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Morality as Cooperation, Politics as Conflict

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Abstract

What is the relation between morality and politics? If morality is a collection of cooperative rules, and politics is conflict over which cooperative projects to pursue, then they should be correlated. We examined the relation between moral values and political orientation in samples of participants from the USA (N = 518), Denmark (N = 552), the Netherlands (N = 353), and an international online population (N = 1,337). Political conservatism was consistently related to deference values. We also found some support for the hypotheses that political orientation has distinct relations with family values and group values, and has distinct relations with fairness values and reciprocity values. However, for most hypotheses the results showed no support, largely due to poor model fit or measurement error associated with the political scales. The results suggest that improved measurement of political preferences will help understand the relation between morality and politics.

Keywords

> **Highlights**
> - Moral values correlate with political ideology. Most existing work has used moral foundations theory. We formulated hypotheses based on the theory of morality as cooperation.
> - Using innovative Bayesian informative hypothesis evaluation, we analyzed survey data from diverse samples to test nine pre-registered hypotheses.
> - In line with existing work, we found that deference relates to conservatism. We found some support for two hypotheses based on the theory of morality as cooperation, but most hypotheses were not supported, primarily due to measurement error.
> - We conclude that there is a need for improved measurement to map the relation between morality and politics.

What is morality? What is politics? How and why are they related? According to the theory of morality as cooperation, morality is best understood as a collection of cooperative rules (Curry, 2016). Briefly, people face a range of problems of cooperation, and have evolved and invented a range of solutions to these problems—various ways of promoting mutually-beneficial social interaction. Cooperation is immensely valuable. Hence we value these cooperative ways of behaving immensely; and it is these values, and the means of achieving them, that philosophers and others have called *morality*.

The theory also argues that, because there are many different types of cooperation, there will be many different types of morality, and it predicts what these types will be (Curry et al., 2022). For example, kin selection explains why we love and care for our families. Mutualism explains why we form groups, and why we value loyalty, unity, and solidarity. Reciprocity explains why we return favours and punish those who do not. Conflict resolution explains why, instead of coming to blows, we settle disputes: by signalling our power and prestige through acts of heroism (including bravery and generosity); by humbly admitting defeat and deferring to powerful individuals; by dividing resources fairly rather than trying to monopolise them; and by recognising and respecting prior possession of resources and refraining from theft. Hence, seven types of cooperation explain seven types of morality: love of family, group loyalty, reciprocity, heroism, deference, fairness, and property rights.

Previous research suggests that each of these seven types of morality is evolutionarily ancient, genetically based, develops early, is psychometrically distinct, and cross-culturally universal (Curry, Jones Chesters, et al., 2019; Curry, Mullins, et al., 2019; Dawkins et al., 2020; Zakharin et al., 2023). These basic types of morality can also combine to create more complex moral concepts ('moral molecules'; Curry et al., 2022), and come into conflict—as in 'should I help my family, or should I help my group'—to create moral dilemmas.

This theory of morality as cooperation differs from moral foundations theory in that it uses game theory (the mathematics of cooperation) to identify moral domains, and hence postulates a different content of the moral domain (see below). The theory differs from more general models of human values such as the Schwartz's theory of basic values (Schwartz, 1992) and Rokeach's model of values (Rokeach, 1974) in that it is restricted to moral values, not claiming to capture the full scope of values.

Linking Politics to Morality

Politics can be understood as coalitional conflict over which cooperative projects to pursue (Petersen, 2015). Briefly, people come together to pursue projects of mutual interest, projects that they could not achieve alone. However, different individuals benefit from different cooperative projects, and hence disagree about which projects to pursue. Typically, people form coalitions with others who share their interests, to press their case against rival coalitions, and steer collective efforts in their preferred direction (Pietraszewski et al., 2015; Riker, 1962). There are many systems for resolving this conflict, including: discussion, deliberation, negotiation, and compromise (although in cases where interests diverge too much, negotiations may break down, fighting may break out, and the collective may break up). These conflicts can play out on relatively small scales—as in family and office politics—but also on relatively large scales, such as the modern nation state, where coalitions form political parties to argue about which policies to pursue—that is, how to raise and spend public funds.

Taken together, these theories of *morality as cooperation* and *politics as conflict* predict that there will be a relation between a person's moral values and political views because both reflect underlying preferences for various types of cooperation. Individuals who benefit from a particular type of cooperation will be more likely to endorse the corresponding moral values, and more likely to support policies that they expect will promote that form of cooperation (Weeden & Kurzban, 2014). For example, individuals who expect to benefit from kin altruism will endorse moral values relating to the family, and support family-friendly policies. Individuals who expect to benefit from mutualism will endorse moral values relating to loyalty and solidarity, and support policies that promote patriotism and the interest of the nation. Individuals who expect to benefit from social exchange will endorse moral values relating to reciprocity, and support policies that promote contract law, free trade, and criminal justice. Individuals who expect to benefit from costly signals of status, will endorse moral values relating to heroism and bravery, and support policies that promote a strong military and a hawkish foreign policy. Individuals who expect to benefit from deference, will endorse moral values relating to respect and obedience, and support policies that promote respect for established authorities. Individuals who expect to benefit from the division of disputed resources, will endorse moral values relating to fairness and equality, and support policies that promote redistributive taxation and foreign aid. Individuals who expect to benefit from

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respect for prior possession, will endorse moral values relating to property rights and the prohibition of theft, and support policies that promote property law, intellectual property, and lower taxes.

This combination of the theories of morality as cooperation and politics as conflict does not necessarily explain, or make predictions about, the dimensionality of political ideology. Political preferences may cluster together in various ways and our theory is mute on how the political landscape will be divided in a particular population. Although political ideology is not a unidimensional trait (e.g., Claessens et al., 2020), most empirical work has assumed that in Western populations political views are arranged along a dimension from the conservative-right to the liberal-left. This clustering of social and economic conservatism seems specific to Western populations; in non-Western populations the correlation between social and economic conservatism is often near zero or negative (Malka et al., 2019). These population differences in the dimensionality of political ideology complicate the formulation of general hypotheses about the relation between morality and politics. In the Western populations from which we collected our samples, the conservative-right is associated with (among other things) family values, nationalism, business, and strong military (Everett, 2013), respect for authority and hierarchy (Altemeyer & Hunsberger, 1992; Graham et al., 2009; Pratto et al., 1994); whereas the liberal-left is associated with scepticism surrounding authority (Altemeyer & Hunsberger, 1992; Graham et al., 2009), egalitarianism (Pratto et al., 1994) and redistributive taxation (Jaime-Castillo & Sáez-Lozano, 2016). This clustering is partially supported by work that has examined the policy positions of political parties in 13 European countries plus the US, Canada, Australia, and New Zealand (Seeberg, 2017), which found that right-wing parties tend to emphasize issues related to immigration, law and order, taxation, and the economy, whereas left-wing parties tend to emphasize issues related to elderly care, families, health, social security, and the environment.

