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Political Extremism and a Generalized Propensity to Discriminate Among Values

Francesco Rigoli
City University of London

Research exploring the psychological differences between people supporting extreme versus moderate ideologies is growing. However, this research has rarely examined the domain of values. Here, we explore this domain by assessing the possibility that political extremists discriminate more among values compared to moderates, namely, that extremists exhibit strong commitment toward some values at the expense of other values, whereas moderates would acknowledge a multiplicity of values as equally important. First, we propose a model positing that a value discriminability parameter captures a general tendency to discriminate among values. Second, we test empirically the prediction that, compared to moderates, political extremists exhibit a higher discriminability parameter. This prediction is supported by four studies (including one based on the European Social Survey where representative samples from 29 European countries are examined) where participants reported their ideological orientation and rated the importance of basic human values (we focused on basic values because these transcend the political domain, thus highlighting general effects). Specifically, in all studies we observed a positive correlation between political extremism and residual variability in ratings, a hallmark of a higher discriminability parameter. These findings highlight the value domain as critical to understanding differences between political extremists and moderates.

KEY WORDS: political extremism, values, value discriminability, European social survey

In complex societies, different people develop specific belief and value systems about politics; scholars refer to these systems as *ideologies* (Converse, 1964; Feldman, 2013; Jost et al., 2009; Zaller, 1992). Research has explored the general psychological factors predisposing individuals to embrace one ideology over another (Caprara & Vecchione, 2013; Feldman, 2013; Jost et al., 2009). Most studies have focused on comparing people along the left versus right ideological spectrum since this is the primary axis for political placement in many countries. However, perhaps due to the recent surge of political polarization in countries such as the USA and the UK, psychological research focusing on comparing political extremists (i.e., people embracing extreme ideologies, on the left or on the right) versus moderates (i.e., people endorsing moderate ideologies) is growing fast (Brandt et al., 2014; Rollwage et al., 2019; van Baar & FeldmanHall, 2022; van Prooijen, 2021; van Prooijen & Krouwel, 2019; Zmigrod & Goldenberg, 2021). Within this research, the domain of values remains surprisingly unexplored, despite values being at the heart of the notion of ideology (so much so that scholars often define ideologies primarily in terms of underlying values; Converse, 1964; Feldman, 2013; Jost et al., 2009; Zaller, 1992). Is there any common aspect, in terms of value, that

is shared by both left and right extremists and distinguishes them from moderates? Insofar as value content is concerned, not much seems to unite the hard left and the hard right, with these being at opposite ends of the spectrum. However, it is possible that an important aspect shared by extreme ideologies might be a strong commitment toward some values (e.g., equality for the extreme left, and wealth for the extreme right) at the expense of other values (e.g., wealth for the extreme left, and equality for the extreme right), whereas more moderate ideologies might acknowledge a multiplicity of values as important, without emphasizing any one in particular (e.g., both equality and wealth would be attributed some importance). This possibility is a fundamental assumption of value pluralism theory (Tetlock, 1986; Tetlock et al., 1996), one of the few accounts about the differences between political extremists and moderates where values play a critical role. However, surprisingly, this possibility remains to be assessed empirically.

Let us explore further the implications of the argument that, while moderates appraise values as of similar importance, extremists emphasize some values at the expense of others. In other words, higher *value discriminability* (i.e., a tendency to discriminate more among values, namely, to consider some values as extremely important while dismissing other values) might be typical of extremists compared to moderates. Moreover, an intriguing possibility is that such extremists' enhanced value discriminability might be a general predisposition—it might encompass judgments about a broad variety of values, not only about those typically opposing right- and left-wing ideologies. Several fundamental (and novel) questions arise from this argument. How can such value discriminability be defined precisely? How would extremists and moderates differ with respect to value discriminability? How can value discriminability be measured empirically? Once a way for measuring value discriminability is established, do extremists truly discriminate more among values compared to moderates? And also among values not directly opposing right- versus left-wing ideologies? By addressing these questions, this article aims to explore aspects of value that distinguish political extremists (both on the left and on the right) from moderates, specifically by considering the possibility that the former people manifest an enhanced value discriminability compared to the latter. The next section proposes a computational theory of value discriminability and of its connection with political ideology. This is followed by four empirical studies testing the prediction that extremists are characterized by enhanced value discriminability compared to moderates.

Value Discriminability Theory

Value discriminability theory (VDT) describes the psychological processes underlying judgments about values. These judgments are the focus of a large body of research asking people to rate the importance of certain values in their life (e.g., Inglehart & Welzel, 2005; Rokeach, 1973; Schwartz, 1992). The VDT proposes that a person's judgment about a value depends on an individual inclination toward that value, which in turn might derive from factors such as underlying personality traits (e.g., an anxious personality might disqualify values such as pursuing novelty and change; Bilsky & Schwartz, 1994; Roccas et al., 2002), experiences about the consequences of pursuing certain values (e.g., the pleasure experienced by pursuing wealth, or the satisfaction experienced when helping others; Rigoli, 2021a), and judgments expressed by other people or by the media (Schwartz, 2016). More formally, the VDT proposes that for each value V, an individual's inclination, INC_V, toward this value is simply captured by a real number, where a positive number indicates a value to be pursued and a negative number a value to be avoided (overall, we assume that each person will attribute a positive INC to some values and a negative INC to other values, with an average of zero). INCs for different values are not necessarily independent, as people expressing a positive INC for one value (e.g., security) might be prone to also express a positive INC for another associated value (e.g., conformity). However, the model proposes that INC_V is not sufficient for determining value judgments; another key element at play would be an individual propensity to weight more or less such INC_V during judgments. This tendency is captured by a

