



From left to right: How the personality system allows basic traits to influence politics via characteristic moral adaptations

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Research on the association of personality to political orientation has suggested that direct influences are modest. Here we used a personality system model in which direct influences on political behaviour flow from moral values, with personality mostly acting on these characteristic moral adaptations, rather than directly affecting political attitudes. Study 1 in 447 subjects supported this model, with significant effects on political orientation flowing from four of the five-factor model personality domains, but largely mediated through moral values concerning the importance of group order and individual rights. This personality system model was replicated in an independent study ($n = 476$) using a US sample and including a different measure of politics. Both studies support predictions that personality has significant effects on political attitudes, but that these are exerted largely via moral values. These findings help to explain inconsistencies in previous studies attempting to link personality to political orientation that have not included the intermediary level of values.

The role of individual differences underlying stable variation in political orientation has a long history (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950; Eysenck, 1954). This line of research has grown in recent years, partly because of the finding that political attitudes contain a substantial heritable component (Alford, Funk, & Hibbing, 2005; Martin *et al.*, 1986) and the hypothesis that some or all of this genetic effect may reflect differences in personality (Verhulst, Hatemi, & Martin, 2010). However, while personality has intuitive links to political orientation, research has largely failed to support such associations (Alford & Hibbing, 2007; Carney, Jost, Gosling, & Potter, 2008; Mehrabian, 1996; Trapnell, 1994). Here we use the 'personality system' model (McCrae & Costa, 1999) in two studies designed to examine the possibility that personality affects political orientation via mediating characteristic adaptations – in this case moral values. We first briefly summarize previous research relating personality to political orientation. We then describe how this three-level personality system model links personality to political behaviour via moral values, before presenting two studies testing predictions from this model.

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Personality and political orientation: A brief overview

Of the major dimensions of personality, openness has been most reliably associated with political orientation, with high levels of openness correlating around .3 with liberal political attitudes (Carney *et al.*, 2008; McCrae, 1996; Trapnell, 1994; Van Hiel & Mervielde, 2004). Results for traits other than openness have been mixed. For instance, modest relationships have been reported between conscientiousness and political orientation (Gosling, Rentfrow, & Swann, 2003; Mondak & Halperin, 2008), but other studies have found no association (e.g., Alford & Hibbing, 2007). Likewise, while some studies have reported modest effects of agreeableness, extraversion, and neuroticism on political orientation (e.g., Barbaranelli, Caprara, Vecchione, & Fraley, 2007), more studies have failed to find associations from these traits to political orientation (Alford & Hibbing, 2007; Carney *et al.*, 2008; Mehrabian, 1996; Trapnell, 1994). This led some authors to argue that, with the exception of openness, personality is unrelated to political orientation (Alford & Hibbing, 2007; McCrae, 1996).

Politics within the personality system model

Large individual differences are apparent in political behaviour even after controlling for factors such as social status, gender, and cognitive ability (Schoon, Cheng, Gale, Batty, & Deary, 2010). This suggests that while individual differences in traits such as personality may have substantial effects on political behaviour, these may be complex or indirect in nature (Gerber, Huber, Doherty, Dowling, & Ha, 2010; Mondak, Hibbing, Canache, Seligson, & Anderson, 2010). A model accounting for such complex or mediated effects linking personality to behaviour has been termed a ‘personality system framework’ (McCrae & Costa, 1999). The personality system framework (see Figure 1) consists of three linked domains. At the most basic level (Level 1), lie largely biologically driven ‘basic tendencies’ including personality. Level 2 consists of ‘characteristic adaptations’ such as values. Constructs at this level are argued to be formed under the joint influence