Previous work investigating the relation between morals and politics—guided by moral foundations theory (Haidt & Graham, 2007) and using the Moral Foundations Questionnaire (MFQ) (Graham et al., 2011)—has shown that moral values relating to care and fairness are associated with political liberalism, whereas moral values relating to loyalty, authority, and purity are associated with political conservatism (Graham et al., 2009; Kivikangas et al., 2021). However, there are a number of theoretical, methodological and empirical limitations of this work (Curry, 2019, 2021). First, moral foundations theory has no domains dedicated to family values, reciprocity, heroism, or property rights; hence, the MFQ does not measure them, and so the relation between these moral values and political ideology has yet to be investigated.[1] Second, the psychometric properties of the MFQ are not ideal—low alphas and poor model fit—and its five domains are

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1) The MFQ includes two items that refer to kin. The first, "People should be loyal to their family members, even when they have done something wrong", is included in the Loyalty domain; the second, "Respect for authority is

sometimes collapsed into two factors (labelled *individualising* and *binding* foundations), such that the relation between specific moral foundations and politics is unclear. Third, it is possible that some previous findings are artefacts of MFQ item wording that confounds morality with politics. For example, questions about the relevance and import of "loyalty to one's country" are likely to elicit different responses from questions about "loyalty to one's labour union" (Voelkel & Brandt, 2019). Fourth, most of this work has used single-item measures of political ideology which ask participants to place themselves on a liberal-conservative or left-right continuum (Kivikangas et al., 2021). While such items likely capture some aspects of ideology (Jost, 2006), other research suggests that self-placements are sometimes inaccurate and may be biased towards conservativism (Bauer et al., 2017; Everett, 2013; Zell & Bernstein, 2014). Finally, moral foundations theory makes the assumption that morals are the cause of politics and this has also been questioned. Some have argued for the opposite causal order: that politics—the alliances in which people affiliate—are the cause of morals (Cohen, 2003; Hatemi et al., 2019). Without taking a position on this debate, we note that our approach introduces an additional possibility—that morals and politics are both caused by a third factor, cooperative preferences.

Hypotheses

To address these limitations, here we re-examine the relation between morality and politics, using the Morality as Cooperation Questionnaire (Curry, Jones Chesters, et al., 2019)—a measure of moral values that includes a broader range of moral domains, with better psychometric properties, and with items designed to avoid confounding morality with politics—and measures of political ideology that capture both social and economic conservatism. Our smallest effect size of interest was a correlation of .1 (Lakens, 2022). We chose this value for two reasons: First, as correlations between variables can be non-zero but negligible, the proposal that moral values and political orientation are associated becomes meaningful when the associations are not negligible. Correlations of 0.1 are typically labelled small, with correlations closer to zero being considered negligible. Second, in a recent meta-analysis of the associations between moral values and political orientation (Kivikangas et al., 2021), the smallest average association between a moral domain and political orientation was estimated at -0.15 with a 95% CI from -0.17 to -0.12. This suggests that associations between moral values and political orientation typically have an effect size of at least $r = 0.1$. Consequently, we formulated and tested the following seven hypotheses:

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something all children need to learn" and is included in the Authority domain. The MFQ contains no items pertaining to reciprocity.

- H1: Family values is positively associated with a conservative-right orientation with an effect size of at least $r = .1$.
- H2: Group loyalty is positively associated with a conservative-right orientation with an effect size of at least $r = .1$.
- H3: Reciprocity is positively associated with a conservative-right orientation with an effect size of at least $r = .1$.
- H4: Heroism is positively associated with a conservative-right orientation with an effect size of at least $r = .1$.
- H5: Deference is positively associated with a conservative-right orientation with an effect size of at least $r = .1$.
- H6: Fairness is negatively associated with a conservative-right orientation with an effect size of at least $r = .1$.
- H7: Property rights is positively associated with a conservative-right orientation with an effect size of at least $r = .1$.

There have been few tests of the relation between political ideology and the morality-as-cooperation domains relating to family, reciprocity, heroism, and property rights (H1, H3, H4, and H7). In addition, the hypotheses relating to group loyalty, deference, and fairness (H2, H5, and H6), can be seen as conceptual replications of hypotheses supported by previous work guided by moral foundations theory (Graham et al., 2009; Kivikangas et al., 2021).

One recent study reported correlations between the morality-as-cooperation domains and two measures of political ideology for a Turkish convenience sample (Yilmaz et al., 2021). Results showed that one measure of conservative ideology—opposition to equality—was positively correlated with deference, but negatively correlated with reciprocity, fairness, and property rights. The second measure of conservatism—resistance to change—was positively correlated with family values, group loyalty, heroism, and deference. These results are consistent with H5 (deference), partially consistent with H1 (family values), H2 (group loyalty), H4 (heroism), and H6 (fairness), but not consistent with H3 (reciprocity) and H7 (property rights).

The current study also provides an opportunity to test two further predictions that distinguish morality-as-cooperation theory from moral foundations theory. First, morality-as-cooperation theory predicts that because family values and group loyalty are distinct moral domains, they could have distinct relations with political orientation (H8); whereas moral foundations theory predicts that family values and group loyalty are not distinct, but fall under the same foundation (loyalty), and hence will have the same relation with political orientation. Second, morality-as-cooperation theory predicts that because reciprocity and fairness are distinct moral domains, they could have distinct relations with political orientation (H9); whereas moral foundations theory predicts that reciprocity and fairness fall under the same foundation (fairness) and therefore will have

the same relation with political orientation. Hence, we formulated and tested two further hypotheses:

- H8: Family values and group loyalty each have a distinct relation with political orientation.
- H9: Reciprocity and fairness each have a distinct relation with political orientation.

In H8 and H9, by distinct relations we mean non-zero partial regression coefficients. For H8, that is, when controlling for family values, does group loyalty have a non-zero partial relation with political orientation?