discriminability parameter β in such a way that the final judgment about the importance of value V (IMP_V) is proposed to be equal to

$$\mathrm{IMP}_V = \beta\ \mathrm{INC}_V$$

As the equation indicates, although IMP_V and INC_V are specific for each individual value (e.g., wealth, justice, or equality), the discriminability parameter β applies across values (to wealth, justice, and equality alike). In other words, this parameter represents an individual predisposition (i.e., a personality trait) for attributing a larger or smaller weight to INCs. A large discriminability parameter β maximizes the *distance* in terms of importance between negative and positive values. For example, compare two individuals who, when assessing the importance of wealth and equality as values, both attribute $\mathrm{INC}_{\mathrm{wealth}} = -1$ to wealth and $\mathrm{INC}_{\mathrm{equality}} = 2$ to equality. Comparing the judgments reported by the two individuals, the person with the larger discriminability parameter β will express higher distance between the two values. In other words, this person will judge the two values as farther apart, appraising wealth as more negative and equality as more positive. Conversely, the person with lower discriminability parameter β will judge the two values as closer to one another and as both nearer to a neutral value of zero.

Within the VDT, differences in left versus right ideology can be explained by the fact that people vary with respect to the INC attributed to different values, with some people preferring typical right-wing values over left-wing values, and vice versa for other people. This is consistent with prior literature showing differences in value judgments between left-wing and right-wing people (Caprara et al., 2006, 2017; Schwartz et al., 2010). However, the key prediction of the VDT is that, for both left-wing and right-wing ideologies, extremists might differ from moderates because of a higher discriminability parameter β. This line of reasoning captures what we mentioned in the introduction, namely, the possibility that extreme ideologies would share a strong commitment toward some values (e.g., equality for the extreme left, and wealth for the extreme right) at the expense of other values (e.g., wealth for the extreme left, and equality for the extreme right), whereas more moderate ideologies would acknowledge a multiplicity of values as being similar in importance (e.g., they might view equality and wealth as roughly equal in importance). Crucially, the VDT posits that the discriminability parameter β is a stable parameter that is engaged for judgments across all values. This predicts that if it is true that extremists have higher β, they will exhibit enhanced value discriminability across the whole spectrum of values, not only values that typically distinguish left-wing from right-wing ideologies.

The article aims at testing the VDT prediction that value discriminability is higher for extremists compared to moderates. Let us consider how this prediction can be tested empirically by focusing on research on general human values, that is, the broad principles and ideals motivating people in everyday life (e.g., Inglehart & Welzel, 2005; Rokeach, 1973; Schwartz, 1992). This focus is important because general human values do not contain any direct reference to political issues; thus, any effect observed for general human values would suggest that a phenomenon is general and not confined to political contexts. Research on general human values assumes that people's ratings about values depend on (a) some underlying factors responsible for the pattern of correlation among ratings plus (b) random residual variability. The VDT proposes that ratings correspond to IMPs, which depends not only on underlying factors (captured by INCs) but also

[1]The VDT proposes that, mathematically, inclinations and discriminability parameter β are both key ingredients underlying value judgments. However, the theory is agnostic about the precise mechanisms whereby the discriminability parameter β is at play. Specifically, it remains agnostic about whether the discriminability parameter β applies, so to speak, later to already formed inclinations (implying that β can be described as a tendency to discriminate among previously formed inclinations) or whether the discriminability parameter β is already at play during the formation of inclinations (implying that β can be described as a tendency to have discriminating inclinations). These two possibilities are mathematically equivalent, and the VDT is compatible with both.

on the discriminability parameter β (plus random variability). This implies that the variability unexplained by the factors (i.e., the residual variability) will not be totally random but will depend on an individual tendency to discriminate among values (formally, on the discriminability parameter β characteristic of each individual). Consequently, some individuals (those characterized by larger discriminability parameter β) will exhibit higher residual variability in a systematic fashion. Moreover, the VDT implies that given the postulated link between political extremism and the discriminability parameter β, extremists will manifest higher residual variability (a hallmark of higher β).

Note that these predictions focus on residual, and not on total, variability. Why? At face value, it seems reasonable to predict that if extremists discriminate more among values, then they should manifest higher total variability in ratings. However, the problem of focusing on total variability is that this depends not only on the discriminability parameter β, but it also sometimes depends on the latent factors responsible for the pattern of correlation among ratings. Thus, focusing on total variability leaves open the question of whether any difference between moderates and extremists depends on these latent factors or on the discriminability parameter β; in other words, total variability is less specific than residual variability. This is why, we argue, it is preferable to focus on residual variability: This approach allows us to isolate the role of one single underlying component, namely, the role of the discriminability parameter β. To clarify why focusing on residual variability is preferable compared to focusing on total variability, we simulated the behavior of 1,000 agents completing a questionnaire akin to self-report measures adopted by research on general human values (e.g., Inglehart & Welzel, 2005; Rokeach, 1973; Schwartz, 1992; the script of the simulation is available as Supplementary Material). In this simulation, each agent completed 60 items, with each item asking the agent to express judgment about one value (e.g., equality). For each agent j, a discriminability parameter β_j was sampled from a uniform distribution ranging from 0.5 to 2. Also, for each agent the scores of two latent factors were obtained; the first ($F_{j,1}$) was sampled from a Gaussian distribution with average equal to 4 and standard deviation (*SD*) equal to 5, and the second ($F_{j,2}$) was sampled from a Gaussian distribution with average equal to $F_{j,1}$ plus 4 and standard deviation equal to 5. Next, for each latent factor k of agent j ($F_{j,k}$), the inclinations for 30 items (since 60 items were completed in total) were derived. Specifically, the inclination for item i derived from $F_{j,k}$ ($\mathrm{INC}_{j,i,k}$) was sampled from a Gaussian distribution with average equal to $F_{j,k}$ and SD equal to 2. Finally, the agent's response for this item was derived as

