology, and Behavior, University of Nebraska-Lincoln*

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## Abstract

Does attributing the roots of political ideology to biology influence political tolerance and how people feel about their political outgroups? In this paper, we examine the effects of attributing political ideology to biology, as opposed to malleable personal choices, on attitudes about and tolerance toward political groups and on the perception of party polarization. Using an experimental paradigm, we encouraged respondents to think about political ideology as either rooted in biology or as a personal choice that is not fixed. Results from two studies suggest encouraging individuals to attribute political ideology to biology leads to more positive attitudes about the political outgroup, greater tolerance of outgroups, and a perception of less polarization.

*Keywords:* Attribution, Ideology, Tolerance, Polarization

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## 1. Introduction

A growing body of literature has explored biological differences between liberals and conservatives, whether it be in brain structure, brain function, genetic phenotypes, hormones, or other cognitive and personality differences (for a more in-depth summary of the findings see McDermott and Hatemi 2011; Hibbing, Smith, and Alford 2013). Work has yet to examine whether being exposed to this information about ideological foundations changes how people perceive political groups. Does attributing the roots of political ideology to biology influence political attitudes?

Previous studies focused on causal attribution for sexual orientation have found that when people attribute sexual orientation to biological foundations (i.e. genetics), they tend to have more positive views about homosexuals, express more tolerance of homosexuality, and are more likely to support individual rights for homosexuals, such as same-sex marriage or same-sex couples adopting children. Due to the correlational nature of these studies (Haider-Markel and Joslyn 2008; Hegarty 2001), it is unclear whether biological attribution leads to more positive attitudes and higher tolerance, more positive attitudes and higher tolerance lead to biological attribution, or other third variables influence the relationship between attribution, attitudes, and tolerance. In this paper, we seek to examine the causal nature of the relationship between attribution, attitudes, and tolerance in relation to politics. It has been suggested that this mechanism should transfer to politics such that biological attribution increases attitudes and tolerance (Hibbing, Smith, and Alford 2013). If people see biology as the foundation of political ideology, they should have more positive attitudes about and more tolerance directed

toward their political outgroup.

Other work suggests that attributing a trait to biology should create a perception of very distinct groups within that trait—distinct groups that do not have anything in common. Under the framework of Social Identity Theory (Tajfel 1970; Tajfel et al. 1971), this essentialist thinking tends to be related to an exaggeration of group differences. This exaggeration is commonly found in work on race and prejudice (Rothbart and Taylor 1992), where those who believe people of different races are biologically very different express more racial prejudice. For example, in a political context, attributing political ideology to a biological or genetic foundation would make liberals and conservatives seem like two completely separate groups, rather than two groups on a continuum that may have overlapping traits. This increases perception of polarization since the two groups seem more distant. Essentializing, the belief that social categories have an underlying nature/natural foundation (Keller 2005), magnifies boundary divisions. These divisions help people categorize political groups, which aids in the ability to make distinctions between them (Nicholson et al 2018).

We ran two experiments in order to examine the effect of biological attributions for ideology on political attitudes and tolerance. In study 1 we find that attributing political ideology to biology/genetics leads to more positive attitudes about political outgroups. Results of study 2 show that attributing political ideology to biology leads to an increase in tolerance toward ideological outgroups and reduced perceptions of polarization.

Taken as a whole, these results suggest that how people explain the causes of political ideology can have an effect on attitudes toward political groups.

The average person assigns little responsibility for ideology to biology; in manipulation checks in our studies only about 17% of people say biology is more influential than personal choices in shaping political ideology and, when asked to assign a percentage amount of influence on political ideology, respondents say biology has an average of 26.13% influence compared to an average of 79.5% influence by personal choices. But, when individuals are given information about biological roots of political ideology they have more positive attitudes about and show more tolerance toward ideological outgroups. These results could have implications for intergroup relations since, much like the shift we have seen in public opinion about homosexuality, as people learn about the biological foundations of political ideology their attitudes towards ideological groups may become more positive.

## **2. Attribution, Attitudes, and Polarization**

Previous research concerning attitudes as a function of attribution has largely focused on sexual orientation, framed by the political debate of whether homosexuality is something you are born with or something that is a lifestyle choice. Survey data has shown that individuals who believe sexual orientation is something you are born with tend to support same-sex marriage at a higher rate than individuals who believe sexual orientation is a lifestyle choice (Haider-Markel and Joslyn 2008). This sentiment is also expressed in general attitudes about sexual orientation; more positive views are expressed about homosexuals if individuals believe sexual orientation is inherent (Hegarty 2001). This work is an extension of a line of research that has found attribution influences public policy attitudes as a whole concerning racial and

ethnic out-groups (Kluegel 1990; Hunt 1996). The present research extends these relationships to politics, such that thinking about political ideology as an inherent biological trait should affect affinity towards and willingness to extend rights to political outgroups.

Individuals possess political attitudes inherently packaged with affect (Morris, Squires, Taber, and Lodge 2003), and this should in turn influence political evaluations. When an individual is evaluating a political outgroup, they will hold more negative attitudes about the group in question than a group in which they identify. The same is true regarding attribution; an individual who attributes political ideology to a biological entity will hold less negative attitudes about their ideological out-group (liberal or conservative), much like heterosexuals have more favorable attitudes towards homosexuals when attributing sexual orientation to biology. These attitude differences stem from a 'born this way' type attitude that comes with biological attribution. If biology somehow predetermines traits such as political ideology, individuals should be more sympathetic, both in terms of attitudes and tolerance, to the ideological outgroup. This sympathy manifests from a belief the outgroup cannot do anything about this biological predisposition and has little to no control over their ideological views.

