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Moral dichotomization at the heart of prejudice: The role of moral foundations and
intolerance of ambiguity in generalized prejudice

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This study confronted the classical idea that generalized prejudice is rooted in a cognitive tendency to sort reality into rigid and simple categories with the more recent idea that prejudice is shaped by moral intuitions. In a diverse Swedish sample ($N = 430$), moral absolutism was more strongly associated with generalized prejudice against derogated and dissident (but not dangerous) groups than were other aspects of intolerance of ambiguity. But there was little direct association between any aspect of intolerance of ambiguity and generalized prejudice once indirect relations through binding moral intuitions (which elevated prejudice) and individualizing moral intuitions (which decreased prejudice) had been taken into account. These findings suggest that intolerance of ambiguity is associated with generalized prejudice mainly insofar as it leads to a distinctly *moral* dichotomization of persons into categories such as insiders and outsiders, law-abiding citizens and deviants, and the righteous and the impure.

Keywords: intolerance of ambiguity, moral foundations, generalized prejudice, cognitive style, moral intuitions

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Allport (1979/1954, p. 400) famously declared that “...one of the most important psychological discoveries of recent years is that the dynamics of prejudice tend to parallel the dynamics of cognition. That is to say, the style of thinking that is characteristic of prejudice is a reflection, by and large, of the prejudiced person’s way of thinking about *anything*.” Since then, a plethora of studies have found evidence that this style of thinking is associated with prejudice against, for example, racial and sexual minorities (e.g., Onraet, Van Hiel, Roets & Cornelis, 2011; Brandt & Reyna, 2010; Burke, et al. 2017; for a review, see Roets & Van Hiel, 2011), and these ideas have become entrenched in public consciousness. The intolerant person is, on this account, uncomfortable with the blurring of contours between ethnic and social groups, cultures, religions, and gender identities in a modern world; s/he instead divides reality into categories that are “monopolistic, undifferentiated, two-valued, and rigid” (Allport, 1954, p. 176), such as man vs. woman, black vs. white, or us vs. them.

At the same time, recent research based on Moral Foundations Theory (Haidt & Graham, 2007) suggests that prejudice is shaped by moral intuitions. This theory posits a set of universal moral foundations divided into two groups: Concerns with ingroup loyalty, authority/tradition, and sanctity/purity are *binding foundations* that serve to protect the ingroup, the traditions, and the social order by binding individuals into roles and duties, while concerns with harm and fairness are *individualizing foundations* that promote the welfare of individuals (Graham, Haidt, & Nosek, 2009; Haidt, 2008). Binding moral intuitions and lack of individualizing intuitions have been found to predict prejudice against, for example, immigrants, Muslims, the poor, and the obese (e.g., Kugler, Jost & Noorbaloochi, 2014; Low & Wui, 2016; Rosik, Dinges & Saavedra, 2013; Van der Vyver, Houston, Abrams, & Vasiljevic, 2016).

We investigated whether this new strand of research on the moral underpinnings of prejudice can inform the classical Allportian view of the prejudiced mind. Drawing on

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elements of both accounts, we suggest that generalized prejudice is rooted not so much in cognitive dichotomization *per se* as it is rooted in a tendency to divide people into distinctly *moral* categories—heroes vs. villains, good law-abiding citizens vs. rebels and deviants, allies vs. adversaries, winners vs losers, the righteous vs. the impure, and the strong vs. the weak—that is, a tendency to engage in *moral dichotomization*.

Intolerance of ambiguity, moral foundations, and generalized prejudice

Allport's seminal ideas fell into oblivion for some time but enjoyed a renaissance as *need for closure* theory (Kruglanski & Webster, 1996) started to gain traction (Roets & Van Hiel, 2011). Need for closure refers to the motivated pursuit of firm answers, order, predictability, certainty, and closure in decision making. This construct has been described as capturing Allport's classic description of the prejudiced mind well (Roets & Van Hiel, 2011). Nevertheless, it leaves out important cognitive traits, such as the tendency to engage in binary thinking. A broader integrative model has been introduced by Lauriola, Foschi, Mosca, and Weller (2016), who took all constructs under the wide umbrella "intolerance of ambiguity" into account. A cross-cultural factor analysis yielded three empirically robust dimensions: *discomfort with ambiguity* (i.e., an experience of threat provoked by ambiguity), *moral absolutism/splitting* (i.e., a rigid and dichotomous cognitive style), and (low) *need for complexity* (i.e., need for cognition and openness to experience). We relied on this model in the current research.

