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Hierarchy in the Eye of the Beholder: (Anti-) Egalitarianism Shapes Perceived

Levels of Social Inequality

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Abstract

Debate surrounding the issue of inequality and hierarchy between social groups has become increasingly prominent in recent years. At the same time, individuals disagree about the extent to which inequality between advantaged and disadvantaged groups exists. Whereas prior work has examined the ways in which individuals legitimize (or delegitimize) inequality as a function of their motivations, we consider whether individuals' orientation towards group-based hierarchy motivates the extent to which they perceive inequality between social groups in the first place. Across 8 studies in both real-world (race, gender, and class) and artificial contexts, and involving members of both advantaged and disadvantaged groups, we show that the more individuals endorse hierarchy between groups, the less they perceive inequality between groups at the top and groups at the bottom. Perceiving less inequality is associated with rejecting egalitarian social policies aimed at reducing it. We show that these differences in hierarchy perception as a function of individuals' motivational orientation hold even when inequality is depicted abstractly using images, and even when individuals are financially incentivized to accurately report their true perceptions. Using a novel methodology to assess accurate memory of hierarchy, we find that differences may be driven by both anti-egalitarians underestimating inequality, and egalitarians overestimating it. In sum, our results identify a novel perceptual bias rooted in individuals' chronic motivations towards hierarchy-maintenance, with the potential to influence their policy attitudes.

Keywords*: Social Dominance Orientation; Hierarchy; Inequality; Motivated Cognition; Egalitarianism*

The topic of inequality between social groups has become one of the most prominent socio-political issues of our time. In the wake of events such as the global recession in 2008, the election of Barack Obama as U.S. President, the recent spate of fatal police shootings of African Americans, Nobel Laureate Tim Hunt's comments about women in science, and prominent reports about contemporary levels of gender discrimination, public debate surrounding the extent of inequality between groups, and whether it constitutes a social problem needing to be politically addressed, has increased noticeably (Baker & Fausset, 2015; Blow, 2013; Guardian, 2015; Grant & Sandberg, 2014; New York Times, 2011, 2013; Williams & Ceci, 2015).

That discussion about social inequality has risen, however, does not imply that individuals agree about its importance or even its prevalence. As with many of the issues currently occupying the American political agenda (e.g., climate change and immigration reform), there is a great deal of polarization about whether there is a problem to be addressed: that is, about whether groups across the social hierarchy in the U.S. already enjoy equal opportunities, prospects for social mobility, and access to resources (Chambers, Swan, & Heesacker, 2015; Cohn, 2014; Kraus & Tan, 2015; Porter, 2014). Some, such as members of the "Occupy" grassroots social movement that arose following the 2008 recession, have vocally denounced what they perceive to be gross and structurally-sustained inequalities in American society. Others, such as supporters of the Tea Party, have labeled such claims as unfounded, focusing instead on findings suggesting that social mobility is as strong as it ever has been in the U.S. (Chetty, Hendren, Kline, Saez, & Turner, 2014), while ethnic and gender diversity in high-paying jobs has vastly improved (Barak, 2013).

At stake in these debates is the prospect of egalitarian social change. Because the existence of extensive intergroup hierarchy is considered a problem in a society professing egalitarian social norms (e.g., the United States; Katz & Hass, 1988), drawing attention to wide disparities between groups at the top and groups at the bottom raises the specter of the need for redistributive policies (such as progressive taxation or affirmative action) that seek to bring about greater equality between social groups (e.g., Brodish, Brazy, & Devine, 2008; Lowery, Knowles, & Unzueta, 2007). Because of its potential implications for support of egalitarian social policy, the degree of inequality in society may become a point of political contention between those who long for a world of complete equality (like many Occupy supporters) and those who favor the maintenance of a hierarchical social order (like many followers of the Tea Party).

In the current work, we advance the possibility that individuals' motivations to maintain or attenuate hierarchy influence the level of social inequality they perceive. Drawing from research on motivated cognition, we reason that those who seek to attenuate hierarchy in society come to see the gross inequities that justify the belief that egalitarian social change is needed, whereas those who seek to maintain hierarchy come to perceive society as relatively equal, and thus that egalitarian policies are unnecessary.

Motivations for Hierarchy-maintenance *vs*. Hierarchy-attenuation

One variable that captures variation in individuals' support for social hierarchy between groups is social dominance orientation (i.e., SDO; Ho et al., 2015). Whereas individuals high in SDO seek to maintain hierarchy between groups in society, those low in SDO favor intergroup equality. One previously explored mechanism by which high (*vs*. low) SDO individuals resist (*vs*. push for) egalitarian social change is through

endorsing ideologies that *justify* (*vs*. *problematize*) existing levels of inequality between groups. High SDO individuals favor ideologies such as the Protestant work ethic, classism, racism, sexism, specieism, or karma that can help justify existing inequality (Bobocel, Son Hing, Davey, Stanley, & Zanna, 1998; Cotterill, Sidanius, Bhardwaj & Kumar, 2014; Dhont, Hodson, Costello, & MacInnis, 2014; Ho et al., 2012, 2015; Knowles & Lowery, 2012; Kteily, Ho, and Sidanius, 2012; Sibley, Wilson, & Duckitt, 2007; Sidanius, Cotterill, Sheehy-Skeffington, Kteily, & Carvacho, 2015). These ideologies, termed *hierarchy-enhancing legitimizing-myths*, help provide a legitimate explanation for why some groups are doing better than others in society: If groups' outcomes can be said to be unequal because of legitimate differences in effort or ambition (as opposed to unequal access to opportunities), group-based disparities are less likely to stoke calls for redistributive social policy (Sidanius & Pratto, 1999).