Political orientations are a highly entiatively perceived category (Haslam, et al. 2000), meaning people think of political orientation as a group-level phenomenon, abstract from the individuals. Additionally, essentialism tends to make people think about categorical boundaries as rigid instead of flexible (Roberts, Ho, Rhodes, and Gelman 2017). This contributes to the perception of dichotomous categorical representations (Gelman 2003); people see two

comparable groups, such as racial groups, as having very little in common and sometimes exaggerating the differences between groups (Rothbart and Taylor 1992). Therefore, essentializing political ideology should make group stereotypes more salient and highlights differences between groups. This has been shown within research on views of gender; holding more essentialist views on gender is associated with more favorable views of gender stereotypes (Coleman and Hong 2008). Essentialist beliefs also can make people more resistant to interacting with outgroup members (Williams and Eberhardt 2008).

Drawing attention to the idea that political ideology can be rooted in, or at least partially influenced by, biology highlights a distinct categorization of ideology. Essentialism creates the illusion people are decisively liberal or conservative; biology does not leave room for anything in the grey area. This cognitive representation of political ideology enhances the ability an individual has to distinguish between liberals and conservatives, which helps the individual see clear differences between the groups. Any mechanism that is able to highlight differences between liberals and conservatives should make these groups seem especially distant in ideological space, which in turn leads to an increase in perceived polarization between liberals and conservatives or Democrats and Republicans. Since most instances where ideological groups are pinned against each other are elections, which focus on Democrats vs. Republicans in two-party systems such as the United States, we expect these group distinctions to be made on the party level in the form of polarization, whereas general attitude and tolerance changes happen on the individual level, making ideology the main attitude object.

### **3. Overview of Present Work**

We run two studies to test the effects of biological attribution on political attitudes, tolerance, and perception of polarization. In both studies, we manipulate to what individuals attribute political ideology then measure their attitudes about political groups and polarization. We expect that (H1) attributing political ideology to biology will lead to more positive attitudes about the ideological outgroup. Biological attribution should create a 'born this way' mental representation, where people assume that individuals cannot help what their political ideology is since it has a biological foundation. Relatedly, this same mental representation should lead people to be more tolerant of their political outgroups since it implies ideology cannot be changed. We expect that (H2) attributing political ideology to biology will lead to more tolerance of the ideological outgroup. Lastly, attributing political ideology to biology should create distinct, rigid, categorizations of ideological groups. Having a mental representation of ideology as a rigid categorization means that Democrats are distinctively liberal and Republicans are distinctively conservative, and there is no room for people to deviate or occupy the gray (purple) area between the two. Therefore, we expect that (H3) attributing political ideology to biology will lead to a perception of greater polarization.

### **4. Research Design**

#### *4.1. Study 1*

Study 1 tested the first hypothesis, that attributing political ideology to biology would lead to more positive attitudes about ideological outgroups,

using a 3x2 (attribution: biology, choice, control x ideology: liberal, conservative) between-groups experimental design. In this study, respondents were randomly assigned to read one vignette that encouraged them to think about political ideology as being rooted in either biology or personal choices (or a control condition). The vignette serves as an attribution manipulation, encouraging respondents to think about political ideology as either a trait rooted in biology/genetics or as a malleable personal choice. Each vignette varied on both attribution type (biology, choice, control) and ideology (liberal, conservative). The full text of each vignette is located in the appendix. After reading the vignette, respondents answered a manipulation check question that asked whether biology/genetics or personal choices is more influential in determining ones political ideology. Respondents then indicated how much they liked liberals and conservatives on a 7-point Likert scale, ranging from strongly dislike to strongly like, which we use as our dependent variable.

Respondents were a sample from Amazon’s Mechanical Turk (N = 202, 17 were excluded because of missing data resulting from exiting the study before manipulation or not answer dependent variable questions). Participation was restricted to residents of the United States and all participants were compensated one USD for participation. 64% of the respondents were male, 66% were liberal, and the mean age was 32.8 (sd = 10.26). There was no difference in political extremity between liberals (M = 1.778, sd = 0.744) and conservatives (M = 1.786, sd = 0.798),  $t(112) = -0.25$ ,  $p = 0.9467$ .

#### *4.2. Study 2*

Study 2 tested the second and third hypotheses, that attributing political ideology to biology would lead to more tolerance of the ideological outgroup and a perception of greater polarization. In this study, respondents were randomly assigned to read one vignette (from the same list of vignettes in study 1). After reading the vignette, respondents indicated where they viewed Democrats and Republicans on an ideological spectrum, with 50 being very liberal and 50 being very conservative. The measure can be found in the appendix. Respondents also completed a tolerance measure, a 9-item measure (adapted from Haas and Cunningham 2014 to focus on general political outgroup) to capture general tolerance toward ideological outgroups. Additionally, respondents answered questions about their political knowledge, political interest, and basic demographics. Respondents were a sample from Amazons Mechanical Turk ( $N = 378$ ). Participation was restricted to residents of the United States and respondents were compensated one USD for their participation. 58% of respondents were male, 70% were liberal, and the mean age was 35.62 (std = 11.17).