It is reasonable to expect these constructs to be associated with the moral foundations. Binding intuitions are associated with right-wing ideology whereas individualizing intuitions are associated with left-wing ideology (Graham et al., 2011), and there is a rich literature connecting needs for order, certainty, and security with right-wing ideology (Jost, 2017), at least in the social ideological domain (Malka, Soto, Inzlicht, & Leikes, 2014). Indeed, Federico, Ekstrom, Tagar, and Williams (2016) found that weaker individualizing intuitions

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and particularly stronger binding intuitions were associated with need for closure. They argued (p. 228) that “morality provides certainty by giving individuals clear, consistent and broadly applicable guidelines for how to behave—and for how to evaluate others’ behavior—in a complex social world” and this is particularly true of binding intuitions which provide “*external* guidelines furnished by *social groups* a moral character”.

On this line of thinking, persons who crave certainty, absolutism, and simplicity should be drawn to a binding morality because a clearly defined moral order, with sharp boundaries between insiders and outsiders, law-abiding citizens and deviants, and the righteous and the impure, satisfies these needs. This moral orientation should in turn foster negative attitudes to individuals who are low on the moral ladder. The individualizing intuitions on the other hand should counteract these tendencies by propelling a focus on the welfare of individuals regardless of what groups they belong to.

This account fits well into the existing literature. A wealth of studies have shown that need for closure fosters right-wing authoritarianism (RWA; for reviews, see Duckitt & Sibley, 2010; Roets & Van Hiel, 2011a), which is in turn strongly associated with binding moral intuitions (Federico et al., 2013; Kugler, Jost, & Noorbaloochi, 2014; Milojev et al., 2014) and with prejudice over and above the effect of need for closure (e.g., Cornelis & Van Hiel, 2006; Van Hiel, Pandelaere, Duriez, 2004). Moral foundations have, furthermore, been portrayed as a consequence of need for closure in recent studies. Federico et al. (2016) found that the effect of need for closure on moral foundations was mediated by RWA, while Haidt and Koller (2017) found that the effect of RWA on prejudice was mediated by moral foundations.

Nevertheless, the opposite direction of relations between intolerance of ambiguity and moral foundations is also conceivable. One reason to expect moral foundations to be an antecedent of intolerance of ambiguity is that they have been portrayed as very basic, stable

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aspects of a person's evolved psychological architecture, akin to innate moral "taste buds", that are difficult to alter (Haidt & Graham, 2007; Graham et al., 2013). Furthermore, some theoretical accounts suggest that worldviews may have profound effects on a person's style of thought and behavior (Dweck, 2008; Nilsson, 2014). It is therefore possible that a moral and ideological universe that makes group differences salient might strengthen tendencies to pursue certainty, simplicity, and absolutism.

For these reasons we took both of these alternative accounts into consideration in the current research. We also took three different kinds of generalized prejudice into account, following Duckitt and Sibley (2007) who provided evidence of the distinctness of prejudice towards (a) *dangerous groups*, which are perceived as a threat to society and the personal sphere but not subordinate (e.g., terrorists and drug dealers), (b) *derogated groups*, which are perceived as socially subordinate but not threatening (e.g., the obese and the unemployed), and (c) *dissident groups*, which are seen as socially threatening and possibly subordinate by virtue of challenging societal norms (e.g., protestors and feminists; see also, Asbrock, Sibley, & Duckitt, 2010; Cantal, Milfont, Wilson, & Gouveia, 2015).

Previous research has found that right-wing authoritarians tend to harbor prejudice against dangerous and dissident groups, whereas socially dominant persons tend to harbor prejudice against derogated and dissident groups (Duckitt & Sibley, 2007). The same pattern could be expected to emerge for binding and individualizing foundations which map onto authoritarianism and social dominance (Federico et al., 2013; Kugler, Jost, & Noorbaloochi, 2014; Milojev et al., 2014). Hadarics and Kende (2017) found that the binding intuitions were indeed associated with prejudice against dangerous and dissident but not derogated groups, while the individualizing intuitions were associated with less prejudice against all three kinds of groups.

Overview of research

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We investigated the relations between three aspects of intolerance of ambiguity—moral absolutism, discomfort with ambiguity, and (low) need for complexity—binding and individualizing moral foundations, and generalized prejudice against dangerous, derogated, and dissident groups in a diverse Swedish sample. We tested two alternative models using Structural Equation Modelling. The first model specified the relationship between intolerance of ambiguity and prejudice to be mediated by moral foundations, while the second specified the relationship between moral foundations and prejudice to be mediated by intolerance of ambiguity. We expected the first model to provide a better fit to the data based on the foregoing theoretical analysis.

Method

Participants

Swedish adults ($N = 430^1$; 64.0% females; $M_{\text{age}} = 43.2$, $SD = 12.5$) recruited through Facebook filled out an online questionnaire. A link to the study was posted, along with information about the study and a request to spread the link to family and friends, in political discussion groups, location-based groups, and other subject-specified and non-subject specified groups. The majority of participants were born in Sweden (93%) with both of their parents born in Sweden (80%).