Although less research has investigated these phenomena from the perspective of those who seek to bring about equality, low SDO individuals, by the same token, endorse *hierarchy-attenuating legitimizing myths* that serve to promote the need for egalitarian policy. Specifically, they favor ideologies— such as the belief that healthcare, education, or living wages are universal human rights— that problematize existing social inequality (Pratto, Sidanius, & Levin, 2006). To the extent that such ideologies prosper, *any* existing group-based inequality in these domains, no matter how small, tends to become a social concern requiring intervention.

Thus, even when they perceive identical levels of inequality between groups in society, those motivated to maintain *vs*. reduce hierarchy may explain it differently, in

ways that either downplay or prioritize it as a social issue worthy of attention and correction.

SDO and Motivated Perception of Hierarchy

Another complementary possibility, heretofore largely unexamined, is that individuals may actually perceive the *degree* of inequality differently as a function of their motivations, with those motivated to achieve equality perceiving a lot of social hierarchy, and those motivated to maintain inequality perceiving less. We reason that this pattern of biased inequality-perception may result from individuals' motivated responses to social pressures. In societies with egalitarian norms, such as the U.S., recognition of extensive levels of hierarchy generates calls for greater attention and explanation (Bobo & Kluegel, 1993; Murrell, Dietz-Uhlrer, Dovidio, Gaertner, & Drout, 1994; Lowery et al., 2007). Because those who want to bring about equality are aware that social support for egalitarian policies increases the more inequality there is, they may be driven to perceive more hierarchy in society, justifying their desire for action. For the converse reason, those motivated to maintain hierarchy may be driven to perceive less of it, justifying their desire to avoid egalitarian intervention. Here, we draw on the growing body of literature on the motivated nature of cognition, information processing, and perception to examine the novel possibility that equality-related motivations can influence the perception of hierarchy between social groups.

What functions might motivated perceptions of hierarchy serve? Insights from research on motivated cognition suggest that motivated perceptions of hierarchy could have both psychological and practical benefits: First, perceiving the level of hierarchy that fits (*vs*. conflicts) with one's views on the desirability of achieving social equality

could reduce any psychological dissonance that might otherwise be experienced (see

Balcetis & Dunning, 2007). Second, perceiving a level of hierarchy consistent with one's

motivations may redouble one's commitment to their goal of implementing (*vs*. avoiding)

egalitarian social policies, as well as bolstering their ability to convincingly persuade

others of their perspective (Von Hippel & Trivers, 2011). For example, when individuals

who favor equality come to actually perceive greater power gaps between groups, they

should see an even greater need to implement specific egalitarian social policies (which

aim to minimize group-based differentials); this should then manifest both in their own

heightened support for these policies, as well as greater dedication and effectiveness in

convincing others of their views.

Below, we review evidence outlining *how* social dominance motives might come

to influence perceptions of the extent of power differences between groups.

Mechanisms linking SDO to Biased Perception of Inequality

Thus far, we have reasoned that beyond influencing the types of ideologies

individuals adopt in order to justify or problematize the existing level of hierarchy, SDO

motives may also influence the degree of hierarchy individuals perceive. Specifically, we

argued that low SDO individuals might be motivated to *maximize* power differences

between groups, whereas high SDO individuals might be motivated to *minimize* them.

We now consider how precisely individuals might come to perceive hierarchy differently

as a function of their social dominance motives.

The influence of motivation on the maximizing versus minimizing of inequality

between social groups could occur at two stages: initial perception of inequality, or later

reporting of it. From the perspective of a *motivated reporting* account, individuals high

and low in SDO might perceive the same gaps in power between advantaged and disadvantaged groups, but, because of their motivations towards *vs*. against hierarchy, strategically and consciously downplay or exaggerate them (respectively) in discussions with others.

From the perspective of a *motivated perception* account, on the other hand, individuals' motivations might influence their actual underlying perception of group-based differences in power and resources. According to this view, rather than reflecting conscious selective reporting, SDO motives drive individuals to perceive fundamentally differing social realities, potentially outside their conscious awareness. If individuals truly see the world differently as a function of their motivations towards equality, this would suggest that they have hierarchy-enhancing vs. attenuating *perceptual biases*. Such biases could serve a function similar to that of hierarchy-enhancing vs. attenuating legitimizing ideologies— bolstering individuals' beliefs about whether egalitarian social policies are needed— but in a different way (i.e., by changing their perception of the world rather than their explanations for it). The idea that SDO motives can influence social perceptions, with implications for maintaining hierarchy, has received some prior support. For example, Whites higher (*vs*. lower) in SDO perceive low status ambiguous targets (e.g., unemployed Black-White biracials; Dzhokhar Tsarnaev) as looking less White, thus excluding them from the high status group and helping to maintain intergroup differentiation (Kteily, Cotterill, Sidanius, Sheehy-Skeffington, & Bergh, 2014; see also Ho, Sidanius, Cuddy, & Banaji, 2013).

By what mechanisms might individuals' equality-motives lead them to have truly different perceptions of hierarchy in society? There are at least two related possibilities

that we consider in turn: First, individuals' motivations might lead them to self-select into different environments in which they end up being inherently more vs. less exposed to information about power differences. Second, even where individuals encounter identical underlying information about power differences, their motivations may lead them to process it differently: Thus, consistent with motivated cognition, individuals may filter information in a biased manner, for example judging the validity or importance of information about power differences differently, or selectively focusing on the aspects that confirm their worldviews.