$$\mathrm{response}_{j,i,k} = \beta_j \, \mathrm{INC}_{j,i,k} + e_{j,i,k},$$

where the error term $e_{j,i,k}$ was sampled from a Gaussian distribution with average equal to 0 and SD equal to 2. Once the data were generated, for each agent we calculated the total SD among items $\left(\mathrm{RSD}_j\right)$ and looked at the Pearson correlation between RSD and β (note that this correlation was statistically significant). This was compared with the partial correlation between RSD and β controlling for F_1 and F_2; by controlling for latent factors, this second correlation assesses the link between the *residual* RSD and β (note that this correlation was statistically significant). When repeating this simulation 1,000 times, we observed that in all cases the Pearson correlation between RSD and β was weaker than the partial correlation between RSD and β controlling for F_1 and F_2. This is because, in this example, F_1 and F_2 were themselves correlated with RSD above and beyond the discriminability parameter β; thus, by controlling for these latent factors, the role of the discriminability parameter β could be isolated. This example elucidates why, to isolate the discriminability parameter β, it is appropriate to focus on residual, instead of total, variability (captured by a partial correlation analysis)—sometimes the latent factors might be correlated with total variability above

and beyond the discriminability parameter β, implying that it is appropriate to control for these factors.

In short, two predictions arise from the VDT in the context of self-report research on general human values: (a) some individuals will exhibit systematic higher residual variability in ratings, and (b) these individuals will express a more extreme political ideology. We explore these predictions in the context of the theory of basic human values (Schwartz, 1992), which is among the most influential perspectives on the nature of general human values.

Theory of Basic Human Values

The theory of basic human values (Schwartz, 1992) postulates the existence of core values that, based on their pattern of correlation, can be grouped into 10 higher-order basic values arranged along a quasi-circular organization. These basic values appear to be distributed circularly but not evenly spaced, thus forming clusters (hence the definition of quasi-circular arrangement). The 10 basic values are *self-direction* (valuing independent thought and action, autonomy, freedom, and creativity), *stimulation* (seeking novel experience, arousal, variety, and challenge in life), *hedonism* (valuing enjoyment and pleasure), *achievement* (reflecting a drive for acquiring competence in fulfilling socially defined goals), *power* (valuing attainment and preservation of dominant positions in the social system), *security* (seeking harmony, safety, and stability of society and relationships), *conformity* (restraining from actions, inclinations, and impulses that violate social norms), *tradition* (valuing acceptance and respect for the norms, rituals, and ideas of one's own culture), *benevolence* (seeking the well-being of close others in everyday interactions), and *universalism* (seeking understanding, appreciation, tolerance, and protection for the well-being of all people and nature).

The theory of basic human values relies on a self-report approach whereby individuals rate the importance of several core values (Schwartz, 1992). According to this theory, each rating is the result of an underlying structure (captured by the higher-order basic values outlined above) combined with random residual variability. Regarding the latter, the VDT predicts that the residual variability will not be totally random but will vary systematically across individuals (as explained above, this derives from the notion of a discriminability parameter β characteristic of each individual). This prediction can be tested by considering the variability across core values *within* each basic value category, and by assessing whether this variability is consistent across basic values. In other words, this corresponds to asking whether people exhibiting higher variability for, say, self-direction also show higher variability for all other basic values (e.g., stimulation, power, achievement). The second prediction arising from the VDT is that individuals showing higher residual variability regarding values will also express higher political extremism (as explained above, this derives from the hypothesis that the discriminability parameter β is a key aspect of political extremism). In four empirical studies, the two predictions arising from the VDT were assessed empirically.

STUDY 1

We started with an online study, recruiting people from the UK. To assess values in the context of the theory of basic human values, we administered the Schwartz Value Survey (SVS; Schwartz, 1992), a well-established measure of core and basic values. We assessed two hypotheses derived from the VDT: (a) that the residual variability of ratings will not be totally random but will vary systematically across individuals, and that (b) political extremists will exhibit higher residual variability in ratings.

Methods

Participants

Recruitment of participants was carried out online using the Prolific website (www.prolific.co). For the present study, 300 adults were recruited (all participants were included in the analysis). This sample size was established a priori based on a Pearson correlation hypothesis testing, a Type I error rate of 0.05, a Type II error rate of 0.05, and an expected Pearson coefficient of $r = .22$ (this requires a minimum of 263 participants; we rounded this number to 300). By relying on the Prolific prescreening, we ensured that all participants were UK citizens (citizenship was established based on the following prescreening question: "What is your nationality?"). Participants were all English speakers (this also was ensured based on a prescreening question). Data are available at https://www.openicpsr.org/openicpsr/project/147801/version/V1/view.

Procedure and Measures

The study was published on March 11, 2021, and the sample was fully collected on the same day. Participants answered a set of online questions via the Qualtrics website (www.qualtrics.com). Answering all questions took approximately 10 minutes, and subjects were paid £1.50 for participating in the study.

Our measures included the SVS (Schwartz, 1992) plus a question assessing political extremism (we also recorded participants' age and gender). For the latter, we recorded participants' political orientation (recorded through the question "Overall, are your political opinions closer to the left or to the right?" with options 1 = *Strongly right*, 2 = *Moderately right*, 3 = *Neutral*, 4 = *Moderately left*, 5 = *Strongly left*), and we derived political extremism as equal to abs(3—political orientation); this captures how far from a neutral political orientation participants were.