Current Study

To test the hypotheses we analysed existing survey data that included the Morality as Cooperation Questionnaire (MAC-Q) (Curry, Jones Chesters, et al., 2019) and multi-item measures of political ideology. Within samples, we performed confirmatory tests of the hypotheses with Bayesian informative hypothesis evaluation (van Lissa et al., 2021). This method provides a Bayes factor, BF, which expresses the ratio of evidence in favour of the hypothesis divided by evidence against it. The evidence for each distinct hypothesis was then aggregated across scales and samples using the product Bayes factor (Kuiper et al., 2013). The product Bayes factor is an evidence synthesis method, akin to a meta-analysis. Unlike a meta-analysis, however, it does not make assumptions about between-studies heterogeneity. This means it is suitable for use with distinct samples and scales. We used a threshold of BF > 3 for inference: If the BF for a hypothesis exceeds 3, we consider the hypothesis supported by the data (Jeffreys, 1998). We performed the main analysis with data that estimated moral values from judgment items (see below) from samples collected in the USA, Denmark, and the Netherlands. In an additional analysis, we analysed data that estimated moral values from relevance items (see below) in a large international sample of Reddit users. We pre-registered the hypotheses and analysis plan after the data were collected. The pre-registration is available on the Open Science Framework (see Supplementary Materials). Please see our comments in the section 'Final questions' for details of what analyses were performed before we pre-registered the hypotheses and analysis plan. Our pre-registration specified the main analysis on the samples from the USA, Denmark, and the Netherlands. We pre-registered that we would perform an analysis aimed at validation on the Reddit sample, but we did not specify the details of this additional analysis.

Method

All participants completed the Morality as Cooperation Questionnaire (MAC-Q) (Curry, Jones Chesters, et al., 2019). The MAC-Q includes both judgment items (which ask to what extent something is right or wrong) and relevance items (which ask to what extent

something is relevant for moral judgment). A previous meta-analysis on the relation between moral values and political orientation (Kivikangas et al., 2021) showed that associations with political orientation tend to be weaker for moral values measured with relevance items. Therefore, we focused the main analysis on the judgment items. This meta-analysis also showed that the magnitude of relations is influenced by the type of measure of political orientation, with some moral domains having stronger relations with social conservatism than with economic conservatism. Therefore, we analysed measures of both social and economic conservatism. Participants also reported their political identity. In the US sample, participants rated their political identity on a 5-point scale from *very liberal* (1) to *very conservative* (5). In the Danish sample, participants used an 11-point scale from *most left-wing* (0) to *most right-wing* (10). In the Dutch sample, participants reported their political views regarding social policy, economic policy, and national security on a 7-point scale from *extreme left* (1) to *extreme right* (7). We report correlations of these measures with moral values in the Supplementary Materials (Table S35).

Because we used existing survey data, none of the surveys was specifically designed for the current analysis, meaning that there were differences between the surveys (in terms of items and sampling) and that each survey included additional items unrelated to the current study. For convenience, we refer to the samples with familiar labels that indicate where (nation/location) the data were collected (USA, Denmark, Netherlands, Reddit). However, because of the methodological differences between the samples, our analysis does not speak to comparative hypotheses about cross-cultural differences between these populations. For descriptive statistics and zero-order correlations between the scales used in each sample, see Supplementary Materials Tables S27–S34.

Survey in USA

Participants (*N* = 518) were recruited in June-July 2016 via a marketing polling firm (Qualtrics.com) in the US (261 men, 256 women, 1 gender unknown; age *M* = 46.30, *SD* = 16.71). Participants completed a survey online that included the MAC-Q. The MAC-Q includes 42 items, including 21 statements (for example, "People should be willing to do anything to help a member of their family") about which participants were asked to make moral judgments on a scale from *strongly disagree* (0) to *strongly agree* (100). We computed scores for the seven moral domains over these judgment items. Analysis of this data were reported by Curry, Jones Chesters, et al. (2019, Study 3a) which focused on validating the MAC-Q and did not report relations with political orientation.

Participants also completed measures of political orientation. Participants completed the Social and Economic Conservatism Scale (SECS) (Everett, 2013). This scale includes 12 items that are rated on a scale from *very negative* (0) to *very positive* (100). Seven items measured social conservatism (for example, "abortion" [reverse scored], "traditional marriage") and five items measured economic conservatism (for example, "limited

government", "welfare benefits" [reverse scored]). Social and economic conservatism were moderately correlated (r = .54, see Table S31 in the Supplementary Materials).

Survey in Denmark

Participants (N = 552) were inhabitants of Denmark recruited via the survey agency YouGov in December 2016. The survey agency used quota sampling to generate an approximate representative sample of the adult population with respect to gender (276 men, 276 women), age (M = 47.32, SD = 15.28), education (primary education n = 115, vocational education n = 221, intermediate secondary education n = 96, long secondary education n = 44, short secondary education n = 32, general higher secondary education n = 22, higher vocational education n = 17, postgraduate education n = 5), and geography (Hovedstaden n = 167, Midtjylland n = 128, Nordjylland n = 60, Sjælland n = 79, Syddank-mark n = 118). The survey was administered in Danish. The online survey included the MAC-Q, with judgment items rated on 7-point scales from *strongly disagree* (1) to *strongly agree* (7). The MAC-Q was translated to Danish by a professional translator.

Participants also completed measures of political orientation. Participants indicated agreement with 10 policy statements (from Aarøe et al., 2020) on a 5-point scale from *strongly disagree* (1) to *strongly agree* (5). Five items measured social conservatism (for example, "Violent crime should be punished much harder than is currently the case"). Five items measured economic conservatism (for example, "Politics should strive to ensure that everybody has the same economic conditions regardless of education and employment" [reverse scored], see Supplementary Materials for all items). We labelled the scales derived from these items Policy Attitudes social (PA-social) and Policy Attitudes economic (PA-economic). These measures of social and economic conservatism had a small-to-medium correlation (r = .15, see Table S32 in the Supplementary Materials).

Survey in the Netherlands

Participants (N = 350) were a convenience sample of undergraduate students at a university in the Netherlands (290 women, 51 men, 9 with gender unknown; age M = 19.8, SD = 3.3). The survey included other measures and was conducted from October to December 2020. The sample included both Dutch students and international students. Participants were compensated with course credit. Participants could complete the survey in Dutch (n = 237) or English (n = 113). The survey included the MAC-Q, the 12 SECS items, and the 10 policy statements used in the Danish survey. The materials were translated to Dutch by the first author. Social and economic conservatism were positively correlated (for the SECS measures, r = .38, for the measures with policy attitudes, r = .39), see Table S33 in the Supplementary Materials.