According to a differential exposure account, individuals high and low in SDO may end up occupying different social worlds. Because of their aversion to low status targets (e.g., Duckitt & Sibley, 2010; Kteily et al., 2014; Thomsen, Green, & Sidanius, 2008) and their preference for hierarchy-enhancing jobs (Sidanius, Pratto, Sinclair, & Van Laar, 1996), individuals higher in SDO may be more likely than those lower on SDO to avoid certain types of social contexts (e.g., poor neighborhoods) or occupations (e.g., social worker; public defender), which happen to provide more information highlighting discrepancies between those at the bottom and those at the top (see Dawtry, Sutton, & Sibley, in press; Garrett, 2009). Conversely, and for the opposite reasons, low SDO individuals might be drawn to the types of contexts in which they end up regularly encountering information about large group-based disparities. If individuals high (*vs.* low) on SDO select into environments where they get exposed to different underlying information about the world, that could account for why they end up perceiving more (*vs.* less) hierarchy between groups. Notably, from this perspective, SDO could be negatively associated with inequality perceptions even if it does not bias how individuals process

any hierarchy-relevant information that they *are* exposed to (e.g., a newspaper article about rising income inequality).[1]

Research on motivated cognition and perception, however, suggests that there are good reasons to expect that individuals' equality motives will indeed bias their processing of hierarchy-relevant information. Specifically, individuals' motives may lead them to filter information differently, in ways that sway them to come to the conclusions they prefer. As we detail below, biased information filtering could manifest in a number of ways.

For example, individuals may pay more attention to information that is consistent with their motives (and less to information that is inconsistent). Research drawing on data from millions of online interactions on social media platforms (e.g., Twitter; Facebook) shows behavioral evidence for this idea: Specifically, individuals are more likely to click on (and share) online content the more it aligns with their political beliefs (Bakshy, Messing, & Adamic, 2015; Barberá, Jost, Nagler, Tucker, & Bonneau, 2015), suggesting a greater tendency to engage with (and endorse) worldview-consistent perspectives. Low SDO individuals, who consider inequality problematic, might be especially attuned to any evidence of even slight disadvantage to low power groups. On the other hand, high SDO individuals, who consider hierarchy desirable, might expend less effort looking for evidence of low power group disadvantage and more time focusing on any threatening advances they might be making (Eibach & Keegan, 2006; see Balcetis & Dunning, 2013 for a discussion of the role of attention in motivated perception).

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[1] Our use of the term 'differential exposure' should be differentiated from the term 'selective exposure'. Whereas the latter term is typically used to describe motivated processing of information (e.g., Frey, 1986; Hart et al., 2009)— the mechanism we consider next— the former reflects the possibility that individuals might simply happen to encounter different underlying information about hierarchy, resulting in different perceptions of hierarchy which do not necessitate biased processing of information.

Beyond guiding which information is attended to, individuals' motives may influence how that information is interpreted. For example, individuals may differentially judge the validity of information about inequality that they come across. Individuals are known to apply less rigorous standards when evaluating information in line (*vs*. inconsistent) with their worldview (Ditto & Lopez, 1992), judging evidence consistent with their beliefs as more legitimate than evidence that challenges them (Ditto, Pizarro, & Tannenbaum, 2009; Lord, Ross, & Lepper, 1979; Munro & Ditto, 1997; see also Taber and Lodge, 2006). Of direct relevance to the present work, Crawford, Jussim, Cain and Cohen (2013) showed that SDO influenced individuals' evaluations of the validity of newspaper article espousing pro *vs*. anti-affirmative action articles, with lower levels of SDO associated with perceiving more author bias for the anti-affirmative action article but less author bias for the pro-affirmative action article (see also Iyengar & Hahn, 2009).

Beyond judging the validity of information differently, individuals' motives may lead them to consider it from differing vantage points, impacting the conclusions that they draw. For example, individuals high in SDO experience a closing gap between dominants and subordinates as threatening and aversive (Guimond, De Oliviera, Kamiesjki, & Sidanius, 2010; Thomsen et al., 2008) because it renders the hierarchy that these individuals favor potentially precarious. Interpreting information about drops in advantaged groups' power by fixating on the threat it implies to hierarchy may have the effect of cognitively magnifying the losses. In contrast, a low SDO individual observing the same drop in advantaged groups' power might instead encode it as insignificant because they contrast it to all the other advantages enjoyed by those at the top. Consistent with the idea that individuals' motives lead them to apply different interpretive frames to

hierarchy-relevant information, Eibach and Ehrlinger (2006) showed that White

Americans (presumably motivated to maintain inequality) anchor on how far race-

relations have come whereas Black Americans (presumably motivated to achieve greater

equality) anchor on how far they still have to go.

If low and high SDO individuals differentially attend to and interpret information

that, respectively, highlighted *vs*. diminished power differentials between groups, they

could come to diverge in their perception of the extent of those power differentials.

Evidence for Motivated Cognition

Recent research provides compelling illustrations of the ways in which motivated

cognition can bias individuals' perceptions. In one study, Kahan, Hoffman, Braman,

Evans, and Rachlinski (2012) showed individuals the same video of a protest in which

the police used crowd-control tactics. These authors showed that individuals with

egalitarian *vs*. inegalitarian values diverged in their ratings of how aggressively the police

treated protesters depending on whether they were that told the demonstrators were

protesting in opposition to abortion or in favor of gays' entry to the military. Balcetis and

Dunning (2006) showed that individuals were more likely to perceive the same

ambiguous shape as a "B" when "13" was associated with an undesired outcome, but as

"13" when the outcome assignments were switched, providing evidence that individuals'

motivations can exert top-down influences even on individuals' visual perception.