To ensure adequate power for conducting Structural Equation Modeling, we decided to use a sample size of 200 persons at minimum and preferably more than 300 persons, in line with common recommendations (Kenny, 2015). Calculations of posteriori power for RMSEA (Preacher & Coffman, 2006) indicated that we had more than 99.5% power to detect a poor fitting model in all model variations we tested. In addition to this, devoting resources to one study with a reasonably large sample rather than several small-sample studies is likely to prevent bias in the research literature (Bakker, van Dijk, & Wicherts, 2012). A *post hoc*

¹ We initially excluded 118 participants who aborted their participation ($N = 548$).

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power analysis conducted in G*power 3.1.9 (Faul, Erdfelder, Lang, & Buchner, 2007) revealed that our sample gave us 80% power to detect an effect of $|\rho| = .12$ and 90% power to detect an effect of $|\rho| = .14$ at a 5% significance level.

Materials and procedure

To retrieve demographic data from all participants, we first asked them to report age, gender, birth country, and number of parents born in Sweden. After this, they responded to an affective thermometer, followed by measures of moral intuitions and intolerance of ambiguity. Descriptive statistics and correlations between the measures are displayed in Table 2.

Prejudice. We measured prejudice through affective thermometers following Asbrock, Sibley, and Duckitt (2010). The participants rated their feelings toward 21 different social groups on Likert scales ranging from 1 (*absolutely negative*) to 7 (*absolutely positive*). We replaced “drunk drivers”, “atheists”, “drug dealers” and “gay rights activists” with “Muslims”, “populists”, “drug users” and “LGBT rights activists” to adapt this measure to the Swedish cultural climate. An exploratory factor analysis with principal axis factoring and oblimin rotation conducted in SPSS 24.0 yielded six factors with eigenvalues larger than 1 (5.06, 2.58, 1.67, 1.33, 1.22, 1.16). The leveling out of eigenvalues after the third indicated the presence of three meaningful factors, which corresponded well with the distinctions between prejudices against derogated ($R^2 = 21.4\%$), dangerous ($R^2 = 9.1\%$), and dissident ($R^2 = 5.5\%$) groups. As shown in Table 1, which displays the factor loadings, we excluded prejudice against two groups (“People who criticize those in authority”, which did not load over .30 on any factor and “Populists” which loaded in the *opposite direction* of the dissident groups), leaving ten, six, and three social groups respectively to define each factor. We computed scales for each factor and inverted the scores so that higher scores represent higher prejudice.

Table 1

Pattern matrix for factor loadings on three generalized prejudice factors

Social group or category	Derogated groups	Dangerous groups	Dissident groups	h^2
Physically unattractive people	.70	-.17	.02	.50
People who just seem to be losers	.69	.06	-.02	.48
Obese people	.68	-.11	.01	.46
Psychiatric patients	.65	.07	.04	.46
Unemployed people	.65	-.03	.07	.45
People who in appearance or performance just do not make the grade	.64	-.03	.00	.41
Mentally handicapped people	.62	-.11	.05	.40
Drug users	.50	.27	.04	.37
Muslims	.44	-.06	.26	.33
Prostitutes	.42	.19	-.13	.22
People who make our society dangerous to others	-.12	.70	-.09	.50
People who disrupt safety and security in our society	-.03	.61	.08	.37
People who cause disagreement in our society	.05	.46	-.05	.22
Gang members	.05	.46	.03	.22
Violent criminals	-.13	.46	-.02	.21

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People who behave in immoral ways	.13	.41	-.10	.20
People who criticize those in authority	.01	.18	.14	.05
Populists	.02	.07	-.38	.15
Feminists	-.03	.04	.85	.71
LGBT rights activists	.17	-.00	.70	.60
Protestors	.28	.10	.33	.26

Note. Factor loadings $\geq .30$ are shown in bold font.

Moral intuitions. We used the Moral Foundations Questionnaire (Graham et al. 2011), which has been validated in Sweden (Nilsson & Erlandsson, 2015). Participants report the extent to which they find 15 considerations (e.g., “Whether or not someone suffered emotionally”) relevant when they judge what is morally right or wrong and rate their agreement with 15 moral propositions (e.g., “Compassion for those who are suffering is the most crucial virtue”) on Likert scales ranging from 1 (*Not at all relevant*) to 6 (*Extremely relevant*) and from 1 (*Strongly disagree*) to 6 (*Strongly agree*) respectively. We computed scores for individualizing intuitions (harm and fairness, 12 items) and binding intuitions (loyalty, authority, and purity, 18 items) because our theoretical analysis pertained to these superordinate factors. The hierarchical model has been supported with both English (Graham, Haidt, & Nosek, 2009) and Swedish (Nilsson & Erlandsson, 2015) versions of the scale. Correlations involving the five foundations are reported in supplementary documentation.