Survey of Reddit Users

Participants (N = 1,337) were recruited in November 2020 via the "r/AmITheAsshole" forum in popular discussion website Reddit (207 men, 1,030 women, 100 with gender unknown; age M = 29.27, SD = 9.42). Participants received no remuneration. Participants were from 49 countries, with most participants from the US (n = 808), UK (n = 151), Canada (n = 121), Australia (n = 50), Germany (n = 37), and the Netherlands (n = 27).

Participants completed a survey online that included the 21 relevance items of the MAC-Q (the judgment items were not included). These relevance items included 21 considerations (for example, "Whether or not someone acted to protect their family") for which participants were asked to indicate to what extent it is relevant for deciding whether something is right or wrong, on a scale from *not at all relevant* (0) to *extremely relevant* (100). We computed scores for the seven moral domains over these relevance items. Participants also completed the 12 items from the SECS as in the US sample. Social and economic conservatism were moderately correlated, r = .57 (see Table S34 in the Supplementary Materials).

Results

Deviations From Preregistered Analysis

When attempting to conduct the preregistered analyses, the model did not converge in one of the datasets (Netherlands). We examined individual CFAs for the included scales to determine potential sources of misspecification (see Supplementary Materials Tables S1–S3). These analyses indicated that the SECS-economic scale in the Dutch dataset had no factors with Eigenvalues greater than would be expected by random chance (based on a parallel analysis, Horn, 1965) and had poor reliability (estimated using McDonald's Omega, which is calculated from the factor loadings and does not assume that all factor loadings are identical as Cronbach's alpha does). After deleting this scale, the CFA model converged. We therefore removed this scale from the analysis.

We further examined measurement invariance across countries, specifically evaluating metric invariance. We found that metric invariance did not hold for the scales of PA-Social, Group, Heroism, and Deference, but that metric invariance did hold for the other variables (see Supplementary Materials Table S4). The poor model fit for PA-Social, Group, Heroism, and Deference suggests that for these variables we also lack configural invariance (see Supplementary Materials Tables S1–S3). This lack of measurement invariance must be taken into account when aggregating evidence across samples.

Main Analysis

To test the hypotheses, we computed latent variable correlations between the variables in each of the three samples (see Figure 1 and Supplementary Materials Tables S5–S7).

For each hypothesis we performed a Bayesian informative hypothesis evaluation (for the parameters included for each hypothesis test, see Tables S8–S16 in the Supplementary Materials). Hypothesis 5 (that all correlations between Deference and conservatism are at least .1) was supported, BF = 7.176, with latent variable correlations ranging from .03 to .73. In contrast, H1 (BF = 0.004), H2 (BF < 0.001), H3 (BF < 0.001), H4 (BF < 0.001), H6 (BF < 0.001) and H7 (BF < 0.001) were rejected, indicating that not all correlations between the respective domains of MAC and conservatism were at least .1.

To test H8 and H9 we estimated unique relations between moral domains and measures of conservatism. H8 (that Family and Group have distinct relations with conservatism) was strongly supported, BF > 1000. For each measure of conservatism, the partial regression coefficients for Family were typically closer to 1 than those for Group. For example, coefficients for the relation between social conservatism and Family ranged from .32 to .54, while those for Group ranged from -.27 to .15 (for all parameters see Supplementary Materials Table S15). H9 (that Reciprocity and Fairness have distinct relations with conservatism) was also supported, BF > 1000. For each measure of conservatism, the partial regression coefficients for Fairness were typically closer to -1 than those for Reciprocity. For example, coefficients between economic conservatism and Fairness ranged from -.90 to .63, while those for Reciprocity ranged from .12 to .89 (for all parameters see Supplementary Materials Table S16).

However, these results are qualified by the relatively poor psychometric properties of some scales, the lack of measurement invariance for some scales, and the poor model fit of the CFA estimated in the three samples (see Supplementary Materials Table S17). Inspection of the modification indices suggested that adding cross-loadings might improve model fit, but with the low number of indicators per factor this might compromise interpretability. A likely explanation for the relatively poor model fit is the low explained variance in some items.

Additional Analysis

Following the pre-registration, the analysis was replicated on the sample of Reddit users. Note that for this analysis, the scores for the moral domains were estimated over the relevance items, as judgment items were not collected in this sample. This analysis only supported H8, BF > 1000. While the parameter estimates for H5 and H9 were in line with those in the main analysis, these hypotheses were not supported. For H5, the latent variable correlations of Deference with social and economic conservatism were .49 and .38, respectively, but the BF was only 2.961. For H9, the partial regression coefficients with conservatism were closer to -1 for Fairness than for Reciprocity, but the the BF was

Figure 1

Latent Variable Correlations Between Moral Domains and Measures of Political Conservatism for the US, Danish (DK), and Dutch (NL) Samples
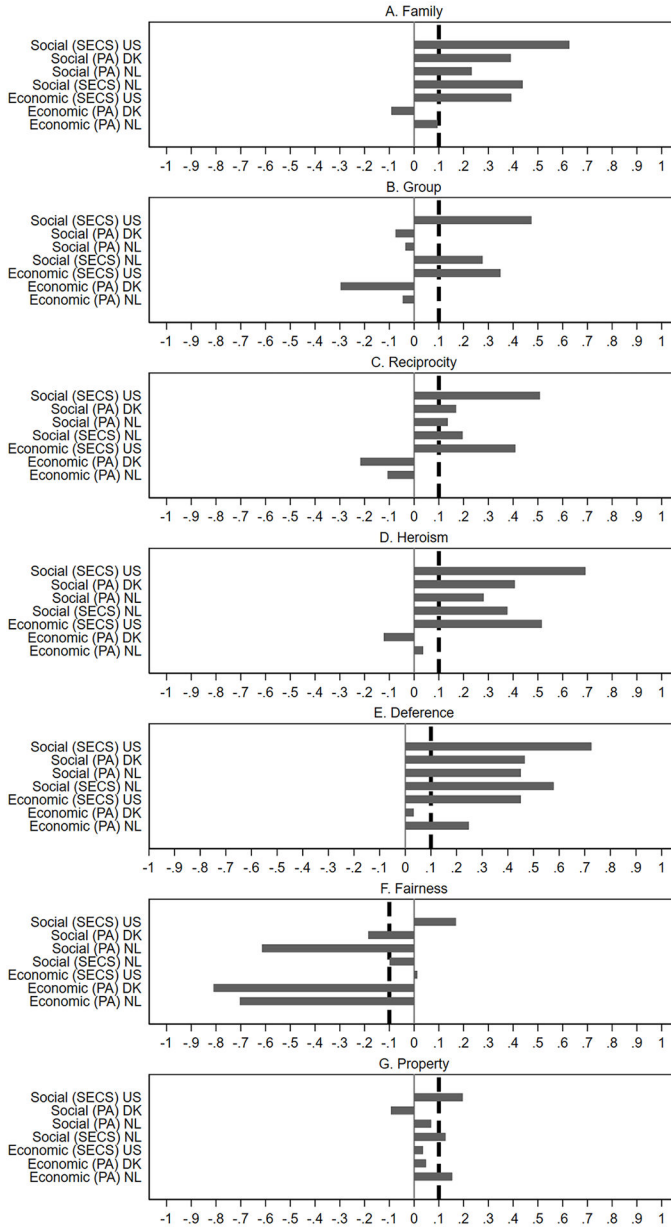
Note. The vertical dashed line indicates the hypothesized value.