Documenting effects of motivated cognition on memory, recent work showed that

individuals motivated to deny climate change were more likely to recall information in an

article or video describing human contributions to climate change in system-exonerating

ways (Hennes et al., under review; see also Story, 1988; Sanitioso, Kunda, & Fong, 1990).

Of particular relevance to the current research, two papers examined motivated evaluations of income inequality (Chambers, Swan, & Heesacker, 2014) and economic mobility in the U.S. (Chambers et al., 2015) among liberals and conservatives. These authors compared evaluations against objective metrics of these phenomena, allowing them to determine whether one or both groups made inaccurate evaluations consistent with their motivations. Chambers et al. (2014) found that, on average, Americans overestimated the rise of income inequality over time, and underestimated average incomes. Moreover, they found that political liberals, for whom rising inequality is worldview-consistent, overestimated it to a greater extent than conservatives (but see Erikson & Simpson, 2012; Norton & Ariely, 2011). Similarly, Chambers et al. (2015) found that, on average, Americans underestimated economic mobility, an effect that was moderated by ideology (but see Kraus & Tan, 2015). Supporting the bidirectional perspective that *both* liberals and conservatives exhibit motivated biases, they observed that liberals were generally more likely to underestimate economic mobility (particularly upward mobility), but that conservatives exhibited a tendency to underestimate downward mobility.

In sum, we argue that in a society with egalitarian norms, where large disparities between groups call for attention and potential intervention, one's motivation to maintain vs. attenuate intergroup hierarchy (i.e. one's level of SDO) may influence one's description of the extent of inequality or social hierarchy. This is more than strategic reporting, in which low SDO and high SDO individuals perceive the same level of

hierarchy, but consciously overblow or minimize it in their descriptions of it, in order to

respectively promote or undermine egalitarian social policy. Rather, we predict that

individuals high *vs*. low in SDO truly come to perceive different levels of hierarchy. This

differential perception of inequality could, in turn, reflect differential exposure to

information about inequality and hierarchy, such as through self-selection into different

social environments that vary in how much information about inequality they feature.

Alternatively, in line with research on motivated social cognition, individuals may come

to process the same information about hierarchy differently, actually perceiving

inequality in ways that align with their desire to see a world in which hierarchy is or is

not a social problem requiring intervention.

Hypotheses

Based on the reasoning above, we made several predictions. Our central

hypothesis was that SDO would be associated with perceptions of inequality between

groups, with high SDO individuals perceiving less hierarchy and low SDO individuals

perceiving more hierarchy. Because SDO is a variable theorized to index support for

hierarchy between groups in *general* (Kteily et al., 2012; Sibley & Liu, 2010), we

expected that individuals' SDO would drive their perception of inequality across

domains: thus, higher levels of SDO should be associated with perceiving smaller gaps in

power between not only the rich and poor, but also between Whites and Blacks, and men

and women. Moreover, given that SDO is associated with support for hierarchy among

both advantaged and disadvantaged group members (Ho et al., 2015), we predicted that

any association of SDO with perceptions of hierarchy would hold among both high and

low power group members.[2]

We also examined the mechanism underlying any link between SDO and

hierarchy perceptions. Given findings emerging from research on motivated cognition,

we predicted that the relationship might extend beyond conscious strategic under- or

over-reporting of power differences, or differential access to information about hierarchy.

Specifically, we reasoned that perceptions of power differences might reflect an

unconscious, motivated perceptual bias: Thus, even when presenting individuals with

identical information about hierarchy and incentives to report their true perceptions, we

predicted that SDO would be negatively associated with the extent of perceived power

differentials between groups.

Recent research has given conflicting accounts of whether distorted cognition is

equally a feature of the political right and the left: Whereas some research suggests that

those on the right may be more dogmatic and biased in their information processing (e.g.,

Jost, Glaser, Kruglanski, & Sulloway, 2003; Barberá et al., 2015), other research suggests

that biased cognition equally affects both those on the left and right (e.g., Brandt, Reyna,

Chambers, Crawford, & Wetherell, 2014; Kahan et al., 2012). Although this research has

generally focused on liberalism vs. conservatism broadly construed (rather than on SDO

in particular), because of its inconclusiveness with respect to the issue of distorted

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[2] Notably, neither the prediction that SDO will lead to perceptions of hierarchy across domains nor that it will do so among both members of advantaged and disadvantaged groups follows from theorizing focusing exclusively on group-membership based motives (e.g,. Tajfel & Turner, 1979; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). According to that view, perceptions of hierarchy should be restricted to whatever context is relevant to the salient ingroup, and individuals should be driven primarily by the motive to advance ingroup interests.

cognition, we made no strong predictions regarding whether the relationship between

SDO and perception of hierarchy would be driven more by those high or low in SDO.

Extending prior work, we also examined the relationship between perception of

hierarchy and policy support. Because egalitarian social policies are specifically intended

to equalize conditions between groups, those who perceive greater inequality should see a

more pressing need to adopt these policies than those who perceive less. Thus, we posit

an indirect path whereby individuals' *general* motivations to maintain vs. attenuate

hierarchy (i.e., their SDO) will influence their perception of the level of hierarchy in

specific contexts, which contributes to support for *vs*. opposition to egalitarian social

policies in those contexts.

In examining these predictions, we controlled for social conservatism. Theorizing

on political conservatism (Jost et al., 2003; Jost, Federico, & Napier, 2009), suggests that

it reflects two core motivations: *traditionalism*, reflecting a desire to resist change, show

deference to authority and maintain the social order, and *acceptance of inequality*,

reflecting anti-egalitarianism. These two components are correlated but theoretically

distinguishable; whereas traditionalism is primarily reflected in social conservatism,

acceptance of inequality is directly tapped by SDO (Duckitt, 2001). Because our

predictions follow specifically from motivations to maintain (*vs*. attenuate) inequality in

society, we examined the effects of SDO controlling for social conservatism in our

analyses.