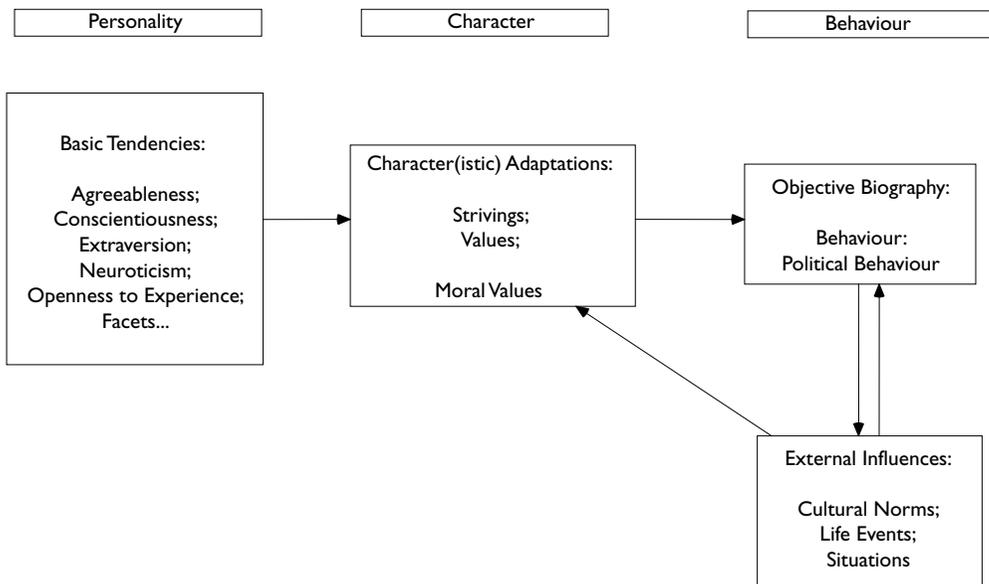


Figure 1. The personality system model (adapted from McCrae & Costa, 1999).

of basic tendencies and external factors such as life-events and cultural norms. Finally, at the third level of organization lies 'objective biography' - behaviours emitted in interplay with external stimuli and characteristic adaptations. Importantly, this model implies that the influence of basic tendencies (including personality traits) is often mediated by characteristic adaptations with no direct link from personality to behaviour.

While McCrae and Costa (1999) focused on the development and structure of personality, the model provides a coherent framework for translating personality traits into behaviours such as political orientation. For example, a person high on the basic tendency of empathy may come to value fairness (a characteristic adaptation). In translating this value into behaviour, contextual factors will play a role. This suggests that the behaviours under analysis should be specific to a particular context rather than aggregating across contexts. To give a concrete example, a single value such as fairness may be reflected in support for increased taxation of high earners in one context, and in support for merit-based pay in the context of deciding individual compensation. We next turn to specifying and testing a set of characteristic adaptations that may mediate the effect of basic tendencies on political orientation.

In developing a mediated model, a measurement model must be chosen for the mediating layer. While several powerful measures of values have been proposed, in particular the Schwartz (1992) model of values, here we focus on the two-factor model of morality posited by Graham, Haidt, and Nosek (2009). We chose this model because of its focus on political behaviours (Graham *et al.*, 2009), but the reasoning should be applicable to other values models.

The mediating role of moral values

Haidt and Graham (2007) recently suggested that moral behaviour varies according to five core foundations: harm (minimizing harm to others), fairness (maximizing fairness to all), in-group loyalty (the importance of the in-group), authority (respect for status and hierarchy), and purity (avoiding impure or disgusting acts/entities). These five facets of morality, in turn, correlate to form two higher order moral factors of 'individualizing' (the aggregate score on harm and fairness) and 'binding' - the aggregate score on authority, in-group loyalty, and purity (Graham *et al.*, 2009). Both individualizing and binding have been shown to account for significant variance in liberalism-conservatism in both the United States and United Kingdom (Graham *et al.*, 2009) and in The Netherlands (van Leeuwen & Park, 2009).

Several face valid links exist from personality to these moral values. Neuroticism, characterized by anxiety and threat-sensitivity (Costa & McCrae, 1992), has face-valid associations with both binding (to secure the group from threat) and individualizing (to protect individuals from coercion). Research supports the suggestion that enhanced response to threat predicts greater support for policies that protect social norms (Oxley *et al.*, 2008). Agreeableness, which indexes empathy and pro-social tendencies (Jensen-Campbell & Graziano, 2001), is conceptually linked to a preference for reduction of suffering and injustice, features that underpin individualizing. Openness has been consistently found to predict unconventionality (McCrae, 1996). Thus, we predicted a negative association between openness and binding (which reflects a preference for group conformity), as well as a positive association with individualizing reflecting the desire for maximum freedom of expression. Conscientiousness reflects responsible and dutiful behaviour and is associated with Protestant work ethic values (Christopher, Zabel, & Jones, 2008; Costa & McCrae, 1992) and as such is conceptually linked to binding,

via the emphasis on group order. Finally, extraversion has shown links with Right-Wing Authoritarianism (Ekehammar, Akrami, Gylje, & Zakrisson, 2004), which indexes submissiveness, conformity, and aggressiveness to legitimized out-groups (Altemeyer, 1996), perhaps as a reflection of extraversion enhancing fitness by increasing social dominance (Nettle, 2005). As such, we predicted extraversion would associate positively with binding, which in turn taps authoritative, parochial values.