only 0.007. For the other hypotheses, the BFs < 3 (see Supplementary Materials Tables S18 and S19 for all parameters). The fit of the model used to test H1-H7 was also poor, though somewhat better than for the main confirmatory analyses (χ^2 = 2090.634, CFI = 0.892, TLI = 0.876, RMSEA = 0.052, SRMR = 0.050).

Meta-Analysis

The main analyses reported above tested for each moral domain whether *all* correlations with *all* conservatism scales were ≥ .1 in *all* samples. These hypotheses were largely rejected. However, as the method used is relatively novel, we also present analyses using meta-analysis, which is the de-facto standard for evidence synthesis. Note however that this method assumes that heterogeneity in effect sizes is random—an assumption that is assuredly violated as multiple different scales were used to operationalize conservatism, and samples originated from three distinct countries. We conducted a meta-analysis of the latent variable correlations to examine the average correlations between moral domains and conservatism scales across the US, Danish, and Dutch samples. This meta-analysis was not pre-registered.

We estimated two separate models for each moral domain: One with an average correlation across all conservatism scales (an "overall" model), and one multi-group analysis with separate intercepts for social and economic conservatism scales (a "multigroup" model). To account for the dependent data, we used a three-level meta-analysis. Level 1 is the sampling distribution, with sampling variance treated as known, and effect sizes (Level 2) are nested in countries (Level 3). In each model we also estimated the variance in effect sizes within each country and variance between the countries.

The overall models showed that for each moral domain, there was significant within-country variance in the correlations (see Tables S20–S26). Significant within-country variance indicates there was heterogeneity across different measures of conservatism. The key results of the multigroup models are reported in Table 1 and show that *on average*: (1) Family, Heroism, and Deference were significantly positively correlated with social conservatism, but not with economic conservatism (all CIs overlapped with zero); (2) Fairness was significantly negatively correlated with economic conservatism, but not social conservatism (CI overlapped with zero); (3) Group, Reciprocity, and Property were not significantly correlated with social or economic conservatism (all CIs overlapped with zero).

H8 was supported in the Bayesian analysis, indicating that Family and Group had distinct relations with conservatism. We performed a meta-analysis of the partial correlations to estimate these distinct relations. The meta-analysis showed that Family had significant positive partial correlations with both social conservatism (r = .55, 95% CI [.42, .65]) and economic conservatism (r = .22, 95% CI [.06, .37]). In contrast, the average partial correlations of Group with social conservatism (r = -.08, 95% CI [-.42, .28]) and economic conservatism (r = -.16, 95% CI [-.50, .21]) were not significant.

We also performed a meta-analysis of the partial correlations used to test H9. Fairness had significant negative partial correlations with both social conservatism (r = -.72, 95% CI [-.88, -.41]) and economic conservatism (r = -.86, 95% CI [-.95, -.61]). In contrast, average partial correlations of Reciprocity with social conservatism were positive (r = .78, 95% CI [.32, .94]) and with economic conservatism were not significant (r = .59, 95% CI [-.05, .89]).

Table 1

Average Correlations of Moral Domains With Social and Economic Conservatism, as Estimated by Meta-Analysis

Moral domain	Social conservatism		Economic conservatism	
	Average *r*	95% CI	Average *r*	95% CI
Family	.45	[.22, .64]	.14	[-.14, .39]
Group	.18	[-.18, .50]	.00	[-.35, .36]
Reciprocity	.29	[-.03, .56]	.04	[-.29, .35]
Heroism	.49	[.17, .71]	.16	[-.20, .48]
Deference	.58	[.38, .72]	.25	[-.01, .47]
Fairness	-.16	[-.60, .35]	-.58	[-.84, -.10]
Property	.07	[-.04, .18]	.08	[-.05, .20]

Note. Correlations smaller than .005 are reported as .00.

Discussion

We analysed data from four samples to test nine hypotheses about the relations between moral values and political orientation. We measured moral values with the MAC-Q (Curry, Jones Chesters, et al., 2019) and relied on multi-item measures of political preferences. The results can be summarized in four points. First, we found some support for H5. We found that deference values (when measured with judgment items) were consistently related to political conservatism. This relation was observed across different samples and across different measures of political conservatism. However, we did not find support for this correlation in the additional analysis of the Reddit sample that measured moral values with relevance items. Overall, our results are consistent with work showing a relation between political conservatism and moral values related to deference and obedience of authority (Graham et al., 2009; Kivikangas et al., 2021; Yilmaz et al., 2021).

Second, we found support for H8. Both the main and the additional analysis supported that family values and group values had distinct relations with political orientation. This result is consistent with MAC's claim that, contrary to MFT, family values and group values are distinct moral domains.

Third, we found some support for H9. In the main analysis, we found that Fairness and Reciprocity had distinct relations with political conservatism. But this result did not replicate in the additional analysis of the Reddit sample. These results provide partial support for MAC's claim that, contrary to MFT, Fairness and Reciprocity are distinct moral domains.