Intolerance of ambiguity. We translated the scale introduced by Lauriola et al. (2016) into Swedish, using back-translations to fine-tune the translation. The participants rated the extent to which they agree with 21 propositions pertaining to discomfort with ambiguity (e.g., “It bothers me when I don’t know how other people react to me”, 7 items), moral absolutism/splitting (e.g., “There are two kinds of people in the world: the weak and the

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strong”, 7 items), and need for complexity (e.g., “I generally prefer novelty over familiarity”, 7 items) on Likert scales ranging from 1 (*Strongly disagree*) to 7 (*Strongly agree*).

Confirmatory factor analyses with items as indicators verified the factor structure. The three-factor model had acceptable fit, $\chi^2(186) = 518.5$ ($p < .001$), RMSEA = .065[.058, .071], SRMR = .072, AIC = 608.5. The absolute factor loadings ranged from .24 to .77 (need for complexity), .49 to .74 (moral absolutism), and .39 to .83 (discomfort with ambiguity). A one-factor model had substantially worse fit, $\Delta\chi^2(4) = 1313.9$, as did the best two-factor model, $\Delta\chi^2(2) = 570.3$ ($p < .001$).

Statistical procedure. We conducted structural equation modeling in AMOS 24.0, basing calculations on the covariance matrix and the ML-method. We evaluated model fit in terms of the χ^2 Goodness-of-fit test, the Comparative Fit Index (CFI), the Normed Fit Index (NFI), the Root Mean Square Error of Approximation (RMSEA) with 90% confidence intervals, the Standardized Root Mean Square Residual (SRMR), and the Akaike Information Criterion (AIC). Widely employed rules of thumb suggest that CFI and NFI estimates around .95, RMSEA estimates around .06 or lower, and SRMR estimates around .08 or lower indicate adequate model fit (Hu & Bentler, 1999).

In our models, the three aspects of intolerance of ambiguity and the three types of prejudice were represented by latent factors, each with three indicators. We constructed parcels to serve as indicators for these factors (except for prejudice against dissident groups, which contained only three items) on the basis of inter-item correlations (Little, Cunningham, Shahar, & Widaman, 2002; see supplementary documentation for details). We used harm and fairness parcels as indicators for individualizing intuitions and loyalty, authority, and purity parcels as indicators for binding intuitions. We allowed the error terms of the two moral foundations factors, the three intolerance of ambiguity factors, and the three prejudice factors respectively to covary (see Figures 1-2).

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The fit of the complete measurement model was acceptable, $\chi^2(202) = 484.4$ ($p < .001$), NFI = .872, CFI = .920, RMSEA = .057[.051, .064], SRMR = .058, AIC = 632.4. Although NFI and CFI were somewhat low, a low RMSEA of the independence model necessarily yields low CFI and NFI estimates (Kenny, 2015) and this was the case here (it was .180). The other fit estimates indicated adequate fit, and the factor loadings were consistently high (moral intuitions: $\geq .58$; intolerance of ambiguity: $\geq .66$; generalized prejudice: $\geq .41$). The omega total reliability coefficient, which represents how much of the covariance between factor indicators the model accounts for, was adequate ($\omega_t = .852$, Cho & Kim, 2015).

We tested two structural equation models. The first specified the association between moral foundations and generalized prejudice to be mediated by intolerance of ambiguity. The second specified the association between intolerance of ambiguity and generalized prejudice to be mediated by moral foundations. We started with full mediation models and added direct paths on the basis of modification indices. We gauged the robustness of the results by removing multivariate outliers on the basis of their Mahalanobis distance ($p < .001$), which yielded virtually identical results. We report results without these exclusions.

We tested mediations in these models. We report unstandardized coefficients for indirect paths along with direct and total effects (in cases for which direct paths were included in the model) with bias-corrected 95% confidence intervals generated through 10000 bootstrap resamples (complete results are included in supplementary materials). Because we used a correlational design, it should be kept in mind that these are tests of *statistical* mediation that leave open a range of alternative causal interpretations.

Results

As shown in Table 2, binding moral intuitions, (lack of) individualizing intuitions, and moral absolutism correlated with prejudice against dissident and derogated groups rather strongly, and binding intuitions correlated with prejudice against dangerous groups as well.

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Discomfort with ambiguity correlated with prejudice against derogated groups and need for complexity correlated with (low) prejudice against dissident and dangerous groups.

Table 2

Correlations and descriptive statistics

	α	M	SD	1.	2.	3.	4.	5.	6.	7.
Moral foundations	.76									
1. Individualizing foundations	.78	4.54	.75							
2. Binding foundations	.80	2.81	.66	-.03						
Intolerance of ambiguity	.80									
3. Discomfort with ambiguity	.85	3.66	1.22	.10*	.07					
4. Moral absolutism	.82	2.70	1.02	-.21***	.50***	.20***				
5. Need for complexity	.77	4.16	.95	.14**	-.21***	.16**	-.08			
Generalized prejudice	.81									
6. Derogated groups	.85	3.83	.88	-.25***	.20***	.15**	.22***	-.09		
7. Dangerous groups	.66	6.05	.71	.08	.20***	.08	.06	-.10*	.09	
8. Dissident groups	.70	2.86	1.31	-.45***	.43***	-.06	.40***	-.19***	.44***	-.02