Overview

In summary, we hypothesized that previous links of political orientation to moral values reported recently in United States, United Kingdom, and Dutch samples would be replicable in independent UK and US samples. Our critical predictions specified that each of the five personality domains would show significant effects on political orientation, mediated by moral values within a personality system framework. Next, we use structural equation modelling in two independent studies to test hypotheses linking the five-factor model to binding and individualizing and politics.

STUDY I

Method

Participants

Four hundred and forty-seven participants took part in Study 1 (315 females; mean age (female) = 19.27, $SD = 2.65$; mean age (male) = 20.12, $SD = 3.94$). Participants were undergraduate students who received partial course credit for their time.

Procedure and measures

Moral values were assessed using the 32-item Moral Foundations Questionnaire (MFQ) measure of harm, fairness, in-group loyalty, authority, purity, with two validity-check items (Graham *et al.*, in press). Personality was assessed using the full 240-item NEO-PI-R providing measures of the five major domains of personality: agreeableness, conscientiousness, extraversion, neuroticism, and openness to experience (Costa & McCrae, 1992). Political orientation was assessed on a 7-point Likert-scale measure asking 'How would you describe your political orientation?' and anchored at 0 with the label 'Very liberal' through to 6 'Very conservative'. This single-item measure has been used widely in political psychology research and shown good reliability and predictive validity (Carney *et al.*, 2008; Fuchs & Klingemann, 1990; Jost, 2006). All measures were administered on-line via a web browser to facilitate data storage and scoring.

Results

Descriptive statistics and reliability for the scales are shown in Table 1 and correlations between the scales in Table 2.

Structural models were built using AMOS 17.0 for Windows. Multiple fit indices were used; namely, the χ^2 test, the comparative fit index (CFI), and the root-mean square error of approximation (RMSEA). We handled measurement error in personality and moral values by treating each variable as a latent factor: Personality was defined by a single indicator, the mean score of the relevant dimension, with the measurement error variance fixed as the difference between 1 and the reliability of the scale (calculated using Cronbach's alpha) times the scale variance (Hayduk, 1987). Moral values were

defined by multiple indicators: the scales of in-group, authority, and purity, and the scales of harm and fairness, were utilized as indicators for binding and individualizing, respectively. Personality traits and moral values were allowed to correlate in each model.

Three models were tested: Model 1 (our predicted model) specified that personality influences moral values, which in turn influence political orientation. Model 2 reversed the roles of moral values and personality, specifying that moral values influence personality, which in turn influences political orientation. Finally, we tested a model in which personality influences political orientation, which in turn influences moral values (Model 3).

Model 1, our theoretical model, described the data well without modification (RMSEA = .07, $\chi^2 = 99.17$ ($df = 30$, $p < .001$), CFI = .95). By comparison with Model 1, Models 2 and 3 provided poor fits to the data as judged by all of the fit indices: RMSEA = .10, $\chi^2 = 107.80$ ($df = 31$, $p < .001$), CFI = .91 and RMSEA = .12, $\chi^2 = 226.48$ ($df = 32$, $p < .01$), CFI = .85, respectively.

We subsequently examined Model 1 for potential improvements. The path from conscientiousness to binding was non-significant, and so was removed. Furthermore, modification indices suggested that openness had a direct association with political orientation, and so this path was added. This final version described the data well (RMSEA = .07, $\chi^2 = 80.20$ ($df = 24$, $p < .001$), CFI = .95; see Figure 2).

As neuroticism loaded positively on both binding and individualizing, this effect was further analysed. To test whether different facets of neuroticism might be having different, perhaps even opposing effects on moral values, we built a model containing all of the neuroticism facets and then reduced the model down to only those facets that showed significant pathways to binding and/or individualizing. The final model fit the data well (RMSEA = .07, $\chi^2 = 17.53$ ($df = 6$, $p < .01$), CFI = .99) and included three facets: The facets anxiety and self-consciousness loaded positively on individualizing ($\beta = .14$ and $.17$, respectively), while depression loaded negatively on individualizing ($\beta = -.16$).