Fourth, we found no support for H1, H2, H3, H4, H6 and H7. The lack of support for these hypotheses in the main analysis would be consistent with these moral values having in general negligible associations with political preferences. However, two observations point to a different interpretation: (i) in the main analysis, model fit was less than ideal with some measures of political orientation having low reliability; (ii) in the meta-analysis we found that some moral values were associated with specific measures of conservatism. Furthermore, prior work has found significant correlations in the hypothesized direction for all hypotheses except H3 and H7 (Yilmaz et al., 2021). Taken together, this suggests that relations between moral values and political orientation might be specific to dimensions of political conservatism as well as heterogeneous across populations.

Our meta-analysis suggests some ways to specify Hypotheses 1, 4, and 6. Family values and heroism values might be specifically related to social conservatism rather than economic conservatism, while fairness values might be specifically (negatively) related to economic conservatism rather than social conservatism. While this latter association between fairness values and *economic* conservatism in particular seems straightforward (as fair division seems especially relevant for economic issues) it is not consistent with prior empirical work that found similar associations of fairness values with social and economic conservatism (Kivikangas et al., 2021). In addition, the relations of family values and heroism values with social conservatism require further research. First, the relation between family values and social conservatism might be specific to some societies. Work on issue ownership suggests that family-friendly policies might be associated with left-wing or right-wing parties, depending on the country (Seeberg, 2017). Indeed, particular pro-family policies such as affordable day-care might be favoured more by left-wing than right-wing parties. Second, the association between heroism values and social conservatism might be driven by people with a socially progressive orientation disfavouring particular *hawkish* traits or actions—such as pride, martial valour or bravado—rather than disfavouring heroes in general.

The meta-analysis also aided the interpretation of the lack of support for H2 (group values relate to conservatism), H3 (reciprocity values relate to conservatism), and H7 (property values relate to conservatism). For these hypotheses, the results do not point to specific associations with social or economic conservatism. Broadly speaking, the results are compatible with two interpretations: (i) There are no substantial associations between these moral values and political orientation. (ii) There are substantial associations between these moral values and political orientation, but they are heterogeneous across

populations. While the first interpretation is a possibility, we think that this conclusion would be premature and requires improved measurement and sampling from more diverse populations. Regarding the second interpretation, further research may examine whether such heterogeneity reflects trade-offs made in pursuit of local political goals. For example, property values might correlate with political conservatism (consistent with H7), but only in populations where left-wing politics is associated with particular manifestations of fairness values (for example, individuals with a left-wing orientation favouring redistributive policies—consistent with H6—but in such a way that it conflicts with property rights).

When interpreting the findings, the following limitations of our methods and data should be taken into account. First, our analysis was limited by the measurement of political orientation. Ideally, each sample would have the same measure of political orientation, with the same measurement properties (i.e., measurement invariance). In three of the four samples, the SECS items were used to measure social and economic conservatism. While the SECS was developed with US samples (recruited from Amazon Mechanical Turk) (Everett, 2013) and while both the US and Netherlands are WEIRD countries, it did not provide reliable measurement of economic conservatism in the US and Dutch samples. The poor performance in the Dutch sample may be due to the fact that the SECS included some items (for example, gun ownership) that are outside current Dutch political discourse and likely did not cover some issues that are key to Dutch politics. The Dutch and Danish samples included another measure of economic conservatism (PA-economic), which was more reliable, but this obscured if different correlations were due differences in sampling or measurement. The heterogeneity in the relation between moral values and political orientation might be a result of the scales not being measurement invariant across countries. In addition, further work may examine if the relation is moderated by cultural or country-level factors.

Second, in both the main and additional analysis, the model fit was poor. While this was partially a result of the measurement of political orientation, it also suggests that the measurement of moral values could be improved. As the MFQ, the MAC-Q includes both relevance and judgment items. Prior work suggests that these relevance and judgment items measure different but related constructs (Curry, Jones Chesters, et al., 2019). In addition, recent work using a Turkish translation of the MAC-Q suggests that the relevance items provide better measurement (Yilmaz et al., 2021). As mentioned above, we focused the main analysis on judgment items because prior work showed that these relate more strongly to political orientation (Kivikangas et al., 2021). In the additional analysis we used relevance items because the judgment items were not collected in the Reddit sample. On the one hand, judgment items might provide better measurement than relevance items because the latter ask for a self-report on mental processes, which may be inaccurate because some mental processes are inaccessible to introspection (Nisbett & Wilson, 1977). On the other hand, a limitation of the current judgment items is that

they provide little protection against acquiescence or agreement bias. None of the seven MAC-Q domains is measured by both pro-trait and con-trait items. Future work might seek to improve measurement of the MAC-Q domains.

Third, some part of the correlations between moral domains and political orientation might be due to an overlap in the item wording (for example, items for both morality and politics mention "family"). One possibility is that this gives rise to spurious correlations that are merely caused by similarity in the items. An alternative interpretation—in line with our theory—is that such an overlap between moral values and political preferences is genuine. For example, people who strongly value the family unit will hold political preferences that reflect these values. The positive correlations between family values and single-item political identity measures that do not contain the word 'family' (see Table S35 in the Supplementary Materials) suggest that the association is not entirely due to similarity in item wording. Further research is needed to determine to what extent the positive association between family values and social conservatism can be attributed to (spurious) similarity in wording of items.

Fourth, with the exception of the Danish sample, our data were not from nationally representative samples and may therefore not reflect any identifiable population. The use of convenience samples does not preclude inference about non-comparative hypotheses. Prior work on the relation between moral values and political orientation suggest that the observed patterns are similar across nationally representative and convenience samples (Kivikangas et al., 2021). Hence, our results cannot be interpreted as tests of specific cross-cultural differences, but can be interpreted as tests of our general (non-comparative) hypotheses across a few different populations.

Fifth, ideally, our analysis would include data from a large number of samples drawn from culturally diverse populations. A larger number of samples would provide a more accurate estimate of the mean correlation when there is little between-sample variation and would provide more data to explore between-sample variation. However, given that we already had problems with the assumption of measurement invariance, including more culturally diverse samples would require improvements in measuring political orientation. One possibility for further research would be to analyse relations between the MAC-Q domains and broad measures of ideology such as right-wing authoritarianism (Duckitt et al., 2010) and social dominance orientation (Ho et al., 2015).