Regarding the SVS (Schwartz, 1992), for each of 56 items describing a general human value or principle, participants were asked to indicate how much that item is important for them on a 9-point rating scale (ranging from −1, *opposed to my principles*; to 0, *not important*; 3, *important*; 6, *very important*; and 7, *of supreme importance*). Scoring of the scale worked as follows. First, we mean-centered the items; for each participant, the average across all items was subtracted to each item. Second, only 45 items (those reflecting the core values established by prior literature as adequate for cross-cultural comparisons; Schwartz, 1992) were further considered. Among these, each item maps to a specific basic value; items associated with the same basic value were averaged to obtain the score for that basic value. For example, the basic value of power was scored as the average across four items (social power, wealth, authority, and preservation of public image).

Statistical Analyses

We assessed two predictions derived from the VDT: that residual variability is subject-dependent, and that the residual variability is linked with political extremism. To assess the first prediction, for each participant we calculated the among the core values within each basic value except hedonism (the latter was excluded because it only comprises two core values). Thus, we obtained nine new SD variables reflecting the SD not accounted for by basic values. To test whether SD variables all reflected a subject-dependent tendency for higher or lower residual SD, we first looked at the internal consistency among the SD variables by calculating the Cronbach's alpha and by looking at the item-total correlation for each variable (Nunnally, 1994). A positive item-total correlation was predicted for all SD variables. Second, we ran an exploratory principal component analysis of the SD variables

predicting that (a) the Kaiser-Meyer-Olkin (KMO) score would be larger than 0.7 (indicating that the analysis was suitable), (b) the Bartlett's test of sphericity would be significant (indicating that the correlation matrix among SD variables would be different from an identity matrix), and (c) only one single factor (reflecting a subject-dependent effect) would be extracted from the SD variables (the number of factors that should be extracted was established based on parallel analysis; Horn, 1965).

To test the second prediction of the VDT (implying a link between residual variability and political Extremism), we assessed the partial correlation between the total SD across the 45 core values and political extremism, controlling for the 10 basic values. By controlling for these, we removed the SD explained by the basic values, thus isolating the residual SD. For all hypotheses tested in this article, a two-tailed $p = .05$ was adopted as the significance threshold. For exploratory purposes, we also assessed the partial correlation between each basic value and political extremism, controlling for political orientation.

Results

Descriptive statistics for interval variables are reported in Table 1 (for gender, the sample included 175 females). The partial correlation between political extremism and each basic value controlling for political orientation is reported in the Supplementary Information. Among the nine SD variables derived from calculating the SD within each basic value except hedonism (their descriptive statistics are reported in Table 2), a Cronbach's alpha of .67 emerged. As predicted, all item-total correlations were positive, with a minimum score of $r = .165$ and an average score of $r = .350$. The principal component analysis of the SD variables showed a KMO = .752 and a significant Bartlett's test of sphericity, $\chi^2(36) = 314, p < .001$. Parallel analysis indicated that a single factor should be extracted from SD variables. Altogether, these results support the VDT prediction that the residual SD is systematically subject-dependent and that the effect of the subject is the unique factor underlying residual SD.

Regarding the partial correlation between the total SD and political extremism, controlling for the 10 basic values, this was statistically significant, $r(288) = .174, p = .003$, 95% CI [.061, .286] (results were not altered when, together with basic values, political orientation was also controlled for).

STUDY 2

The predictions examined above are supposed to generalize across countries, at least in societies where the political debate is structured along a right–left axis. Thus, to assess these predictions

Table 1. Study 1: Descriptive Statistics of the Interval Variables

	Mean	SD	Skewness
Age	36.81	13.73	.80
Self-direction	.66	.77	.54
Stimulation	−.68	1.16	−.29
Hedonism	.43	1.16	−.32
Achievement	−.19	.86	−.15
Power	−2.06	1.30	−.04
Security	.16	.80	.07
Tradition	−1.14	.99	−.27
Conformity	.03	.90	−.30
Benevolence	.75	.67	.31
Universalism	.70	.89	−.04
Political orientation	3.27	1.18	−.17
Political extremism	1.05	.60	−.02

Table 2. Study 1: Descriptive Statistics of the Total SD across Core Values and of the SD Variables (Derived from Calculating the SD within Basic Values)

	Mean	SD	Skewness
Total SD across core values	1.84	.46	.17
SD within self-direction	1.21	.56	.66
SD within stimulation	1.24	.78	.71
SD within achievement	1.43	.73	.60
SD within power	1.46	.71	.46
SD within security	1.64	.71	.51
SD within tradition	1.89	.77	.08
SD within conformity	1.43	.66	.19
SD within benevolence	1.07	.59	.53
SD within universalism	1.28	.59	.67

in full, considering multiple countries is paramount. As a first step in this direction, we run exactly the same study as in Study 1, but now in the USA instead of the UK. Hypotheses were the same as in Study 1: (a) the residual variability of ratings was predicted not to be totally random, but to vary systematically across individuals, and (b) extremists were predicted to exhibit higher residual variability in ratings.