Table 1. Descriptive statistics for personality, moral values, and political orientation in Study 1 and Study 2

| Measure | Study 1 | | Study 2 | |
|-----------------------|----------|-----------|----------|-----------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Moral values | | | | |
| Harm | 3.52 | 0.72 | 5.05 | 0.85 |
| Fairness | 3.68 | 0.65 | 4.64 | 0.97 |
| In-group | 2.78 | 0.76 | 3.75 | 1.19 |
| Authority | 2.84 | 0.80 | 3.73 | 1.06 |
| Purity | 2.13 | 0.85 | 3.78 | 1.26 |
| Personality | | | | |
| Agreeableness | 47.59 | 8.33 | 9.93 | 2.18 |
| Conscientiousness | 40.87 | 8.79 | 10.89 | 2.26 |
| Extraversion | 53.72 | 7.61 | 7.65 | 3.23 |
| Neuroticism | 57.97 | 8.91 | 6.74 | 2.70 |
| Openness | 55.86 | 7.12 | 10.47 | 2.23 |
| Political orientation | | | | |
| | 2.40 | 1.33 | 3.43 | 1.02 |

Table 2. Correlations among personality domains, moral values, and political orientation in Study I

| Measure | Harm | Fa. | In. | Au. | Pu. | A | C | E | N | O |
|-----------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------|--------------|
| Fairness | <i>.64*</i> | | | | | | | | | |
| In-group | <i>.31*</i> | <i>.26*</i> | | | | | | | | |
| Authority | <i>.22*</i> | <i>.17*</i> | <i>.65*</i> | | | | | | | |
| Purity | <i>.29*</i> | <i>.15*</i> | <i>.52*</i> | <i>.55*</i> | | | | | | |
| A | <i>.38*</i> | <i>.25*</i> | .00 | -.02 | .08 | | | | | |
| C | .08 | .03 | .00 | .00 | .04 | .16 | | | | |
| E | <i>.15*</i> | .03 | <i>.15*</i> | .12 | .07 | <i>.18*</i> | <i>.13*</i> | | | |
| N | <i>.14*</i> | .09 | -.03 | -.02 | .07 | -.07 | <i>-.44*</i> | <i>-.30*</i> | | |
| O | <i>.16*</i> | <i>.16*</i> | <i>-.22*</i> | <i>-.24*</i> | <i>-.27*</i> | <i>.13*</i> | .00 | <i>.31*</i> | .05 | |
| Pol. | <i>-.11</i> | <i>-.25*</i> | <i>.26*</i> | <i>.26*</i> | <i>.32*</i> | <i>-.15*</i> | .08 | .00 | -.06 | <i>-.30*</i> |

Note. Italicized correlations are significant at $<.05$. Asterisk (*) signifies significance at the .01 level (two-tailed). A = agreeableness; C = conscientiousness; E = extraversion; N = neuroticism; O = openness; Pol. = political orientation.