Overview of Studies

We explored the relationship between anti-egalitarianism and perceptions of

hierarchy in eight studies (and four supplemental studies), involving a range of real-world

social contexts, fictitious vignettes, and abstract visual representations of hierarchy. In our first two studies, we examined, cross-sectionally (Study 1a) and longitudinally (Study 1b), the extent to which SDO is linked to the rejection of egalitarian social policy through diminished perception of power differences among real-world groups, focusing on perceived disparities between racial, gender, and class groups (see also Supplemental Study 1). In Study 2, we controlled for the possible effects of differential environmental exposure to hierarchy-relevant information by examining ratings of a fictional asymmetric intergroup conflict described using identical text (see also Supplemental Study 2). In Studies 3a and 3b, we examined the relationship between SDO and perceptions of hierarchy in a different modality, by using abstract visual depictions of unequal distributions of power and resources (see also Supplemental Study 3). In Study 3c, we examined whether the relationship between SDO and perceptions of hierarchy extended to other measures of egalitarianism. In Study 4, we experimentally examined the extent to which the relationship between SDO and perceived power differences is sensitive to monetary incentives for accuracy, providing clarity about whether results are due to motivated reporting or motivated perception (see also Supplemental Study 4). Finally, in Study 5, we examined whether SDO predicted biased memory, assessing both whether individuals high in SDO were likely to make errors consistent with *under-perceiving* hierarchy, and whether individuals low in SDO were likely to make errors consistent with *over-perceiving* it.

Study 1a

In Study 1a, we examined the relationship between SDO and perception of power differences across three real-world domains: race, gender, and social class. Specifically,

we asked participants to report their rating of the power enjoyed by groups across these

three intergroup contexts. In order to examine our mediational hypothesis (i.e., that SDO

would predict perceptions of inequality between groups in society, thus influencing social

policy support), we also assessed endorsement of a broad set of egalitarian social policies

spanning a range of domains. Among this set were policies specific to the intergroup

contexts on which we obtained inequality ratings. However, because SDO is a variable

indexing generalized attitudes towards hierarchy (Kteily et al., 2012; Sibley & Liu,

2010), we also examined the generalizability of our hypothesized mediation by including

more general hierarchy-enhancing and attenuating policies (i.e., assessing whether SDO's

hypothesized link with hierarchy perception relates to endorsement of egalitarian social

policies across a range of contexts). Finally, to assess our prediction that these effects

would hold across the spectrum of membership in high *vs*. low power groups, we

examined whether participants' race, gender, or social class membership moderated the

effects we observed. We controlled for social conservatism throughout.

Method

   Participants. We collected data from 875 U.S residents (*M* age= 25.09, *SD* =

8.59; 69.5% male) using the SocialSci online platform in December 2011. 454

participants identified as White, 253 as Black/African-American, 59 as Asian/Asian

American, and 21 as Latino/Hispanic American; 42 did not identify any racial/ethnic

group membership, and the remaining 43 individuals indicated a different category.

Given our small sample size of non-Black minorities, and because one of our central

questions of interest concerned perceptions of power differences between ethnic groups,

we focused our analyses on White and Black American participants (*N* = 707; *M* age=

25.17 *SD* = 7.86; 69.2% male), though we note that conclusions are unchanged when the

whole sample is used. 649 participants provided complete data on all focal variables.

      Measures. Participants completed a battery of items related to social and political

attitudes collected for this and other purposes. We focus our analyses here on the

variables directly relevant to the research question at hand. Unless otherwise noted, all

items were assessed using a 1= 'Strongly Disagree' to 7= 'Strongly Agree' scale.

      Independent Variables.

      Social Dominance Orientation. Participants responded to the 16-item SDO-6

scale (Pratto, Sidanius, Stallworth, & Malle, 1994), as well as a variety of SDO items

intended for development of the SDO-7 scale (Ho et al., 2015). Although we center our

analyses on the SDO-6 scale items (α= .93), we note that we obtain the same results when

we use the items that ultimately formed the new SDO-7 scale (Ho et al., 2015)[3].

      Social Conservatism. Participants were asked: "In terms of social issues, how

would you describe your political attitudes and beliefs?" Responses were provided on a

1-7 scale (1= 'Very Liberal'; 2 = 'Liberal'; 3= 'Slightly Liberal'; 4= 'Middle of the

Road'; 5= Slightly Conservative; 6= 'Conservative'; 7= 'Very Conservative').[4]

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[3] Note that we do not distinguish between different forms of anti-egalitarianism in the present work (see Ho et al., 2012; 2015), but rather are interested in how general support for group-based dominance and inequality relates to perceptions of social hierarchy.

[4] We also had two items assessing economic conservatism and political party affiliation, respectively. Because of the potential overlap between anti-egalitarianism and each of economic conservatism and party affiliation (Jost et al., 2003; Kandler, Bleidorn, & Reimann, 2012), these were omitted from our analyses, and we instead focused on the most theoretically relevant contrast (i.e., to social conservatism). Nevertheless, patterns were highly similar when the economic conservatism and party affiliation items were included in a composite assessing conservatism (full details available from the first author on request). Results were also similar, across studies, when social conservatism was not included as a control variable in examining the effects of SDO (see section 3 of the Supplemental Materials for full details).