Note. α = Cronbach's alpha reliability, *** $p < .001$, ** $p < .01$, * $p < .05$

The effect of moral foundations on prejudice through intolerance of ambiguity

The first model showed some misfit, $\chi^2(208) = 597.3$ ($p < .001$), NFI = .842, CFI = .890, RMSEA = .066[.060, .072], SRMR = .070, AIC = 733.3. Adding direct paths from binding intuitions to prejudice against derogated, dangerous, and dissident groups and from individualizing intuitions to prejudice against derogated and dissident groups improved model fit, $\Delta\chi^2(5) = 112.1$ ($p < .001$), $\chi^2(203) = 485.2$ ($p < .001$), NFI = .872, CFI = .920, RMSEA = .057[.050, .063], SRMR = .058, AIC = 631.2. The variance in prejudice against derogated, dangerous, and dissident groups accounted for increased from 11.7%, 4.4%, and 42.9% to 20.3%, 16.4%, and 64.8% respectively. This revised model is illustrated (with standardized estimates) in Figure 1.

Note that adding direct paths from moral foundations to prejudice shifted the standardized path from moral absolutism to prejudice against dangerous groups from .00[-.18, .18] ($p = .99$) to a *negative* -.33[-.56, -.12] ($p < .001$). This new path yielded a *negative* indirect effect of binding foundations on prejudice against dangerous groups, indirect effect = -.21[-.42, -.07] ($p = .001$) (total indirect effect = -.20[-.42, -.04], $p = .011$, direct effect = .53[.28, .83], total effect = .33[.13, .54]), and a *positive* indirect effect of individualizing intuitions on prejudice against dangerous groups, indirect effect = .08[.03, .17] ($p = .001$) (total indirect effect = .09[.04, .19], $p = .001$) through moral absolutism. No other indirect effect reached significance. We thus found no evidence that the intolerance of ambiguity factors mediated the association between moral foundations and generalized prejudice in a theoretically meaningful manner.

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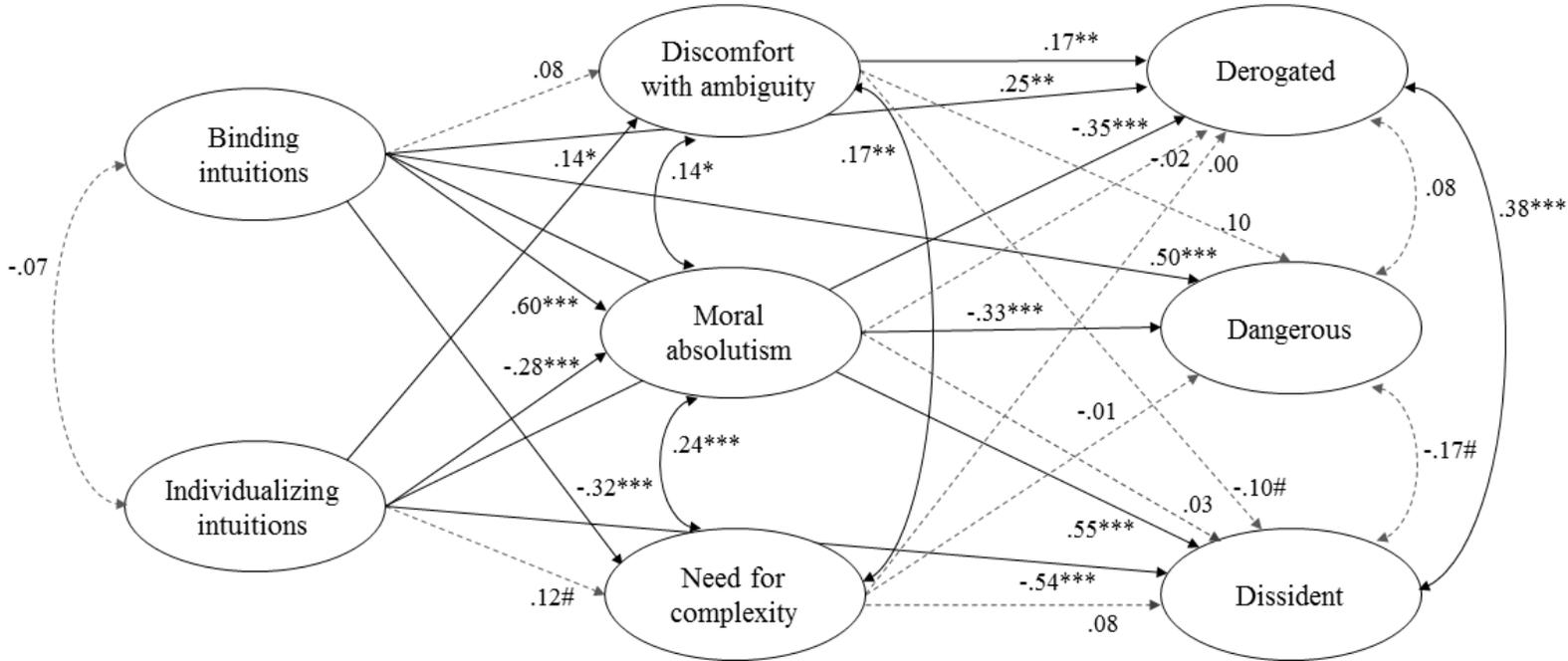