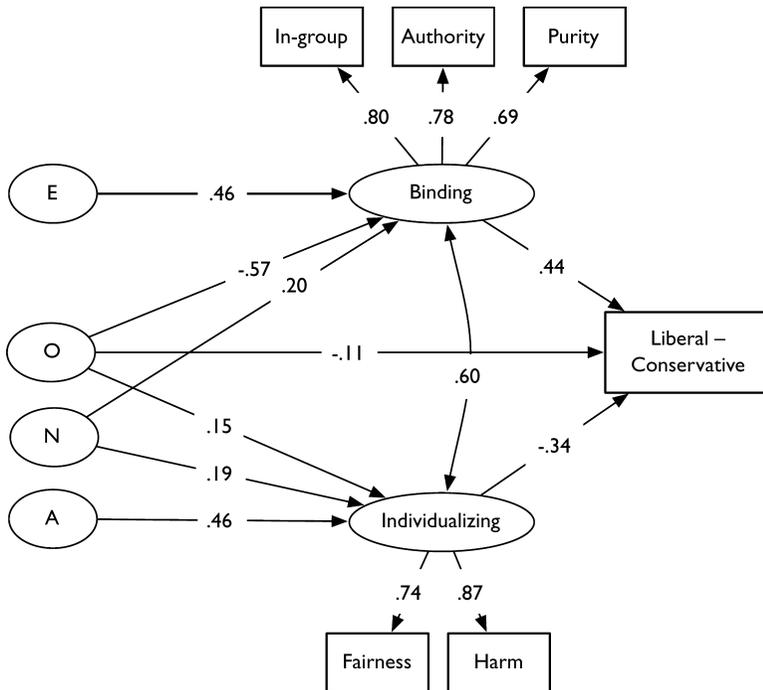


Figure 2. Path diagram illustrating the relationships between personality, moral values, and political orientation in Study I.

Brief discussion of Study I

As predicted, openness, neuroticism, and agreeableness were significant predictors of individualizing, with binding being associated with openness, neuroticism, and extraversion. We also observed a direct relationship between openness and political orientation. Finally, as predicted, binding and individualizing accounted for significant variance in political orientation. Contrary to prediction, the association between conscientiousness and binding did not reach significance.

These results broadly support the initial hypotheses, demonstrating a relationship between moral values and political orientation, and also relating personality to moral values, and via mediated pathways, to political orientation. In order to increase our confidence in the findings, we next sought to replicate and extend the findings in an independent non-student sample utilizing a broader measure of political orientation. This model is presented below.

STUDY 2

Method

Participants

Four hundred and seventy-six participants took part in Study 2 (307 females; mean age (female) = 33.69, $SD = 12.33$; mean age (male) = 31.65, $SD = 10.95$). Participants in this sample were recruited from a web-based recruitment site, Amazon's 'Mechanical Turk', or Mturk, a website that allows people (aged 18 or over) to perform short tasks for small sums of money: data from this sample have been reported elsewhere (Kurzban, Dukes, & Weeden, 2010). The survey was restricted to residents of the United States. This site has generated results comparable to other samples (e.g., DeScioli & Kurzban, 2009). The sample contained 81% European Americans, 5% African Americans, 5% Asian Americans, 4% Latino Americans, and 5% other.

Procedure and measures

Each participant rated their support/opposition on a 7-point Likert scale to 14 items addressing current political issues. These items included restrictions against Internet pornography, comprehensive sex education in public schools, banning abortion and legalized gay marriage, allowing undocumented immigrants to stay in the United States, higher taxes for the wealthy, aggressive military response to dangerous foreign groups, unemployment payments, gun control laws, offshore drilling, and subsidized healthcare for the poor. These items summed had a Cronbach's alpha of .82 and were subsequently utilized as a single scale indexing political orientation (higher scores represented greater conservatism).

Participants also completed the moral relevance items from Graham *et al.* (2009), which are similar to the MFQ scales used in Study 1 and are designed to measure the same five moral dimensions of harm, fairness, in-group loyalty, authority, and purity. Personality was measured with a short Big Five personality inventory (Rammstedt & John, 2007), with each of the Big Five dimensions indexed by two items.

Results

Descriptive statistics and reliability for the scales are shown in Table 1 and correlations between the scales in Table 3.

We next attempted to confirm the final model of Study 1. Moral values were modelled as latent factors and were defined by multiple indicators. The scales of in-group, authority, and purity, and the scales of harm and fairness, were utilized as indicators for binding and individualizing, respectively. Personality traits and political orientation were modelled as manifest variables. Personality traits were allowed to correlate in line

Table 3. Correlations among personality domains, moral values, and political orientation in Study 2

| Measure | Harm | Fa. | In. | Au. | Pu. | A | C | E | N | O |
|-----------|------|------|------|------|------|-------|-------|-------|-------|-------|
| Fairness | .62* | | | | | | | | | |
| In-group | .33* | .47* | | | | | | | | |
| Authority | .38* | .47* | .68* | | | | | | | |
| Purity | .33* | .38* | .52* | .54* | | | | | | |
| A | .17* | .15* | .01 | .03 | .17* | | | | | |
| C | -.01 | .04 | .09 | .11 | .15* | .18* | | | | |
| E | .04 | .08 | .10 | .09 | .04 | .04 | .10 | | | |
| N | .09 | .09 | .10 | .04 | .06 | -.26* | -.20* | -.21* | | |
| O | .08 | .15* | .01 | .05 | -.08 | .18* | .10 | .30* | -.21* | |
| Pol. | .07 | -.12 | .17* | .21* | .34* | -.06 | .18* | .12 | .08 | -.15* |