Social Class. Participants were asked: "How would you describe your family's social class position?" (1= 'Poor'; 2= 'Working Class'; 3= 'Middle Class'; 4= 'Upper Middle Class'; 5= 'Upper Class').

Dependent Variables.

Inter-Ethnic Power Differences. In order to assess perceptions of power differences between the top of the ethnic group hierarchy and lower levels, we presented participants with the following question: "How much power do each of the following groups enjoy? Use a scale from 1 to 7, where 1 implies no power at all, and 7 implies absolute power". Participants rated the power of each of: Whites/Caucasian Americans, Blacks/African Americans, Asians/Asian Americans, and Latino/Hispanic Americans. We were primarily interested in perceived differences between the group at the top of social hierarchy and those groups below. Because our sample was comprised of White and Black Americans (and because we also account for ethnic group membership in our analyses), we computed a difference score between ratings of White Americans (who, on average, were rated as the ethnic group with the highest power; $M = 5.84$, $SD = 1.55$) and Black Americans (who, on average, were rated as having significantly less power; $M = 3.70$, $SD = 1.42$, paired-samples $t(693) = 27.63$, $p < .001$).[5] Higher scores thus indicate a greater perceived power advantage for Whites (i.e., the high power group) relative to Blacks (i.e., the low power group).[6]

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[5] To check for robustness, we also indexed perceived power differences as the difference between ratings of Whites' power and the average perceived power for all other groups ($\alpha = .70$). Conclusions are unchanged using this index.

[6] Although we center our analyses on difference scores because of our central theoretical interest in perceptions of the gap between groups, the use of difference scores has certain disadvantages (e.g., Cronbach & Furby, 1970; Edwards, 1994; but see Thomas & Zumbo, 2012). Results examining ratings of the advantaged vs. disadvantaged group separately (for all relevant studies) can be found in the section 1 of the Supplemental Materials. Although the pattern differed somewhat across studies, we generally found

Inter-Sex Power Differences. We assessed inter-sex power differences similarly:

Participants rated the power of men ($M = 5.80$, $SD = 1.48$) and women ($M = 4.43$, $SD =$

1.33; paired samples $t(696) = 22.39$, $p < .001$) using the same scale as above, and we

subtracted the rated power of women from the rated power of men, such that higher

scores indicated a greater perceived power advantage for men relative to women.

Inter-Class Power Differences. As above, participants rated the power of each of

the following groups: 'Those born into a poor or working class family', 'Those born into

a comfortable or middle class family', and 'Those born into a wealthy or upper class

family'. From the rated power of those born into wealthy or upper class families ($M =$

6.00, $SD = 1.40$), we subtracted the average rated power of those born into comfortable or

middle class and poor or working class families ($M = 3.41$, $SD = 1.15$; paired samples

$t(697) = 36.41$, $p < .001$). Thus, higher scores indicated a greater perceived power

advantage for those born into rich families relative to others.

Social Welfare Support. Participants were asked about the extent to which they

supported each of the following policies: "Greater assistance to the poor", "Reduced

public support for the homeless" (reverse-scored), and "Reduced benefits for the

unemployed" (reverse-scored) ($\alpha = .77$).

Anti-Discrimination Policy Support. We assessed support for the implementation

of anti-discriminatory policy using 8 items. Example items include: "People have no

business trying to ensure racial integration in society" (reverse-scored)" and "Society

should do everything it can to help improve the economic condition of poor ethnic

minorities" ($\alpha = .91$; see section 10 of the Supplemental Materials for full scale).

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support for the idea that SDO is both negatively associated with perceived power of advantaged groups and
positively associated with perceived power of disadvantaged groups.

Affirmative Action Support. We assessed support for affirmative action by asking individuals to indicate their support for each of the following policies: "Quotas, that is, setting aside places for certain groups", "Using memberships in certain groups as a tie-breaker when applicants are equally qualified", "Using group membership as one of several considerations", "Giving training to certain groups so they can compete equally", "Making a special effort to find qualified people from certain groups", and "Giving preference to members of certain groups who are less qualified than someone else." (α = .84).

Legacy Admission Policy Support. Participants were asked about their support for university legacy admission policies using 4 items (see Ho et al., 2012; Kteily et al., 2012). An example item is: "It is sometimes OK to consider family connections in making admissions decisions" (α = .82).

New Hierarchy. Participants were presented with a measure of preferences regarding the distribution of a hypothetical new university's resources across schools (Ho et al., 2012, 2015; Kteily et al., 2012). In order to assess preferences for a more hierarchical distribution, we asked participants to indicate their responses to the following statements: "I would prefer schools to be responsible for their own funding", "I would prefer the university to distribute resources equally rather than have each school fund itself" (reverse-coded), "It would be unfair if schools had unequal budgets" (reverse-coded), and "It would be fair for each school to get the budget it earns." (α = .71).

Results and Discussion

We were interested in *overall* perceptions of power differences between the most powerful groups and the rest of the groups in the hierarchy (across different types of

intergroup hierarchy). Thus, we first investigated whether perceptions of power differences across the ethnic, gender, and class domains were inter-correlated. Indeed, perceived ethnic power differences were positively correlated with perceived gender ($r =$ .55, $p < .001$) and class ($r = .61$, $p < .001$) power differences. Perceived gender and class power differences were also highly correlated ($r = .48$, $p < .001$). A principal components analysis using these three items generated a one-factor solution (eigenvalue= 2.09, 69.77% variance explained) and a reliable scale ($\alpha = .78$), which we used as the central variable (*overall power differences)* in our analyses.