Methods

Participants

As in Study 1, Study 2 was conducted online and participants were recruited through Prolific (www.prolific.co). For the present study, 450 adults were recruited (all participants were included in the analysis). This sample size was established a priori based on a Pearson correlation hypothesis testing, a Type I error rate of 0.05, a Type II error rate of 0.05, and an expected Pearson coefficient of $r = .174$ (this requires a minimum of 424 participants; we rounded this number to 450). The expected Pearson correlation was based on the results from Study 1 (see above). By relying on the Prolific prescreening, we ensured that all participants were U.S. citizens (citizenship was established based on the following prescreening question: "What is your nationality?"). Participants were all English speakers (this also was ensured based on a prescreening question). Data are available at https://www.openicpsr.org/openicpsr/project/147801/version/V1/view.

Procedure and Measures

The study was published on July 10, 2021, and the sample was fully collected on the same day. Participants answered a set of questions online via the Qualtrics website (www.qualtrics.com). Answering all questions took approximately 10 minutes, and subjects were paid $1.50 for participating in the study.

Our measures were the same as in Study 1 (see above), including the SVS (Schwartz, 1992) plus a question assessing political orientation from which we derived political extremism (we also recorded participants' age and gender).

Statistical Analyses

Statistical analyses were the same as in Study 1 (see above).

Results

Descriptive statistics for interval variables are reported in Table 3 (for gender, the sample included 216 females). The partial correlation between political extremism and each basic value controlling for political orientation is reported in the Supplementary Information. Among the nine SD variables derived from calculating the SD within each basic value except hedonism (their descriptive statistics are reported in Table 4), a Cronbach's alpha of .75 emerged. As predicted, all item-total correlations were positive, with a minimum score of $r = .219$ and an average score of $r = .432$. The principal component analysis of the SD variables showed a KMO = .830 and a significant Bartlett's test of sphericity, $\chi^2(36) = 745, p < .001$. Parallel analysis indicated that a single factor should be extracted from SD variables. Altogether, these results confirm Study 1 supporting the VDT prediction that the residual SD is systematically subject-dependent and that the effect of the subject is the unique factor underlying residual SD.

Regarding the partial correlation between the total SD and political extremism, controlling for the 10 basic values, this was statistically significant, $r(438) = .150$, $p = .002$, 95% CI [.058, .24] (results were not altered when, together with basic values, political orientation was also controlled for).

STUDY 3

Study 3 reanalyzed a previously collected and published dataset (Schwartz et al., 2010). The aim of Study 3 was to further generalize the results that emerged in Studies 1 and 2, given that Study 3 was based on a dataset (a) collected in 2006, (b) in a different country (Italy), (c) collected face-to-face rather than online, and (d) where values were measured with a different instrument (instead of the SVS, the Portrait Value Questionnaire [PVQ]; Schwartz, 2007). Hypotheses were the same as in Studies 1 and 2: (a) the residual variability of ratings was predicted not to be totally random, but to vary systematically across individuals, and (b) extremists were predicted to exhibit higher residual variability in ratings.

Moreover, this study allowed us to address an important confound. Political extremists might manifest higher variability in ratings not because of higher value discriminability (as hypothesized here), but simply because of higher noise. In other words (for reasons such as higher impulsivity, less engagement with the task, lower IQ, etc.), extremists might be more random in their responses. If this is the case, then these participants should also be less consistent when presented twice with exactly the same items. Study 3 allowed us to assess this because participants completed the PVQ twice (with an interval of two months). If extremists' higher variability was due to higher noise and not to higher value discriminability, then extremists compared to moderates should also be less consistent

Table 3. Study 2: Descriptive Statistics of the Interval Variables

	Mean	SD	Skewness
Age	35.56	11.80	1.00
Self-direction	.58	.77	.46
Stimulation	−.74	1.19	−27
Hedonism	.14	1.16	−.39
Achievement	.04	.73	−.28
Power	−1.85	1.40	−.26
Security	.18	.72	−.40
Tradition	−.62	1.09	−.53
Conformity	.09	.86	−.89
Benevolence	.60	.73	.01
Universalism	.33	.90	.11
Political orientation	3.03	1.25	.11
Political extremism	1.05	.69	−.06

Table 4. Study 2: Descriptive Statistics of the Total SD across Core Values and of the SD Variables (Derived from Calculating the SD within Basic Values)

	Mean	SD	Skewness
Total SD across core values	1.67	.58	−.26
SD within self-direction	1.13	.67	.64
SD within stimulation	1.14	.78	.76
SD within achievement	1.36	.85	.54
SD within power	1.43	.80	.53
SD within security	1.38	.74	.27
SD within tradition	1.66	.87	.19
SD within conformity	1.22	.74	.58
SD within benevolence	1.01	.66	.71
SD within universalism	1.20	.63	.45

in their ratings between the two sessions. If, on the contrary, extremists and moderates exhibit equal consistency, then higher variability in ratings expressed by extremists can be interpreted as due to higher value discriminability, and not to higher noise.

Methods

Participants

Students of a university in Rome collected data face-to-face, with each student being instructed to recruit six people equally distributed by gender and age (Schwartz et al., 2010). The sample includes 1,699 participants. Of these, 1,023 participants completed the PVQ twice.

Procedure and Measures

Data were collected in 2006. From the variables originally available (Schwartz et al., 2010), we extracted the following: (a) 40 items of the PVQ (measured twice in two different sessions, with an interval of two months), (b) one item measuring political orientation (assessed with the following prompt: "Considering your political ideas, would you define yourself as…," with the options 1 = *Extreme left*, 2 = *Left*, 3 = *Centre left*, 4 = *Centre*, 5 = *Centre right*, 6 = *Right*, 7 = *Extreme right*), (c) one item for age, and (d) one item for gender. We derived political extremism as equal to abs(4—political orientation).