Note. Italicized correlations are significant at $<.05$. Asterisk (*) signifies significance at the .01 level (two-tailed). A = agreeableness; C = conscientiousness; E = extraversion; N = neuroticism; O = openness; Pol. = political orientation.

with significant covariance observed in the correlation matrix. This model provided an adequate description of the data (RMSEA = .08, $\chi^2 = 90.49$ ($df = 24$, $p < .001$), CFI = .94). While this replication confirms the central value of character adaptations in the form of moral values, observation of the path coefficients in this replication suggested that in this sample openness did not affect binding as in Study 1. Additionally, we observed that conscientiousness significantly associated with binding, and that both conscientiousness and agreeableness contained a significant direct path to political orientation. In a second step, we adjusted for these paths (removing or adding, where appropriate), which led to a model demonstrating a good fit to the data (RMSEA = .06, $\chi^2 = 86.37$ ($df = 29$, $p < .001$), CFI = .96; see Figure 3).

Brief discussion of Study 2

Confirming the findings of Study 1, openness, neuroticism, and agreeableness were significant predictors of individualizing, with binding being associated with conscientiousness, neuroticism, and extraversion: Conscientiousness was not a significant predictor of binding in Study 1, but was predicted to show links with this moral value. As in Study 1, openness directly influenced political orientation; however, in contrast to Study 1, here we observed additional direct paths from agreeableness and conscientiousness to political orientation. Finally, binding and individualizing, as in Study 1, accounted for significant variance in political orientation. These results broadly support the initial hypotheses and the results of Study 1, demonstrating a relationship between moral values and political orientation, and illuminating links from personality to moral values and, via mediated pathways, to political orientation.

GENERAL DISCUSSION

The central aim of these two studies was to test a personality system model of the relationship between personality, moral values, and political orientation. The core hypothesis was that interposing an appropriate measure of characteristic adaptations in the form of moral values would reveal links of personality to political orientation. This

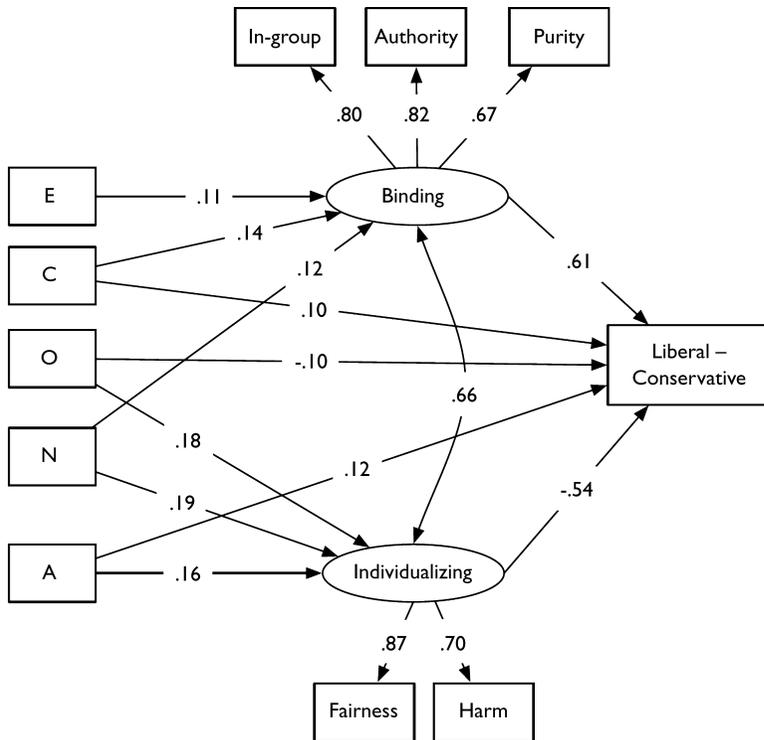


Figure 3. Path diagram illustrating the relationships between personality, moral values, and political orientation in Study 2.

hypothesis was confirmed in two independent studies, supporting a personality system model (McCrae & Costa, 1999) of political orientation.