### **5. Results**

#### *5.1. Manipulation Check*

Each study included a manipulation check immediately following the vignette. Respondents in both studies indicated whether they thought biology or personal choices were more influential in determining political ideology. In study 2, participants also indicated on a sliding scale (a percentage from

0-100) how much influence both biology and personal choice have on political ideology (see appendix). In study 1, approximately 8% of respondents in both the control and the choice conditions indicated that biology was the main influence in shaping political ideology, whereas approximately 50% of respondents in the biology condition indicated that biology was the main influence shaping political ideology.

The manipulation check in study 2 shows similar patterns. The manipulation was less effective in study 2, as the shift from attributing political ideology to biology is approximately 8% to approximately 37% (as opposed to 8% to 50% in study 1) of respondents. These shifts are still large enough to be indicative of movement due to the treatment. Additionally, in study 2 the mean percentage of biological attribution in the control and choice conditions was 23.66% and 24.39%, respectively, whereas the mean percentage of biological attribution in the biology condition was 31.55%. While close, these are statistically significant differences ( $p = 0.009$  and  $p = 0.028$ ). As part of our theorizing, we expected people to have relatively little prior information about biopolitics research and a low rate of biological attribution of political ideology, an assumption also confirmed by these manipulation checks<sup>1</sup>.

## 5.2. Study 1

In study 1, we examined the effects of attributing political ideology to biology on attitudes about political outgroups (H1), with attitudes being

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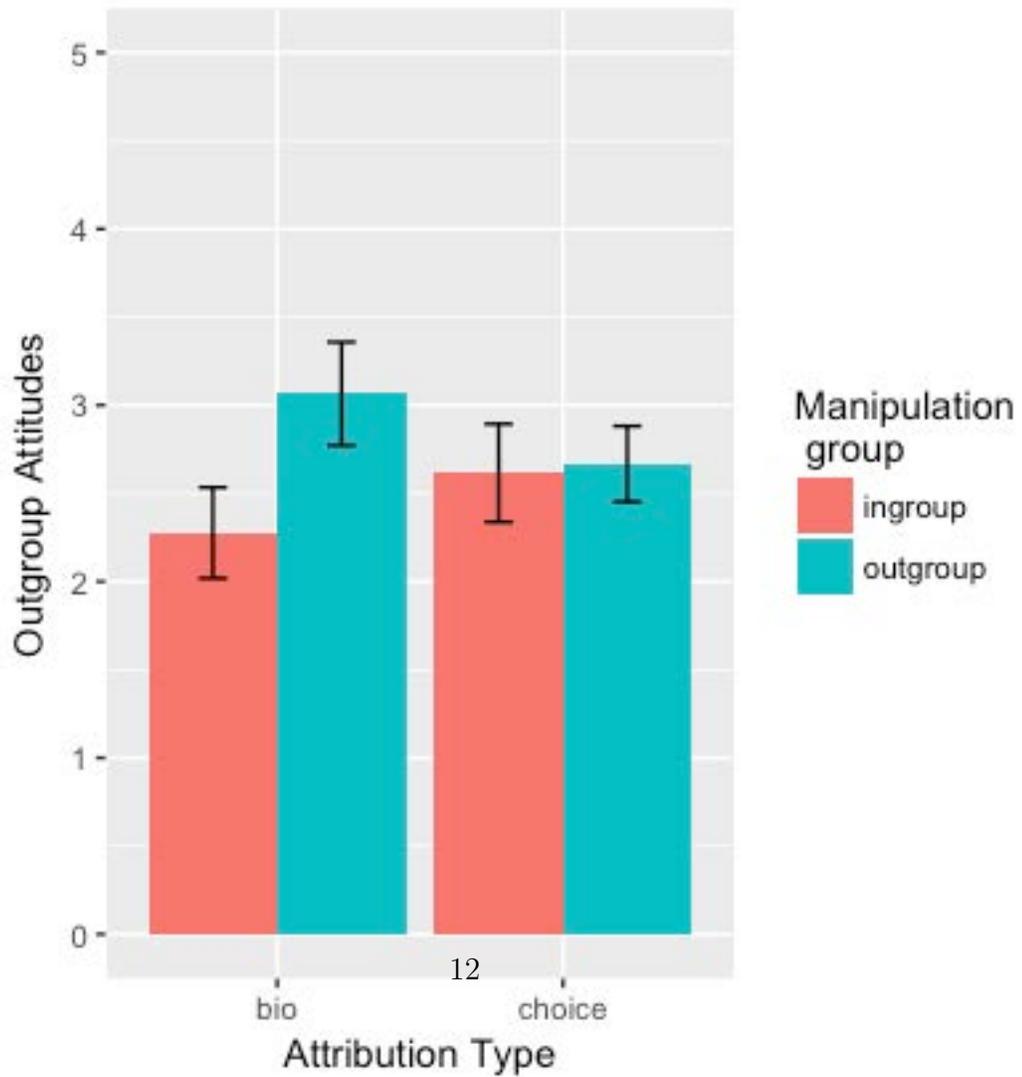
<sup>1</sup>Due to the nature of experimental design, randomization means we can expect the sample within each condition to not vary across key variables. The level of biological attribution in the control condition (8%) is treated as the baseline biological attribution.

measured on a Likert scale from 1-7, where 1 is feels very negatively and 7 is feels very positively. An ANOVA showed no main effects of attribution condition (biology vs choice) on attitudes about the ideological outgroup,  $F(1,120) = 0.02$ ,  $p = 0.884$ . When controlling for participant ideology, because respondents read about a person who was either a liberal or conservative, we find a significant effect of participant ideology on attitudes about outgroups,  $F(5,115) = 5.024$ ,  $p < 0.001$ . Since respondents read about either a liberal or a conservative in the manipulation, we ran an additional model looking at interaction effects of attribution type (biology vs choice) and manipulation ideology (liberal vs conservative), since we expect a difference in attribution effects when reading about the outgroup as opposed to the ingroup. In this model, we controlled for ideology since in the attribution type main effect model we find that ideology significantly predicts attitudes about the ideological outgroup. The results of this model are shown in Table 1. We find an interaction (attribution x manipulation ideology) effect,  $F(1,113) = 3.56$ ,  $p = 0.06$ . This interaction suggests that when respondents were encouraged to think about their ideological outgroup as having an ideology rooted in biology, their attitudes about the outgroup became more positive.