Figure 1. Structural equation model 1 (standardized solution) with intolerance of ambiguity factors as mediators of the relationship between moral foundations and generalized prejudice. *** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$, # $p \leq .10$ (dotted lines represent non-significant estimates). Disturbances and factor loadings are not shown.

The effect of intolerance of ambiguity on prejudice through moral foundations

The second model had adequate fit from the outset, $\chi^2(211) = 513.2$ ($p < .001$), NFI = .864, CFI = .914, RMSEA = .058[.051, .064], SRMR = .063, AIC = 643.2, and accounted for 16.8%, 10.7%, and 64.2% of variance in prejudice against derogated, dangerous, and dissident groups respectively. Adding direct paths from discomfort with ambiguity to prejudice against derogated groups and from moral absolutism to prejudice against dangerous groups improved model fit marginally, $\Delta\chi^2(2) = 21.6$ ($p < .001$), $\chi^2(101) = 491.6$ ($p < .001$), NFI = .870, CFI = .920, RMSEA = .056[.050, .063], SRMR = .058, AIC = 625.3. The variance in prejudice against derogated and dangerous groups accounted for increased to 20.5% and 15.3%. The revised model is displayed (with standardized estimates) in Figure 2.

The moral foundations did mediate the effect on moral absolutism on prejudice against dissident groups, total indirect effect = .31[.21, .44], indirect effect through binding intuitions = .20[.12, .29], indirect effect through individualizing intuitions = .12[.07, .20] ($p < .001$). They also mediated the effect of moral absolutism on prejudice against derogated groups, total indirect effect = .22[.15, .30], indirect effect through binding intuitions = .12[.06, .19], indirect effect through individualizing intuitions = .10[.06, .17] ($p < .001$). The binding intuitions mediated the effect of moral absolutism on prejudice against dangerous groups as well, indirect effect = .18[.09, .31] ($p < .001$), but the individualizing intuitions did not, indirect effect = -.02[-.07, .02] ($p = .28$) (total indirect effect = .16[.05, .31], $p = .009$, direct effect = -.17[-.37, -.02], $p = .031$, total effect = -.01[-.14, .09], $p = .86$).

The individualizing moral foundations marginally mediated the effect of discomfort with ambiguity on prejudice against dissident groups, indirect effect = -.05[-.10, -.01] ($p = .016$) (total indirect effect = -.04[-.010, .01], $p = .11$, indirect effect through binding intuitions = .01[-.02, .05], $p = .42$), and prejudice against derogated groups, indirect effect = -.04[-.09, -.01] ($p = .018$) (total indirect effect = -.04[-.08, .00], $p = .071$, indirect effect through binding

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intuitions = .01[-.01, .03], $p = .38$, direct effect = .13[.06, .22], $p < .001$, total effect = .10[.02, .18], $p = .015$). They did not mediate the effect of discomfort with ambiguity on prejudice against dangerous groups, indirect effect = .02[-.02, .06] ($p = .26$) (indirect effects through each mediator $\leq .01$, $p \geq .23$).

The binding intuitions, on the other hand, mediated the paths from need for complexity to prejudice against dissident groups, indirect effect = -.09[-.16, -.05] ($p < .001$) (total indirect effect = -.12[-.20, -.06], $p < .001$, indirect effect through individualizing intuitions = -.03[-.08, .02], $p = .23$), prejudice against dangerous groups, indirect effect = -.09[-.16, -.04], $p < .001$ (total indirect effect = -.08[-.16, -.03], $p = .002$, indirect effect through individualizing intuitions = .00[.00, .03], $p = .27$), and prejudice against derogated groups, indirect effect = -.06[-.10, -.03], $p < .001$ (total indirect effect = -.08[-.14, -.03], $p = .002$, indirect effect through individualizing intuitions = -.02[-.07, .02], $p = .23$).

These results provide clear evidence that the relation between intolerance of ambiguity and generalized prejudice is *statistically* mediated by moral foundations in line with our theoretical expectations, although it should be kept in mind that the correlational design does not permit causal inferences.