High individualizing is characterized by a concern for fairness and ensuring that individuals are protected from harm. This value was significantly associated with agreeableness, neuroticism, and openness. High binding is characterized by a valuing of order, authority, in-group loyalty, and aspirations to a pure life, and was associated with extraversion and low openness (in Study 1 and 2), and with conscientiousness (Study 2). These two moral values in turn combined to predict political orientation. A conservative orientation in this model was associated with high valuing of order and hierarchy combined with a low value on the treatment of individuals, while a liberal or left-orientation was associated with low valuing of the group and strong emphasis on equity and avoidance of harm. Moving in from the extremes, the model revealed how simple left-right distinctions are articulated into a more complex political landscape in the personality system framework. The model allows for quite distinct characteristics among groups with similar political orientations: Contrast, for example, two individuals with moderate left-of-centre orientations. One may value group solidarity strongly, but have little concern for individual liberties. The other may value both the individual and the group to an equal but moderate extent. Such individuals would, we suggest, self-report an identical orientation on the liberal-conservative dimension, but would disagree strongly over particular policies: for instance, immigration and free trade (where those high on group loyalty might favour trade barriers and protection) and civil liberties (where concerns for the treatment of individuals would be relevant). Thus, the model

allows far more sophisticated and precise political behavioural predictions than can be made from a simple unitary left–right spectrum.

A further important observation from the results concerns the significant influence of neuroticism upon both individualizing and binding. Higher levels of neuroticism predict higher levels of both these values, but individualizing and binding influence political orientation in opposite directions. As such, it is likely that failures to associate neuroticism with political orientation in previous research may be due to these influences effectively cancelling out at the level of political orientation. We observed additional countervailing effects at the facet-level: scores on anxiety and self-consciousness both increase individualizing, while depression scores relate negatively to this value. This latter finding suggests that future work attempting to link neuroticism with political attitudes would be wise to consider facet-level associations alongside the more common domain-level relations.

Although our predictions were broadly validated across studies, some differences were observed between Study 1 and Study 2. In Study 1, links from conscientiousness were non-significant while in Study 2 conscientiousness showed significant links to binding and a direct link to political orientation. Possible explanations may include a lack of power, but also possible increasing effects of conscientiousness with age and accompanying changes in responsibilities and life-roles (mean age in Study 2 was 32 years vs. 20 years in Study 1). Additionally, while the associations from openness to both individualizing and political orientation were robust, we failed to replicate the association between openness and binding in Study 2. This may reflect a loss of bandwidth (coverage of the breadth of behaviours) in the 10-item inventory (two items per Big Five dimension) used in Study 2. This interpretation seems plausible given that low openness has shown robust links to traits with *prima facie* links to binding, such as Right-Wing Authoritarianism (Sibley & Duckitt, 2008). Future work is nevertheless recommended to confirm the stability of this association between openness and binding. Finally, the strength of the relationships between personality traits and moral values was notably lower in Study 2 (specifically, the links from openness and extraversion to binding, and from agreeableness to individualizing). Again, this may have arisen because of limitations in coverage of the short-measure personality instrument and further work is recommended to clarify the magnitude of these associations.

A number of opportunities for future research emerge from these findings. Firstly, exploration of additional intermediary constructs by which personality exerts effects on political behaviours may be valuable. Candidates include values constructs such as those proposed by Schwartz (1992) and cultural-ideological measures explored by Ashton and colleagues (Ashton *et al.*, 2005). In addition, traits with links both to personality and to political orientation (Sibley & Duckitt, 2008), such as social dominance orientation (Pratto, Sidanius, Stallworth, & Malle, 1994) and Right-Wing Authoritarianism (Altemeyer, 1996), may also help to further articulate the relationship between personality and political attitudes.

Secondly, further insight into the origins of political attitudes may flow from examination of the dynamic components of the personality systems model. For example, while neuroticism is posited as exerting a chronic influence on binding, this value is likely to increase in importance when the individual feels threatened (e.g., Cohrs & Asbrock, 2009; Duckitt & Sibley, 2010). Accordingly, experimental manipulations that address these putative dynamic or acute effects may increase understanding of influences on political behaviour.

In summary, the studies reported here suggest that the personality system model is a useful framework for understanding the complex relationship between personality and political orientation. The data suggest that personality traits play a significant role in shaping political orientation, but do so largely indirectly, via an intermediary layer of characteristic adaptations. This model may be productive for further understanding individual differences in political behaviour.

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