Table 1: Effects of Attribution on Outgroup Attitudes

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Attribution	1	0.04	0.04	0.03	0.8739
Group	1	5.27	5.27	3.00	0.0859*
Ideology	5	41.19	8.24	4.69	0.0006***
Attribution x Group	1	6.26	6.26	3.56	0.0617*
Residuals	113	198.46	1.76		

\* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$



### 5.3. Study 2

In study 2, we examine the effects of attributing political ideology to biology on tolerance (H2) and perception of polarization (H3). The tolerance measure is a composite variable of nine items measuring outgroup tolerance (full scale in the appendix). The mean tolerance score is 3.525 (std = 1.089) on a scale from 1-6, with higher values indicating less tolerance. We use an ANOVA model to estimate the effect of the attribution manipulation on political tolerance. Results of the model show an effect of attribution type on tolerance,  $F(1,189) = 5.36$ ,  $p = 0.0217$ , suggesting those in the biological attribution condition expressed more political tolerance.

Table 2: Effects of Attribution on Tolerance of Outgroup

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Biology vs Choice	1	5.68	5.68	5.36	0.0217**
Ideology	5	20.36	4.07	3.84	0.0025***
Residuals	189	200.36	1.06		

\* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

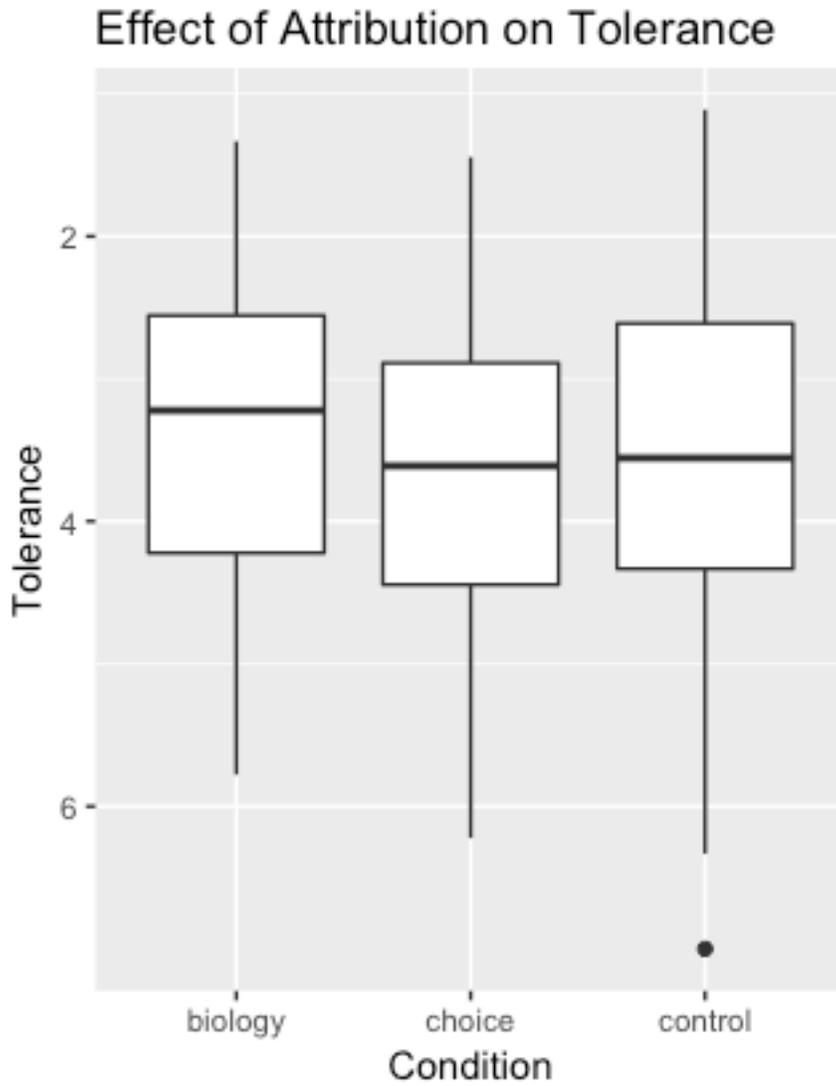


Figure 1: Mean tolerance, where lower numbers indicate higher tolerance, based on attribution condition. (Effects from Table 1)

The third hypothesis was that attributing political ideology to biology will lead to a perception of greater polarization. We use an OLS regression model to estimate the effect of condition on perception of polarization. The

polarization measure is calculated by adding the absolute value of the placement of Democrats on the ideological spectrum to the value of the placement of Republicans on the ideological spectrum to create a value that represents the distance between parties (higher values mean there is a perception of greater polarization). We find no effect of condition type on polarization (see column 1 of Table 2).