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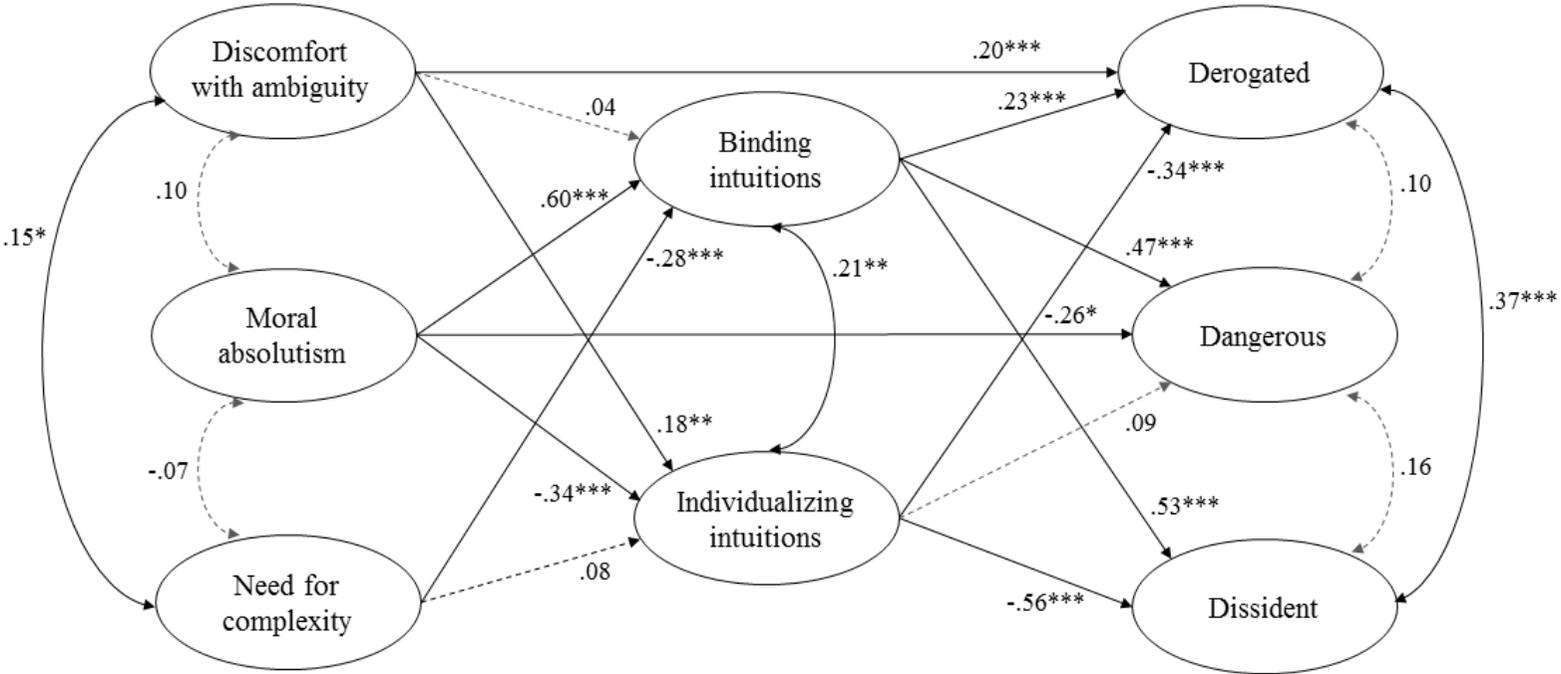


Figure 2. Structural equation model 2 (standardized solution) with moral foundations as mediators of the relationship between intolerance of ambiguity factors and generalized prejudice. *** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$, # $p \leq .10$ (dotted lines represent non-significant estimates).

Disturbances and factor loadings are not shown.

Discussion

This research revisited the classical idea (Allport, 1979/1954) that generalized prejudice is rooted in a form of black and white thinking that sorts reality into rigid dichotomies. Multiple research programs have documented links between this cognitive tendency, which is often called intolerance of ambiguity, and prejudice (Roets & Van Hiel, 2011). At the same time, a more recent strand of research, based on Moral Foundations Theory (Haidt & Graham, 2007), suggests that moral orientations play a crucial role in prejudice (e.g., Low & Wui, 2016; Rosik, Dinges & Saavedra, 2013; Van der Vyver et al., 2016). We brought these two lines of research together, investigating whether the moral foundations account can shed new light on the association between intolerance of ambiguity and generalized prejudice. We divided intolerance of ambiguity into moral absolutism, discomfort with ambiguity, and low need for complexity following Lauriola et al. (2016) and we considered generalized prejudice toward dissident, dangerous, and derogated groups following Duckitt and Sibley (2007).