We next examined whether SDO ($M = 2.69$, $SD = 1.19$) predicted this overall index of power differences between high and low power groups. We observed that SDO was significantly skewed in this sample (Skewness = .195, $SE = .092$, $z = 2.12$, $p = .034$). Thus, we logged SDO for our analyses (results were consistent when SDO was not logged).[7] Consistent with our hypothesis, SDO was significantly associated with perceptions of fewer overall power differences between groups ($r = -.43$, $p < .001$). Because SDO is theorized to reflect support for hierarchy between groups in general, we were primarily interested in the association between SDO and our *overall power differences* index. Nevertheless, we also examined its association with perceived power differences within each of the three domains examined. In all cases, SDO was significantly associated with reporting a smaller power gap between advantaged and disadvantaged groups (ethnic power differences: $r = -.33$, $p < .001$; gender power differences: $r = -.34$, $p < .001$; class power differences: $r = -.42$, $p < .001$).

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[7] SDO was significantly skewed in some of our samples but not others (see section 2 of the Supplemental Materials for information about SDO's distribution in each study). For the sake of consistency and comparability, we logged SDO in all studies. We note that conclusions are consistent throughout when SDO is not log-transformed.

We subsequently considered whether reduced perceptions of power differences between groups influenced support for egalitarian social policy. Specifically, we used Hayes' (2013) PROCESS macro (Model 4) to investigate a process model in which overall perceptions of power differences mediated the effects of SDO on our various measures of social policy. In order to test the unique effects of SDO, we controlled for social conservatism's effects— both on perceived power differences and on the outcome measures— across analyses. We also controlled for participant gender (0= 'Female'; 1= 'Male'), social class, and racial minority status (0= 'White'; 1= 'Black'), in order to isolate the effects of SDO from those of membership in high or low status groups (conclusions were consistent when we did not control for group membership).

We assessed the effects for each of the various social policies separately. Consistent with expectations, across 4 of the 5 dependent variables examined (i.e., all except affirmative action support), SDO exerted significant negative indirect effects on support for egalitarian social policy via its effects on decreasing perceptions of power differences between groups (see Table 1). Thus, SDO was correlated with perceiving less inequality between groups, which itself was associated with rejection of hierarchy-attenuating (and endorsement of hierarchy-enhancing) social policies.[8] We averaged across the various policies examined in order to estimate an overall pattern for egalitarian social policy (hierarchy-enhancing policies were reverse-scored).[9] As with the individual

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[8] Further analyses with the affirmative action scale revealed that it was bi-dimensional, with one factor reflecting support for favoritism in hiring (e.g., use of quotas or tiebreakers), and another factor reflecting support for more restricted forms of affirmative action: training and outreach. Analyses conducted using the more restricted 'outreach' version of affirmative action support yielded the same significant indirect effect as for the remaining outcome measures. Unexpectedly, however, we observed the reverse pattern for the 'favoritism' affirmative action policies. This may due to low SDO individuals, who endorse egalitarianism, perceiving the favoritism element of these policies as unfair.

[9] The scale incorporating support for each of the egalitarian policies had acceptable reliability ($\alpha = .58$). Nevertheless, rejection of affirmative action was poorly correlated with the remaining measures (item-total

policies in isolation, perception of power differences was a significant mediator of SDO's

effect on our composite measure of egalitarian social policy (see Table 1).

Finally, we assessed whether the indirect effect of SDO on rejecting egalitarian

social policy via perceived power differences was moderated by each of participants' (a)

ethnic group membership, (b) gender, and (c) social class. We used Model 7 of Hayes'

(2013) PROCESS macro, which provides an index of moderated mediation. In fact, we

observed that the indirect effects were not moderated by ethnic group membership (index

of moderated mediation: -.00 [-.10, .10]) or by gender (index of moderated mediation: .01

[-.08, .10]): indirect effects were significant and equally strong among both Whites

(indirect effect: -.21 [-.29, -.14]) and Blacks (indirect effect: -.21 [-.31, -.14]), as well as

among men (indirect effect: -.20 [-.28, -.13]) and women (indirect effect: -.21 [-.30, -

.14]). Similarly, although we observed a significant (and unpredicted) tendency for the

indirect effects to be slightly stronger among individuals of lower social class (index of

moderated mediation: .05 [.01, .11]), the indirect effects were significant at all levels of

social class (at low social class: -.24 [-.33, -.17]; at mean social class: -.20 [-.27, -.14]; at

high social class: -.16 [-.24, -.09]).

In addition to the effects of SDO, we also observed that gender group membership

was associated with perception of power differences (with males, as expected, perceiving

less inequality). Unexpectedly, we observed that Whites perceived more inequality than

Blacks.[10]

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correlation $r = .04$), and removing this item from the scale increased reliability ($\alpha = .67$). Thus, reported results exclude affirmative action. However, we note that conclusions are unchanged when affirmative action support is included.

[10] African Americans in this sample atypically expressed less egalitarian sentiments than White Americans across several indices. Nevertheless, as we note above, our hypothesized effect of SDO on perceived power differences held among *both* Whites and Blacks. Moreover, we observed this same relationship between

In sum, we observed strong support for our theoretical predictions. Perceptions of power differences between groups across contexts were highly correlated (and formed a unidimensional scale): those who thought that men enjoyed fewer advantages over women tended to also think that Whites enjoyed fewer advantages over Blacks, and that rich people enjoyed fewer advantages over other social classes. Moreover, across group categories, and controlling for any effects of social conservatism and group membership, these perceptions were significantly predicted by SDO. Thus, the more individuals were motivated towards inequality between groups, the more likely they were to perceive the relationship between dominant and subordinate groups as relatively equal, and thus to reject egalitarian social policies (e.g., opposition to welfare and anti-discrimination policies). Not only did this mechanism cut across a broad swathe of social categorizations (i.e., among both men and women, minorities and Whites, and across social class groups), it also held controlling for group membership, and was independent of the effects of social conservatism.