Given that we found no effect of condition, we conducted an exploratory analysis to look at the effects of both manipulation checks, indicating biology or personal choice as having more influence on political ideology and the degree of biological attribution, on perception of polarization. Attribution check is a measure explained previously that served as a manipulation check within the study. Respondents who say biology has more influence than personal choices on someones political ideology perceive less polarization,  $\beta = 10.563$  ( $p = 0.002$ ). We also look at the effect of degree of biological attribution on polarization. Degree of attribution is measured using a 100-point scale where respondents indicate how much (in percentage from 0-100) biology influences political ideology. As the degree of biological attribution increases, the perception of polarization decreases. This is true for the overall sample ( $\beta = 0.16, p = 0.006$ ) and for respondents who indicated more than 50% of political ideology is due to personal choices ( $\beta = 0.462, p < 0.001$ ), suggesting that regardless what the respondent thought was most influential in shaping political ideology, an increase in biological attribution impacted perception of polarization

Table 3: Effects on Polarization

	<i>Dependent variable: Polarization</i>			
	(1)	(2)	(3)	(4) 50%+ choice
Bio vs Choice Condition (bio = 1, choice = 2)	0.867 (3.254)			
Bio vs Control Condition (bio = 1, control = 2)	3.791 (3.268)			
Bio vs Choice check (bio = 1, choice = 2)		10.563*** (3.410)		
Degree of bio			-0.160*** (0.058)	-0.463*** (0.096)
Constant	92.369*** (2.316)	85.230*** (3.085)	98.340*** (2.028)	102.243*** (2.221)
R <sup>2</sup>	0.004	0.028	0.023	0.080
Adjusted R <sup>2</sup>	-0.002	0.025	0.020	0.077
Res Std. Error	24.400	24.094	24.241	23.711
F Statistic	0.741	9.596***	7.623***	23.196***

*Note:*

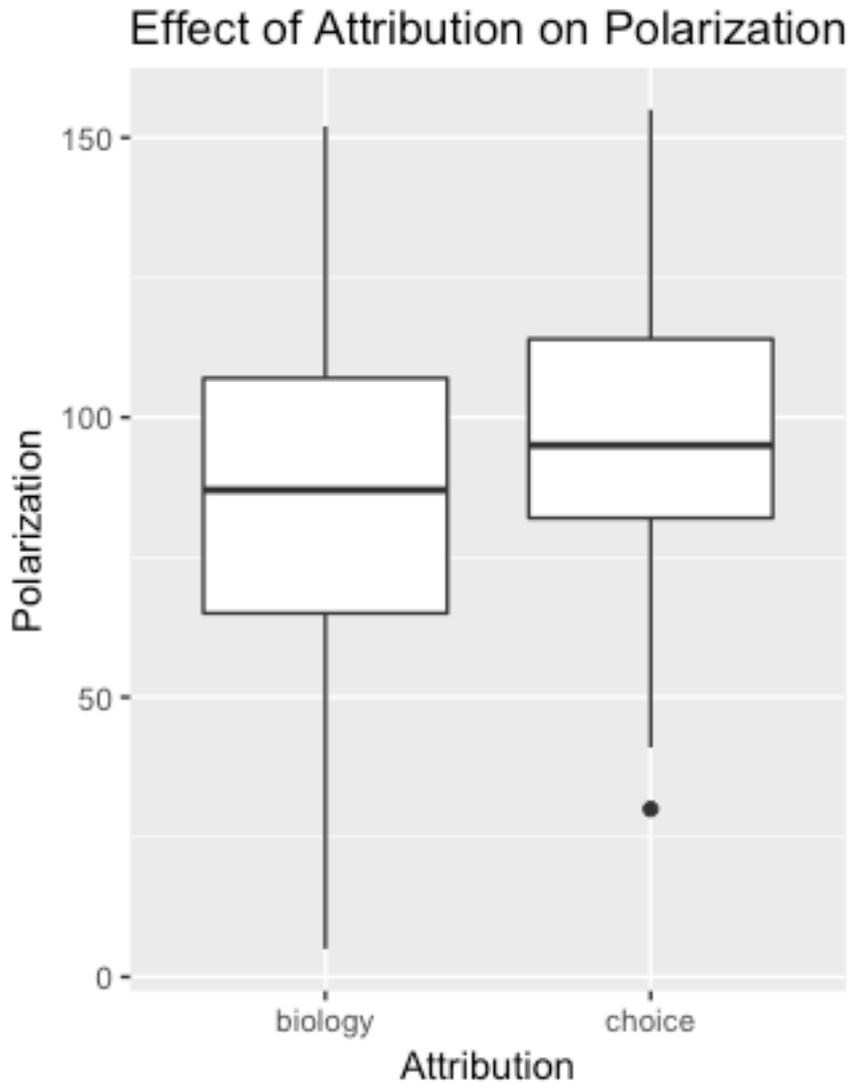


Figure 2: Mean difference of distance between parties based on attribution manipulation check (from column 2 of Table 2)