For each of 40 items, the PVQ (Schwartz, 2007) describes a person in terms of wishes, goals, and aspirations (e.g., "It is important to him to listen to people who are different from him. Even when he disagrees with them, he still wants to understand them"). Participants are asked to rate how much the person is similar to themselves on a scale ranging from *Not like me at all* (1) to *Very much like me* (6). Each subset of three to six PVQ items map onto one of the 10 basic values, in a way similar to the SVS. Scoring of the scale worked as follows. First, to correct for individual tendencies to report a different overall average score, for each participant the average across all PVQ items was subtracted from each item. Second, items associated with the same basic value were averaged to obtain the score for that basic value.

Statistical Analyses

Statistical analyses were the same as in Studies 1 and 2 (see above), with the following differences. First, the SD among the core values within each basic value was extracted from the PVQ.

Second, because for hedonism the PVQ includes three items instead of two, the SD for hedonism was also included in the analyses. Third, given the larger sample size, instead of running an exploratory principal component analysis, we estimated a factor model (based on maximum likelihood) with one single latent factor. We assessed the model based on indexes quantifying the absolute model fit, including the RMSA, the SRMR, the GFI, and the AGFI.

To assess consistency in PVQ ratings between Sessions 1 and 2, for each participant we fitted a regression model predicting the ratings at Time 1 based on the ratings at Time 2, from which we extracted the regression coefficient. The higher the coefficient, the more consistent judgments are between the two sessions. To assess whether political extremists and moderates differ in terms of consistency, we looked at the Pearson correlation between the regression coefficients and political extremism. A negative correlation would indicate that extremists are less consistent than moderates, whereas a lack of correlation would show an equal consistency between extremists and moderates.

Results

Descriptive statistics for interval variables are reported in Table 5 (for gender, the sample included 932 females). The partial correlation between political extremism and each basic value controlling for political orientation is reported in the Supplementary Information. Among the SD variables derived from calculating the SD within each basic value (their descriptive statistics are reported in Table 6), a Cronbach's alpha of .63 emerged. All item-total correlations were positive, with a minimum score of $r = .236$ and an average score of $r = .302$. The factor analysis of the SD variables (where a single latent factor was included in the model) revealed the following: (a) RMSA = .049, 95% CI [.042, .056], p close = .584; (b) SRMR = .039; (c) GFI = .978; and (d) AGFI = .965. Altogether, these results confirm Studies 1 and 2 supporting the VDT prediction that the residual SD is systematically subject-dependent and that the effect of the subject is the unique factor underlying residual SD.

Regarding the partial correlation between the total SD and political extremism, controlling for the 10 basic values, this was statistically significant, $r(1,655) = .106$, $p < .001$, 95% CI [.057, .152] (results were not altered when, together with basic values, political orientation was also controlled for).

Finally, after extracting the regression coefficients capturing the relation between PVQ ratings at Times 1 and 2, we looked at the correlation between these regression coefficients (note that the skewness of the distribution of coefficients was equal to −.559) and political extremism, which was nonsignificant, $r(1,021) = .008$, $p = .798$, 95% CI [−.053, .069]. This result reveals an equal consistency between political extremists and moderates.

Table 5. Study 3: Descriptive Statistics of the Interval Variables

	Mean	SD	Skewness
Age	44.77	17.624	.230
Self-direction	.4031	.64682	−.097
Stimulation	−.4561	.95003	−.172
Hedonism	−.2932	.95443	−.231
Achievement	−.3936	.89103	−.144
Power	−1.0923	.96808	.165
Security	.3136	.68336	−.432
Tradition	−.3915	.84097	−.042
Conformity	.0904	.72539	−.415
Benevolence	.4007	.61376	.014
Universalism	.5859	.63217	−.366
Political orientation	4.12	1.894	.533
Political extremism	1.5658	1.07204	.785

Table 6. Study 3: Descriptive Statistics of the Total SD across Core Values and of the SD Variables (Derived from Calculating the SD within Basic Values)

	Mean	SD	Skewness
Total SD across core values	1.2407	.33188	.305
SD within self-direction	.8220	.47836	.514
SD within stimulation	.9634	.58714	.604
SD within hedonism	.7795	.56186	.757
SD within achievement	.7801	.48294	.693
SD within power	.8487	.58356	.697
SD within security	.8976	.48101	.472
SD within tradition	1.0252	.54418	.599
SD within conformity	.9790	.57130	.592
SD within benevolence	.8237	.50622	.729
SD within universalism	.7841	.40494	.599

STUDY 4

A shortcoming of Studies 1, 2, and 3 is that the samples are not representative of the population. Moreover, these studies cover only three countries (UK, USA, and Italy). To address these shortcomings, we examined data from the European Social Survey (ESS), a large dataset including representative samples from 29 European countries (ESS Round 9: European Social Survey Round 9 Data, 2018). Among the variables included in the ESS, 21 items assess the 10 basic values as conceived by the theory of basic human values. Moreover, one item assesses Political Orientation in a way similar to the method adopted here, from which political extremism can be derived. However, a limitation of the ESS is that only two items (three in one case) map onto each of the 10 basic values; thus, the ESS is poorly suited to isolate the SD for each basic value. On this basis, we tested one single hypothesis here, namely, that political extremists would exhibit higher residual variability in ratings.

Methods

Participants

Participants from the most recent ESS (ESS Round 9: European Social Survey Round 9 Data, 2018) were included in the analyses. The ESS is based on a probability sampling (applied to each of 29 European countries) and a face-to-face interviewing method. The dataset includes 49,519 participants. Data are available at the European Social Survey website: https://www.europeansocialsurvey.org/.