The findings suggest that the classical Allportian theory of prejudice is not without merit. We found a correlation between need for complexity and lower levels of prejudice against dissident groups, which might be explained in terms of the fact that persons who have a preference for novelty should be more positively inclined toward persons who challenge the status quo and advocate change. We also found weak correlations between discomfort with ambiguity and prejudice against derogated groups and between need for complexity and lower levels of prejudice against dangerous groups in line with the Allportian account of prejudice. Most important, moral absolutism correlated more strongly with generalized prejudice against dissident and derogated groups than the other two aspects of intolerance of ambiguity did. This finding suggests that generalized prejudice is rooted not so much in reactions to complexity, novelty, and ambiguity *per se* as in a tendency toward dichotomous categorization of persons—many of the moral absolutism items have to do with classifying

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persons as either all good or all bad (e.g., “You can classify most people as either honest or crooked”). It shows that it is important to take moral absolutism into consideration in this context, and to distinguish it from other aspects of intolerance of ambiguity, rather than focusing solely on need for closure as has often been the case (see Roets & Van Hiel, 2011).

At the same time, we found very clear support for the moral foundations account of prejudice. The individualizing intuitions correlated negatively with prejudice against derogated and dissident groups (similar to low social dominance, Duckitt & Sibley, 2007), whereas the binding intuitions correlated positively with all three kinds of prejudice. Furthermore, the moral foundations did correlate with the intolerance of ambiguity scales, particularly with moral absolutism. Structural equation modeling revealed that the associations between moral intuitions and prejudice were robust when controlling for the intolerance of ambiguity factors while the reverse was not the case. The model we tested exhibited adequate fit with little adjustment and provided clear evidence of mediation when we specified the relation between intolerance of ambiguity factors and prejudice to be mediated by moral intuitions but not when we switched places between moral intuitions and intolerance of ambiguity.

Taken together, these findings suggest that cognitive dichotomization—and intolerance of ambiguity more generally—is associated with generalized prejudice mainly insofar as it leads to a distinctly *moral* dichotomization of people into categories such as insiders and outsiders, law-abiding citizens and deviants, and the righteous and the impure that is reflected in binding moral intuitions and lack of individualizing intuitions—cognitive rigidity and aversion toward complexity or ambiguity are by themselves not enough. The findings support the view that persons who thrive on certainty, simplicity, and absolutes are attracted to a clear, external moral order that sanctions negative attitudes toward those who belong to groups that are low on the moral ladder (Federico et al., 2016) either by failing to achieve society’s

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standards or by posing a threat to ingroup security, values, traditions, and institutions (Duckitt & Sibley, 2007). This account fits well with Moral Foundations Theory, which suggests that the binding moral intuitions evolved to foster group cohesion and social order whereas the individualizing intuitions evolved to promote concern for the welfare of individuals regardless of group membership (Haidt, 2008).

It is also interesting to note that both moral foundations and intolerance of ambiguity predicted prejudice against dissident groups the strongest. The fact that the dissident groups (e.g., feminists and LGBT activists) have moral connotations, challenging deeply held moral convictions and activating moral worldview controversies, gives us further reason to think that moral concerns are at the heart of prejudice while the role of cognitive orientations are more indirect. This conclusion fits well with recent research on the origins of prejudice (e.g., Asbrock, Sibley, & Duckitt, 2010; Duckitt & Sibley, 2010; Hadarics & Kende, 2017).

These findings notwithstanding, a number of limitations should be noted. Although the sample of participants had reasonable diversity in terms of age and gender, Sweden is certainly among the most WEIRD (Henrich, Heine, & Norenzayan, 2010) parts of the world, with a highly educated and affluent population. Sweden may, in fact, be the most extreme country in the world when it comes to tolerance of minorities (Inglehart & Welzel, 2010). It is possible that self-report measures of prejudice are particularly influenced by social desirability biases in a country such as Sweden, where prejudice against minorities is strongly frowned upon. Future studies could benefit from including measures of social desirability tendencies (e.g., Plant & Devine, 1998).

It would also be useful to take prejudice against a wider range of social groups into consideration in future research. It is possible that cognitive factors matter more for prejudice against some groups, while moral intuitions matter more for prejudice against others. Given the fact that we found strong associations involving particularly dissident groups, taking

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different kinds of ideological and worldview groups into consideration would be interesting. Recent studies have found, for example, that conservatives and liberals harbor prejudice against different groups (Chambers, Schlenker, & Collisson, 2012; Wetherell, Brandt & Reyna, 2013), which is not surprising given that their worldviews are threatened by different groups.

A final crucial limitation of the current findings is that the correlational design we used does not permit us to draw conclusions about the causes of prejudice or how it can be reduced. Experimental or longitudinal research is needed for these purposes. Given the fact that moral intuitions and cognitive styles are considered to be fairly stable (e.g., Graham et al, 2013; Kruglanski & Webster, 1996), a longitudinal approach that takes the interactions between intolerance of ambiguity, moral intuitions, and social attitudes in different cultural settings into account would be particularly worthwhile. Ultimately, we need to understand the role of the moral proclivities of individuals and their interaction with the moral worldviews of cultural groups to be able to combat the social consequences of prejudice.

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