### Effect of Biological Attribution of Ideology on Polarization

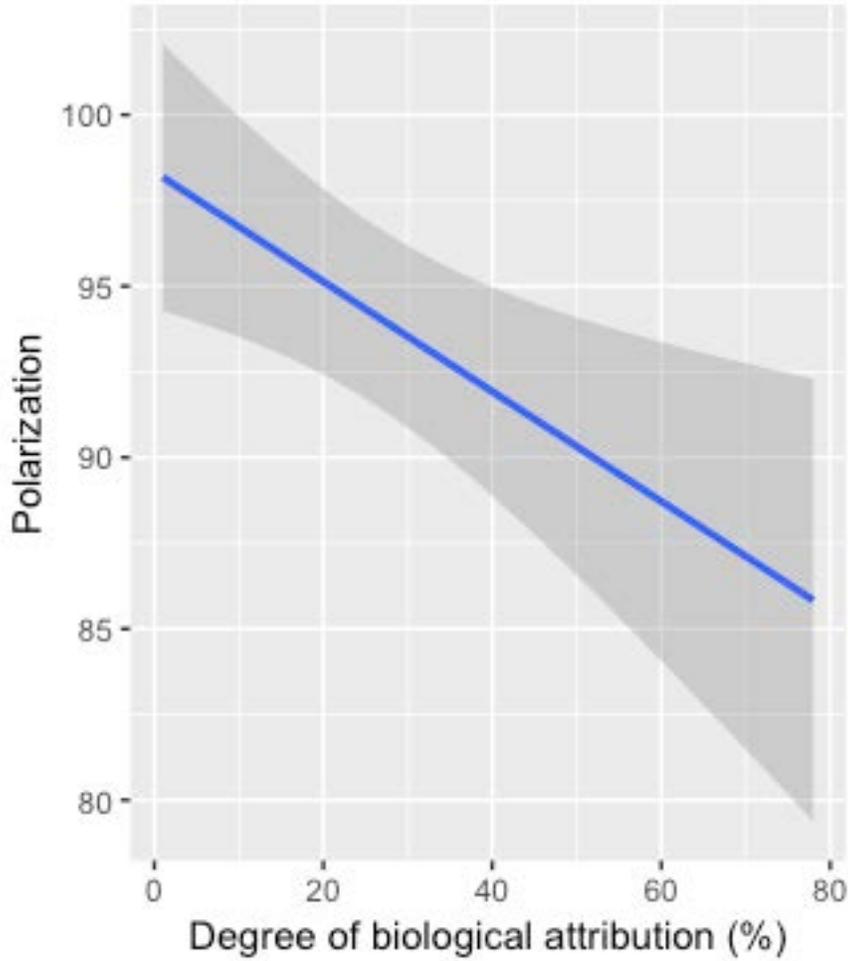


Figure 3: Relationship between degree of biological attribution, a percentage amount that respondents indicated influences political ideology, and distance (max distance of 100) between parties (effect from column 3 of Table 2)

## 6. Discussion

Taken as a whole, the results of this paper suggest that political attitudes can change when individuals learn about the biological foundations of political ideology. As the manipulation check suggests, the baseline for biological explanations for political ideology is fairly low, but once individuals are presented with information about the influence of biology on political ideology they adjust their attribution. It is possible that the results from biopolitics research will not only contribute to political science literature but also have direct implications for and impact on political attitudes in the electorate.

Specifically, biological attributions for political ideology led to more positive attitudes about and more tolerance toward ideological outgroups. Both results are consistent with findings in public opinion research regarding sexual orientation. Perhaps being faced with evidence that political ideology is partially predetermined, people are more likely to think of political ideology as a trait that people have less control over, thereby placing less blame on people who are different from them for those differences. This is similar to the narrative of being 'born this way' surrounding sexual orientation; homosexuals should not be punished for a trait they have no control over. If a liberal is born with biological predispositions that lead her to express liberal attitudes, a conservative may be more accepting and even lenient in allowing the liberal to espouse their beliefs, without judgment as to why this liberal may have personally chosen to be a liberal. Since the findings of this paper generalize to both liberals and conservatives, this hypothetical would be extended to both ideological groups.

Responses we received from a separate survey asking individuals what

their thoughts were about political ideology once they were told ideology has biological foundations support the theoretical justification for this paper. For example, in response to a question asking for thoughts on people who have a different political ideology after learning political ideology is influenced by biology/genetics, one respondent said “Those with a different ideology than mine could not help their different ideas because it is embedded in their genetics and one cannot really change genetics.” Another respondent said “...one cannot change the other persons mind about politics easily because it is a part of how they were born.” These thoughts, which were the norm within the answer to this question, support the idea that when people learn about biological foundations of political ideology they take a ‘born this way’ attitude about political ideology; if biology/genetics is somewhat determinate of political ideology, people cannot do anything about it. Negative feelings about a political outgroup will improve because individuals in that outgroup are not making a deliberative choice to be on the other side. While this is the case in responses about general thoughts about political ideology, context may be important. We may expect these answers to change in an instance where respondents feel threatened by a political outgroup. In that case, biological essentialism of political ideology may fall more in line with research on race and biological essentialism, which suggests a relationship between biological essentialism and prejudicial attitudes.

With implications for tolerance, a respondent said in the free response questions, “If political ideology was influenced by genetics, I would assume that they had no choice in their standing therefore no one should be blamed for what they believe in because they have no control over it.” Another

respondent said “... even when they have a different political ideology than me, even when its the 'wrong' one, its not their fault.” Similar responses were prevalent and suggest that once people learn that political ideology has biological foundations they are more sympathetic towards other ideologies, or at least hold differences in ideology against a person less, as many respondents also mentioned how people should not be judged for having an ideology that they were biologically predisposed to hold. This sort of thinking helps explain the mechanism behind the tolerance results in this paper. As one of the last respondents said, If this [ideology is influenced by biology/genetics] is true I would be more tolerant of people with a different ideology because its due to their genetic makeup.