In conclusion, in line with prior work, we found that political conservatism was associated with deference values (H5). We also found some support for two hypotheses uniquely derived from morality-as-cooperation theory, which state that family values and group values have distinct relations with political preferences (H8), and that reciprocity and fairness have distinct relations with political preferences (H9). However, we found no support for our other hypotheses (H1–H4, H6, H7). Because existing evidence indicates substantial relations between moral values and political preferences, we interpret the lack of support for these hypotheses as a sign that our methods were

inadequate. Hence, to better understand the relation between moral values and political preferences, a first step would be to improve measurement of both moral values and political preferences.

Author Contributions: *Florian van Leeuwen*—Idea, conceptualization | Data collection | Writing | Visualization (data presentation, figures, etc.) | Funding to conduct the work. *Caspar J. van Lissa*—Design planning | Research implementation (software, hardware, etc.) | Data analysis | Data management (storage, curation, processing, etc.) | Feedback, revisions. *Trisevgeni Papakonstantinou*—Data collection | Feedback, revisions. *Michael Bang Petersen*—Idea, conceptualization | Feedback, revisions. *Oliver Scott Curry*—Idea, conceptualization | Data collection | Feedback, revisions | Funding to conduct the work.

Ethics Statement: The research on the US sample was approved by the School of Anthropology and Museum Ethnography Research Ethics Committee #SAME/CUREC1A/12-35. The research on the Danish sample complied with Aarhus University's Code of Conduct as well as the Committee Act of the Danish National Committee of Health Research Ethics, which stated that "Surveys using questionnaires and interviews that do not involve human biological material (section 14(2) of the Committee Act) are exempted from approval" (https://en.nvk.dk/how-to-notify/what-to-notify). The research on the Dutch sample was approved by the Ethics Review Board of the Tilburg School of Social and Behavioural Sciences (reference RP275). The research on the Reddit sample was approved by the UCL Ethics Board (Project ID: 3720/002).

Data Availability: The data from the US sample were partially reported by Curry, Jones Chesters, and van Lissa (2019). Regrettably, we are unable to share these data, because the participant consent form used language that precluded data sharing. The data from the Danish, Dutch, and Reddit samples are available through the Open Science Framework (see van Leeuwen, van Lissa, et al., 2021).

Supplementary Materials

For this article, the following Supplementary Materials are available:

- Pre-registration (see van Leeuwen, Curry, et al., 2021)
- Data (see van Leeuwen, van Lissa, et al., 2021)
- Supplementary methods and tables (see van Leeuwen et al., 2024)

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Index of Supplementary Materials

van Leeuwen, F., Curry, O. S., van Lissa, C. J., Petersen, M. B., & Papakonstantinou, T. (2021). *Morality, politics, and cooperation* [Pre-registration]. OSF Registries. https://doi.org/10.17605/OSF.IO/8ETP2

van Leeuwen, F., van Lissa, C. J., Curry, O. S., Petersen, M. B., & Papakonstantinou, T. (2021). *Morality, politics, and cooperation* [Data]. OSF. https://doi.org/10.17605/OSF.IO/Q4MJH

van Leeuwen, F., van Lissa, C. J., Papakonstantinou, T., Petersen, M. B., & Curry, O. S. (2024). *Supplementary materials to "Morality as cooperation, politics as conflict"* [Tables, methods]. PsychOpen GOLD. https://doi.org/10.23668/psycharchives.14082

References

Aarøe, L., Petersen, M. B., & Arceneaux, K. (2020). The behavioral immune system shapes partisan preferences in modern democracies: Disgust sensitivity predicts voting for socially conservative parties. *Political Psychology, 41*(6), 1073–1091. https://doi.org/10.1111/pops.12665

Altemeyer, B., & Hunsberger, B. (1992). Authoritarianism, religious fundamentalism, quest, and prejudice. *The International Journal for the Psychology of Religion, 2*(2), 113–133. https://doi.org/10.1207/s15327582ijpr0202_5

Bauer, P. C., Barberá, P., Ackermann, K., & Venetz, A. (2017). Is the left-right scale a valid measure of ideology? *Political Behavior, 39*(3), 553–583. https://doi.org/10.1007/s11109-016-9368-2

Claessens, S., Fischer, K., Chaudhuri, A., Sibley, C. G., & Atkinson, Q. D. (2020). The dual evolutionary foundations of political ideology. *Nature Human Behaviour, 4*(4), 336–345. https://doi.org/10.1038/s41562-020-0850-9

Cohen, G. L. (2003). Party over policy: The dominating impact of group influence on political beliefs. *Journal of Personality and Social Psychology, 85*(5), 808–822. https://doi.org/10.1037/0022-3514.85.5.808

Curry, O. S. (2016). Morality as cooperation: A problem-centred approach. In T. K. Shackelford & R. D. Hansen (Eds.), *The evolution of morality* (pp. 27–51). Springer. https://doi.org/10.1007/978-3-319-19671-8_2

Curry, O. S. (2019, March 26). What's wrong with moral foundations theory, and how to get moral psychology right. *Behavioral Scientist.* https://behavioralscientist.org/whats-wrong-with-moral-foundations-theory-and-how-to-get-moral-psychology-right/

Curry, O. S. (2021). *What is the relationship between morals and politics?* [Preprint]. Open Science Framework. https://doi.org/10.31219/osf.io/d7ugb

Curry, O. S., Alfano, M., Brandt, M. J., & Pelican, C. (2022). Moral molecules: Morality as a combinatorial system. *Review of Philosophy and Psychology, 13*(4), 1039–1058. https://doi.org/10.1007/s13164-021-00540-x

PsychOpen GOLD

Curry, O. S., Jones Chesters, M., & van Lissa, C. J. (2019). Mapping morality with a compass: Testing the theory of 'morality-as-cooperation' with a new questionnaire. *Journal of Research in Personality, 78*, 106–124. https://doi.org/10.1016/j.jrp.2018.10.008

Curry, O. S., Mullins, D. A., & Whitehouse, H. (2019). Is it good to cooperate? Testing the theory of morality-as-cooperation in 60 societies. *Current Anthropology, 60*(1), 47–69. https://doi.org/10.1086/701478

Dawkins, M. D., Ting, F., Stavans, M., & Baillargeon, R. (2020). Early moral cognition: A principle-based approach. In D. Poeppel, G. R. Mangun, & M. S. Gazzaniga (Eds.), *The cognitive neurosciences* (6th ed., pp. 7–16). MIT Press.