Procedure and Measures

From the ESS variables, we extracted the following: (a) 21 items assessing human values, (b) one item assessing political orientation (measured on a range from 0 [*left*] to 10 [*right*]), (c) one item for age, and (d) one item for gender. We derived political extremism as equal to abs(5—political orientation). Each human values item presents a description of a person (e.g., "Having a good time is important to him. He likes to 'spoil' himself") and asks the participant to indicate how much the person and the participant are similar on a scale ranging from *Very much like me* (1) to *Not like me at all* (6). Scoring of the scale worked as follows. First, to correct for individual tendencies to report a different overall average score, for each participant the average across all human values items was

subtracted from each item. Second, items associated with the same basic value were averaged to obtain the score for that basic value.

Statistical Analyses

Given that, within the human values items of the ESS, only two items (three in one case) map onto each of the 10 basic values, the ESS is poorly suited to isolate the SD for each basic value. Thus, we did not perform any analysis involving SDs calculated within each basic value. However, we could test the VDT prediction of a link between residual variability and political extremism by assessing the partial correlation between the total SD across the 21 core values and political extremism, controlling for the 10 basic values. By controlling for these, we removed the SD explained by the basic values, thus isolating the residual SD. For exploratory purposes, we also assessed the partial correlation between each basic value and political extremism, controlling for political orientation.

Results

Descriptive statistics for interval variables are reported in Table 7 (for gender, the sample included 26,499 females). For each country, the partial correlation between political extremism and each basic value, controlling for political orientation, is reported in the Supplementary Information. To test our hypotheses, we considered all countries together to assess the partial correlation between the total SD and political extremism, controlling for the 10 basic values. This was statistically significant, $r(41{,}622) = .096$, $p < .001$, 95% CI [.086, .106] (results were not altered when, together with basic values, political orientation was also controlled for). Second, we ran the same analysis for each individual country (Table 8). In 24 among 29 countries, tests were statistically significant; in three countries (Lithuania, Spain, and Iceland) a trend toward significance emerged; and in two countries (Hungary and Switzerland), tests were nonsignificant.

DISCUSSION

Altogether, these findings provide robust evidence indicating that political extremists report higher variability in their judgments about general human values. This effect emerges from representative samples (taken from the ESS) and generalizes across different value surveys and across most

Table 7. Study 4: Descriptive Statistics of the Interval Variables

	Mean	SD	Skewness
Age	51.07	18.65	−.06
Self-direction	−.33	.78	.33
Stimulation	.74	1.01	.05
Hedonism	.25	.98	.45
Achievement	.45	.95	.38
Power	.95	.90	.12
Security	−.46	.85	.46
Tradition	−.11	.91	.37
Conformity	.16	.95	.39
Benevolence	−.75	.66	.28
Universalism	−.59	.64	.13
SD basic human values scale	1.24	.37	.01
Political orientation	5.03	2.26	−.04
Political extremism	1.64	1.56	.69

Note: For basic values, higher numbers indicate lower importance.

Table 8. Study 4: Partial Correlation Between the Total SD and Political Extremism, Controlling for the 10 Basic Values

Country	*r*	*df*	*p*
Austria	.139	2240	<.001**
Belgium	.119	1673	<.001**
Bulgaria	.131	1227	<.001**
Switzerland	.034	1389	.211
Cyprus	.143	550	.001**
Czechia	.074	2116	.001**
Germany	.079	2231	<.001**
Denmark	.086	1483	.001**
Estonia	.065	1695	.007**
Spain	.051	1402	.054*
Finland	.077	1659	.002**
France	.056	1803	.017**
UK	.078	1969	.078*
Croatia	.101	1579	<.001**
Hungary	−.015	1380	.566
Ireland	.067	1907	.004**
Iceland	.067	785	.059*
Italy	.100	1957	<.001**
Lithuania	.053	1179	.070*
Latvia	.107	616	.008**
Montenegro	.084	743	.022**
Netherlands	.087	1529	.001**
Norway	.090	1343	.001**
Poland	.096	1186	.001**
Portugal	.170	936	<.001**
Serbia	.078	1250	.006**
Sweden	.104	1455	<.001**
Slovenia	.088	1055	.004**
Slovakia	.088	949	.007**

**$p < .05$;
*$.05 < p < .1$.

(though not all) Western countries. This finding is compatible with the notion that political extremists discriminate more among values, an aspect captured by a higher discriminability parameter β in the context of the VDT model introduced here. To our knowledge, this is the first empirical evidence of an aspect concerning values that distinguishes political extremists from moderates. In keeping with the often invoked principle of "elective affinity" (whereby certain broad personality traits and specific ideological values exert mutual attraction; Jost et al., 2009), these findings suggest that radical ideologies (often associated with clear-cut value judgments about specific political issues) appeal particularly to people who, in general, discriminate highly among values.

By focusing on values, our data integrate previous research exploring the psychological differences between extreme and moderate ideologies in other domains. A well-established observation is that experiencing distress and grievances encourages people to embrace more extreme ideologies (Castano et al., 2011; Kosloff et al., 2010; Malka et al., 2014; McGregor et al., 2013; Midlarsky, 2011; Rigoli, 2021b; van Prooijen et al., 2015; Webber et al., 2018). A possibility is that, at least partially, this effect might be mediated by value discriminability. Specifically, stress might increase the perceived salience of the values at stake in life, an effect that might be reflected in an increased discriminability parameter β. Therefore, heavy and prolonged periods of stress might enhance a propensity to discriminate among values, which in turn might increase the appeal of extreme ideologies. For example, following a period of heavy stress, someone already inclined toward equality and other

left-wing values over right-wing values (e.g., wealth) might become even more committed to left-wing principles, thus leaning more toward left-wing extremism.