Although the polarization results are the opposite of what was hypothesized, they still make intuitive sense. As evidenced by effects of biological attribution on attitudes and tolerance, people feel better about ideological outgroups as a whole when they think about ideology as being rooted in biology. Feeling more positively about a group makes it less likely that one will want to distance themselves from that group. A person has less of an incentive to differentiate themselves from another person on a certain trait if that trait is viewed in a more positive way. It may be that the main mechanism hypothesized, the need to create two distinct ideological groups that do not share any space on a continuum, is only necessary under negative circumstances. If the ideological outgroup poses some sort of challenge or direct threat, it is possible that essentializing will lead people to distance themselves from the outgroup, making essentialization a process that polarizes Democrats and Republicans in ones mind.

## 7. Conclusion

Political attitudes vary as a function of ideology attribution, or what they see as the foundation of political ideology (i.e. whether ideology is rooted in biology or a personal choice people make). The results together suggest that attributing political ideology to biology does influence attitudes broadly and has consequences for both political tolerance and polarization. Those who are encouraged to consider the political ideology of their political opposition as being rooted in biology have less negative attitudes about their ideological outgroup. Additionally, attributing political ideology to biology leads to an increase in tolerance of ideological outgroups and a decrease in the perception of polarization. As a whole, all three results suggest that people feel more warmly towards their ideological outgroup after being presented with evidence that biology at least partially influence ones political ideology.

Future work should examine the mechanism behind biological attribution being associated with the perception of less polarization, even though previous work suggests that essentializing political ideology should lead to more distinct and separated groups. One possibility is that if outgroups pose a threat, this would override any sort of positive attitude movement brought on by biological attribution. The presence of threat or the potential of competition (say, an upcoming election) will likely cause people to distance themselves from outgroups.

Since condition-specific effects were not found in study 2, perhaps polarization is such an engrained part of political evaluation and cognition that a persons preconceived notions about polarization will not change as a result of a few sentences about the roots of ideology. A worthwhile next step

could be repeated exposure to information about political ideologys roots in biology since this paper cannot speak to the impact of receiving similar information across a longer span of time or, alternatively, if the effects found in this paper are long-lasting or dissipate. Since respondents in these studies expressed their attitudes immediately after treatment, we have no way of knowing what the long-term effects may be. It is also possible that people who attribute political ideology to biology are just more likely to see less distance between parties for other reasons and an unknown common variable affects both. Future work may wish to examine other mechanisms that lead to both attribution type and perception of polarization.

## **8. Acknowledgements**

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## 9. References

- Coleman, J. and Hong, Y. (2008). Beyond nature and nurture: The influence of lay gender theories on self-stereotyping. *Self and Identity*, 7, 34-53.
- Faul, F., Erdfelder, E., Buchner, A., and Lang, A. G. (2009). Statistical power analyses using G\*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41, 1149-1160
- Gelman, S. A. (2003). The essential child: Origins of essentialism in everyday life. New York, NY: Oxford University Press.
- Haider-Markel, D. P., and Joslyn, M. R. (2008). Beliefs about the origins of homosexuality and support for gay rights: An empirical test of attribution theory. *Public Opinion Quarterly*, 72(2), 291-310.
- Haas, I. J. and Cunningham, W. A. (2014). The uncertainty paradox: Perceived threat moderates the effect of uncertainty on political tolerance. *Political Psychology*, 35(2): 291-302.
- Haslam, N. Rothschild, L., and Ernst, D. (2000). Essentialist beliefs about social categories. *The British Journal of Social Psychology*, 39, 113-127.
- Hatemi, P. K., and McDermott, R. (Eds.). (2011). Man is by nature a political animal: Evolution, biology, and politics. University of Chicago Press.
- Hegarty, P. (2002). It's not a choice, it's the way we're built: Symbolic beliefs about sexual orientation in the US and Britain. *Journal of Community and Applied Social Psychology*, 12(3), 153-166.
- Hibbing, J. R., Smith, K. B., and Alford, J. R. (2013). Predisposed: Liberals, conservatives, and the biology of political differences. Routledge.
- Hunt, M. O. (1996). The individual, society, or both? A Comparison of

- Black, Latino, and White beliefs about the causes of poverty. *Social Forces* (75)1: 293-322.
- Keller, J. (2005). In genes we trust: the biological component of psychological essentialism and its relationship to mechanisms of motivated social cognition. *Journal of personality and social psychology*, 88(4), 686.
- Klugel, J. (1990) Trends in Whites' Explanations of the black-white gap in socioeconomic status, 1977-1989. *American Sociological Review* 512-525.
- Morris, J. P., Squires, N. K., Taber, C. S., and Lodge, M. (2003). Activation of political attitudes: A psychophysiological examination of the hot cognition hypothesis. *Political Psychology*, 24(4): 727-745.
- Nicholson, S. P., Carman, C. J., Coe, C. M., Feeney, A., Feher, B., Hayes, B. K., Kam, C., Karp, J. A., Vaczi, G., and Heit, E. (2018). The Nature of Party Categories in Two-Party and Multiparty Systems. *Advances in Political Psychology*, 39(1):279-304.
- Roberts, S. O., Ho, A. K., Rhodes, M., and Gelman, S. A. (2017). Making Boundaries Great Again: Essentialism and Support for Boundary-Enhancing Initiatives. *Personality and Social Psychology Bulletin*, 43(12), 1643-1658.
- Rothbart, M. and Taylor, M. (1992). Category labels and social reality: Do we view social categories as natural kinds? In G. R. Semin and K. Fiedler (Eds.), *Language, interaction, and social cognition* (pp. 11-36). Thousand Oaks, CA: SAGE.
- Tajfel, H. (1970). Experiments in intergroup discrimination. *Scientific American*, 223(5): 96-102.
- Tajfel, H., Billig, M. G., Bundy, R. P., Flament, C. (1971). Social

categorization and intergroup behaviour. *European Journal of Social Psychology*, 1(2): 149-178.