Duckitt, J., Bizumic, B., Krauss, S. W., & Heled, E. (2010). A tripartite approach to Right-Wing Authoritarianism: The Authoritarianism-Conservatism-Traditionalism model. *Political Psychology, 31*(5), 685–715. https://doi.org/10.1111/j.1467-9221.2010.00781.x

Everett, J. A. C. (2013). The 12 Item Social and Economic Conservatism Scale (SECS). *PLoS One, 8*(12), Article e82131. https://doi.org/10.1371/journal.pone.0082131

Graham, J., Haidt, J., & Nosek, B. A. (2009). Liberals and conservatives rely on different sets of moral foundations. *Journal of Personality and Social Psychology, 96*(5), 1029–1046. https://doi.org/10.1037/a0015141

Graham, J., Nosek, B. A., Haidt, J., Iyer, R., Koleva, S., & Ditto, P. H. (2011). Mapping the moral domain. *Journal of Personality and Social Psychology, 101*(2), 366–385. https://doi.org/10.1037/a0021847

Haidt, J., & Graham, J. (2007). When morality opposes justice: Conservatives have moral intuitions that liberals may not recognize. *Social Justice Research, 20*(1), 98–116. https://doi.org/10.1007/s11211-007-0034-z

Hatemi, P. K., Crabtree, C., & Smith, K. B. (2019). Ideology justifies morality: Political beliefs predict moral foundations. *American Journal of Political Science, 63*(4), 788–806. https://doi.org/10.1111/ajps.12448

Ho, A. K., Sidanius, J., Kteily, N., Sheehy-Skeffington, J., Pratto, F., Henkel, K. E., Foels, R., & Stewart, A. L. (2015). The nature of social dominance orientation: Theorizing and measuring preferences for intergroup inequality using the new SDO7 scale. *Journal of Personality and Social Psychology, 109*(6), 1003–1028. https://doi.org/10.1037/pspi0000033

Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika, 30*(2), 179–185. https://doi.org/10.1007/BF02289447

Jaime-Castillo, A. M., & Sáez-Lozano, J. L. (2016). Preferences for tax schemes in OECD countries, self-interest and ideology. *International Political Science Review, 37*(1), 81–98. https://doi.org/10.1177/0192512114539716

Jeffreys, H. (1998). *Theory of probability* (3rd ed.). Clarendon Press, Oxford University Press.

Jost, J. T. (2006). The end of the end of ideology. *The American Psychologist, 61*(7), 651–670. https://doi.org/10.1037/0003-066X.61.7.651

Kivikangas, J. M., Fernández-Castilla, B., Järvelä, S., Ravaja, N., & Lönnqvist, J.-E. (2021). Moral foundations and political orientation: Systematic review and meta-analysis. *Psychological Bulletin, 147*(1), 55–94. https://doi.org/10.1037/bul0000308

Kuiper, R. M., Buskens, V., Raub, W., & Hoijtink, H. (2013). Combining statistical evidence from several studies: A method using Bayesian updating and an example from research on trust problems in social and economic exchange. *Sociological Methods & Research, 42*(1), 60–81. https://doi.org/10.1177/0049124112464867

Lakens, D. (2022). Sample size justification. *Collabra: Psychology, 8*(1), Article 33267. https://doi.org/10.1525/collabra.33267

Malka, A., Lelkes, Y., & Soto, C. (2019). Are cultural and economic conservatism positively correlated? A large-scale cross-national test. *British Journal of Political Science, 49*(3), 1045–1069. https://doi.org/10.1017/S0007123417000072

Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review, 84*(3), 231–259. https://doi.org/10.1037/0033-295X.84.3.231

Petersen, M. B. (2015). Evolutionary political psychology. In D. M. Buss (Ed.), *The handbook of evolutionary psychology* (pp. 1–19). John Wiley & Sons. https://doi.org/10.1002/9781119125563.evpsych247

Pietraszewski, D., Curry, O. S., Petersen, M. B., Cosmides, L., & Tooby, J. (2015). Constituents of political cognition: Race, party politics, and the alliance detection system. *Cognition, 140*, 24–39. https://doi.org/10.1016/j.cognition.2015.03.007

Pratto, F., Sidanius, J., Stallworth, L. M., & Malle, B. F. (1994). Social dominance orientation: A personality variable predicting social and political attitudes. *Journal of Personality and Social Psychology, 67*(4), 741–763. https://doi.org/10.1037/0022-3514.67.4.741

Riker, W. H. (1962). *The theory of political coalitions*. Yale University Press.

Rokeach, M. (1974). Change and stability in American value systems, 1968-1971. *Public Opinion Quarterly, 38*(2), 222–238. https://doi.org/10.1086/268153

Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology, 25*, 1–65. https://doi.org/10.1016/S0065-2601(08)60281-6

Seeberg, H. B. (2017). How stable is political parties' issue ownership? A cross-time, cross-national analysis. *Political Studies, 65*(2), 475–492. https://doi.org/10.1177/0032321716650224

van Lissa, C. J., Gu, X., Mulder, J., Rosseel, Y., Van Zundert, C., & Hoijtink, H. (2021). Teacher's corner: Evaluating informative hypotheses using the Bayes factor in structural equation models. *Structural Equation Modeling, 28*(2), 292–301. https://doi.org/10.1080/10705511.2020.1745644

Voelkel, J. G., & Brandt, M. J. (2019). The effect of ideological identification on the endorsement of moral values depends on the target group. *Personality and Social Psychology Bulletin, 45*(6), 851–863. https://doi.org/10.1177/0146167218798822

Weeden, J., & Kurzban, R. (2014). *The hidden agenda of the political mind: How self-interest shapes our opinions and why we won't admit it*. Princeton University Press.

Yilmaz, O., Harma, M., & Doğruyol, B. (2021). Validation of Morality as Cooperation Questionnaire in Turkey, and its relation to prosociality, ideology, and resource scarcity. *European Journal of Psychological Assessment, 37*(2), 149–160. https://doi.org/10.1027/1015-5759/a000627

Zakharin, M., Curry, O. S., Martin, N. G., Lewis, G. J., & Bates, T. C. (2023). *Modular morals: The genetic architecture of morality as cooperation* [Preprint]. PsyArXiv. https://doi.org/10.31234/osf.io/srjyq

Zell, E., & Bernstein, M. J. (2014). You may think you're right … young adults are more liberal than they realize. *Social Psychological & Personality Science, 5*(3), 326–333. https://doi.org/10.1177/1948550613492825