It has also been reported that people embracing extreme ideologies structure political knowledge in a more well-defined manner by forming more separated categories about political entities such as politicians, social groups, and newspapers (Lammers et al., 2017). This fits with our findings showing an enhanced discrimination pertaining to value judgments. A possibility is that a general tendency to discriminate more among objects in the environment might predispose someone both toward a tendency to form well-separated categories to interpret politics and toward an enhanced value discriminability, boosting the appeal of extreme ideologies. This possibility might explain observations that even in contexts outside the political realm, people embracing extreme ideologies report higher confidence in their judgments (Rollwage et al., 2018; Toner et al., 2013) and are less affected by information from external sources (Brandt et al., 2015; Van Hiel et al., 2016; Zmigrod et al., 2020). If knowledge is structured according to well-separated categories, then uncertainty is reduced (explaining the higher confidence) and new information from external sources is less useful (explaining the decreased influence of information coming from external sources).

To our knowledge, values play an explicit role only in one previous account examining the psychological differences between extreme and moderate ideologies: value pluralism theory (Tetlock, 1986; Tetlock et al., 1996). The latter posits that extreme ideologies emphasize a set of political values over another, whereas moderate ideologies perceive both value sets as important. Our findings are broadly consistent with this proposal, though they suggest that commitment to some values at the expense of others as manifested by extreme ideologies might not be limited to the political domain but might be general (encompassing any value judgment at large). Based on considerations about value, value pluralism theory predicts that political moderates and extremists will vary in their political reasoning, with the former expressing higher sophistication than the latter (Tetlock, 1986). A higher sophistication would ensue because moderates would experience higher value conflict during political reasoning (given that they would attribute similar importance to competing values) and because value conflict would require more sophisticated reasoning to be resolved. Empirical evidence concerning this part of the theory is mixed; whereas some data suggest that value conflict indeed fosters sophistication in reasoning (Tetlock, 1986), other data indicate that political extremists often express more sophisticated arguments than moderates in political reasoning (Sidanius, 1984, 1988; Van Hiel & Mervielde, 2003). By focusing on values only, our findings are agnostic regarding the part of value pluralism theory that pertains to political reasoning. However, our article might contribute to the debate, as it offers a framework to quantify precisely to what extent people discriminate among values. This might allow a more detailed analysis of the link between values and political reasoning in people embracing moderate and extreme ideologies.

Our third study reveals that when completing the value survey twice, political extremists and moderates exhibited analogous levels of consistency. This observation rules out the possibility that higher variability in ratings manifested by political extremists is due to higher noise (because higher noise also entails lower consistency). In turn, this suggests that factors such as higher impulsivity, lower engagement, or lower IQ are unlikely to underly extremists' higher variability in ratings (assuming that these factors produce higher noise and thus lower consistency, something that did not emerge in the data). Ruling out noise as a potential factor is important to support our hypothesis that higher value discriminability underlies extremists' higher variability in ratings.

Besides contributing to research about political extremism, our article introduces the notion of value discriminability, which is worth studying in and of itself. In this regard, our proposal raises several key questions. First, what are the determinants of a higher or lower value discriminability? Factors to be considered include genetic predispositions, personal experience (e.g., frequent experience of distress might promote higher value discriminability), and social influence (e.g., parents

or teachers emphasizing the importance of being committed to some values instead of other values might encourage the development of higher value discriminability). Second, how stable over time is value discriminability? Third, how susceptible to contextual factors is it? For example, the current emotional state might have an impact, as experiencing intense emotions might enhance value discriminability. Fourth, what are the implications of having a higher or lower value discriminability? Though we have explored implications in terms of political ideology, higher or lower value discriminability might represent a form of predisposition in a variety of psychological, cultural, and social domains.

Although significant across most countries and instruments, the correlation between residual variability and political extremism appeared to be characterized by a small effect size in all cases examined here. An obvious reason might be that the effect is in fact small. But another important factor might pertain to how the variables were measured. First, our reliance on a left–right political axis might fail to capture forms of political extremism that are hard to map onto this axis (e.g., as expressed by populist parties in Europe that reject the left–right dichotomy; Noury & Roland, 2020). Second, the SVS and PVQ might not be optimal to assess residual variability, as the original purpose of these instruments was to quantify an average, and not variability, across basic human values. Besides considerations on the validity of the measures, another shortcoming of our study is the reliance on self-reports, which are known to have pitfalls (Van de Mortel, 2008). Moreover, although data from several countries are examined, these are all Western countries. The question of whether the findings generalize outside the West remains open.

In conclusion, the article provides evidence of aspects about values that unite people supporting extreme left-wing and extreme right-wing ideologies and differentiate them from people endorsing moderate ideologies. Specifically, data indicate that people endorsing extreme ideologies discriminate more among values in their judgments. This evidence contributes to understanding the psychological factors predisposing people toward embracing extreme political orientations: It highlights that, above and beyond any cognitive aspect, a key difference between political extremists and moderates relies on how they process values.

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Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's web site:

Study 1. Partial Correlation Between Political Extremism and Each Basic Value, Controlling for Political Orientation

Study 2. Partial Correlation Between Political Extremism and Each Basic Value, Controlling for Political Orientation

Study 3. Partial Correlation Between Political Extremism and Each Basic Value, Controlling for Political Orientation

Study 4. Partial Correlation Between Political Extremism and Each Basic Value, Controlling for Political Orientation, Separately for Different Countries