Williams, M. L., and Eberhardt, J. L. (2008). Biological conceptions of race and the motivation to cross racial boundaries. *Journal of Personality and Social Psychology*, 94, 1033-1047.

## 10. Appendix

### 10.1. *Treatment vignettes*

Respondents were assigned to receive one of the six vignettes.

1. Choice (liberal): Jordan's parents and grandparents both hold politically conservative ideals and align with politically conservative politicians. Jordan, who recently graduated college, identified as a political conservative in high school but now identifies as a political liberal because liberal ideas make the most sense now. This makes sense since studies have shown political ideology changes (Roberts, Walton, and Viechtbauer, 2006).
2. Choice (conservative): Jordan's parents and grandparents both hold politically liberal ideals and align with politically liberal politicians. Jordan, who recently graduated college, identified as a political liberal in high school but now identifies as a political conservative because conservative ideas make the most sense now. This makes sense since studies have shown political ideology changes (Roberts, Walton, and Viechtbauer, 2006).
3. Biology (conservative): Jordan's parents and grandparents both hold politically conservative ideals and align with politically conservative politicians. Jordan, who recently graduated college, has identified as a political conservative since high school because conservative ideals have just come naturally. This makes sense since studies have shown there is a genetic component to ideology (Bell, Schermer, and Vernon, 2009).
4. Biology (liberal): Jordan's parents and grandparents both hold politically liberal ideals and align with politically liberal politicians. Jordan,

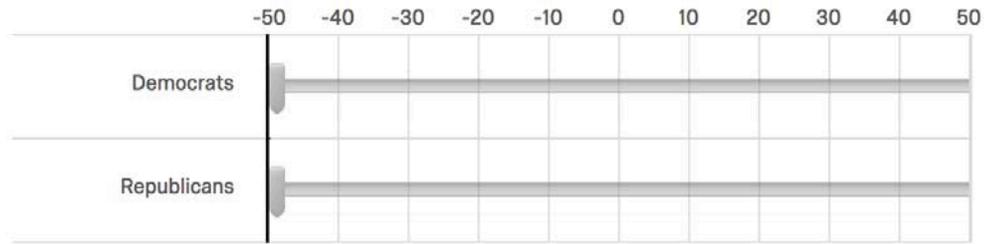
who recently graduated college, has identified as a political liberal since high school because liberal ideals have just come naturally. This makes sense since studies have shown there is a genetic component to political ideology (Bell, Schermer, and Vernon, 2009).

5. Control (liberal): Jordan, who recently graduated college, identifies as a political liberal. Recently, Jordan went out for pizza with extended family and received some book recommendations while they were eating.
6. Control (conservative): Jordan, who recently graduated college, identifies as a political conservative. Recently, Jordan went out for pizza with extended family and received some book recommendations while they were eating.

### *10.2. Polarization measure*

The absolute value of placement of Democrats on the ideological scale (from -50, extremely liberal, to 50, extremely conservative) was added to the value of placement of Republicans to create a numerical distance between parties. Larger number indicated more distance. This measure is used as a measure of perception of polarization.

Please use the sliding markers below to place the Democrats and Republicans along the spectrum of very liberal (-50) to very conservative (50).  
For example, placing the marker at 0 would mean the group is moderate.



### 10.3. Tolerance items

All items are rated on a 1-6 scale with 1 being strongly disagree and 6 being strongly agree.

1. When you have the right position on some issues, you should keep those with a different political ideology from being heard.
2. Even if an idea from someone with a different political ideology seems wrong, it should have as much change to influence people as an idea that seems right.
3. I don't mind at all when people with a different political ideology have opinions about issues that I know are wrong.
4. We need to actively oppose people with a different political ideology.
5. When people with a different political ideology are obviously wrong in their opinions, they need to be corrected.
6. Ideas from people with my political ideology are just more right than from people with a different political ideology, and our society should do all it can to see that the right ideas win out over the wrong ideas.

7. The media should not pay much, if any, attention to people who clearly hold the wrong opinions from a political ideology different than mine.
8. Children should be taught from an early age to think about social issues the way my political ideology does.
9. I get angry when I hear people from a different political ideology stating opinions that I think are wrong.

10.4. Robustness Checks

Table 4: Effect of Condition on Tolerance with Party and Interest Controls

	<i>Dependent variable:</i>
	Tolerance
Choice condition	0.346** (0.155)
interest	0.224** (0.091)
Party	-0.079 (0.138)
Constant	2.755*** (0.292)
R <sup>2</sup>	0.039
Adjusted R <sup>2</sup>	0.026
Residual Std. Error	1.080 (df = 289)
F Statistic	2.971** (df = 4; 289)

*Note: higher values for tolerance indicate more intolerance* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 5: Biological Attribution by Condition

<i>Dependent variable:</i>	
% bio attribution	
Bio vs Choice Condition	-6.956** (3.034)
Bio vs Control Condition	-7.690** (3.027)
Constant	31.350*** (2.131)
Observations	346
R <sup>2</sup>	0.022
Adjusted R <sup>2</sup>	0.017
Residual Std. Error	23.054 (df = 343)
F Statistic	3.937** (df = 2; 343)

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01