Notably, we replicated our hypothesized patterns among a separate sample of Whites ($N = 498$; see Supplementary Study 1). Specifically, SDO was uniquely associated with perceiving fewer power differences between groups in the gender, racial, and class domains; furthermore, this association had significant indirect effects on policy support, and was not significantly moderated by participant gender or class.

Our theorizing proposes that SDO influences perceptions of power differences. At the same time, cross-sectional analyses do not provide insights into causal relationships. In Study 1b, we examined the relationship between SDO and perceptions of power

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SDO and perception of power differences (again, across race, gender, and class contexts) in a separate sample of Black Americans collected for other purposes using Qualtrics Panels ($N = 620$; $r = -.33$, $p < .001$).

differences between real-world groups longitudinally over a period of 4-6 weeks,

providing some insight into the validity of our proposed causal order. In line with our

theorizing, we hypothesized that SDO at time 1 would predict perceived power

differences at time 2, controlling for these perceptions at time 1.

Study 1b

We collected data from a sample of 355 residents of the U.S. (*M* age = 34.10, *SD*

= 11.87; 51.1% male) using Amazon's mTurk platform, and followed up with them 4-6

weeks later. 252 participants (71.0%) completed the second wave of the survey, of whom

244 provided data on all focal variables.[11]

Measures.

Social Dominance Orientation was assessed using the 16-item SDO-7 scale (Ho

et al., 2015; Wave 1: α= .93; Wave 2: α= .94).

Overall Power Differences was assessed as in Study 1a, using participants'

ratings of inter-ethnic, inter-sex, and inter-class power differences, which again formed a

reliable (Wave 1: α = .73; Wave 2: α =.70) and unidimensional (Wave 1: eigenvalue =

1.94, 64.7% variance explained; Wave 2: eigenvalue = 1.90, 63.32% variance explained)

scale. Ratings of power for each group were provided on a 0 ('No power at all') to 100

('Absolute power') scale. Because we were not focusing our assessment on White and

Black participants here (as we had in Study 1a), we expanded our measure of inter-ethnic

power differences. Specifically, we assessed this variable by examining the gap between

ratings of the perceived power of Whites and the average rated power of all other groups

(i.e, Black, Hispanic, and Asian Americans; Wave 1: α = .85; Wave 2: α = .87). On

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[11] Participants recruited via mTurk were restricted from participating in more than one of the studies using mTurk reported in this paper. Due to a programming error, participant race was not recorded in Study 1b.

average, Whites (Wave 1: $M = 76.68$, $SD = 19.57$; Wave 2: $M = 77.79$, $SD = 17.45$) were rated as having significantly more power than the remaining ethnic groups (Wave 1: $M = 42.49$, $SD = 21.09$; paired samples $t (350) = 24.42$, $p < .001$; Wave 2: $M = 42.00$, $SD = 20.58$; paired samples $t (249) = 22.75$, $p < .001$).

Results and Discussion

Participation attrition was not significantly associated with Wave 1 levels of either SDO ($F (1, 347) = 1.62$, $p = .20$) or of perceived power differences ($F < 1$).

We were centrally interested in examining whether SDO predicted perceptions of power differences over time. As hypothesized, SDO in Wave 1 predicted perceiving fewer power differences between groups in Wave 2, controlling for perceived power differences in Wave 1, $b = -1.63$, $\beta = -.10$, $p = .037$, 95% CI [-7.17, -.22]. On the other hand, we observed that perceptions of power differences in Wave 1 were not significantly associated with SDO levels in Wave 2, controlling for SDO levels in Wave 1, $b = -.00$, $\beta = -.04$, $p = .24$, 95% CI [-.003, .001]. Moreover, using Hayes' (2013) PROCESS macro (Model 1), we observed that the relationship between SDO in Wave 1 and perceived power differences in Wave 2 (controlling for this variable in Wave 1) was not significantly moderated by either of gender ($b = -2.68$, $p = .41$, 95% CI [-9.05, 3.69]) or social class ($b = -1.87$, $p = .37$, 95% CI [-5.94, 2.20]).

In sum, we obtained evidence consistent with our argument that SDO influences downstream perceptions of inequality between groups, whereas we did not find any evidence consistent with the reverse causal pathway. Although this study supports our theoretical perspective, it should be noted that we examined this question over a short time period (providing less opportunity for change in our constructs). A more

comprehensive examination could assess these patterns over greater periods of time, and could consider assessing developmental time-points (e.g., college years; Alwin, Cohen, & Newcomb, 1991) during which sociopolitical attitudes are known to be heavily shaped (we discuss causal order further in the General Discussion).

The patterns we observed across our first two studies (and Supplemental Study 1) are consistent with the idea that variation in individuals' equality motives leads them to perceive power differentials between groups differently, and suggest that this relationship does not differ significantly as a function of membership in advantaged versus disadvantaged groups. At the same time, it is not clear from these studies whether this perceptual bias arises from high *vs*. low SDO individuals being exposed to fundamentally different information about inequality (e.g., as a result of living in different neighborhoods or choosing different jobs), or from processing the same underlying information differently (e.g., by paying more attention to and more heavily weighting worldview-consistent aspects of the information). In order to determine whether the association between SDO and perceived power differences might reflect motivated differences in the way individuals *process* inequality-relevant information, we need to ensure that individuals are being exposed to the same information.

In Study 2 (and Supplementary Study 2), we sought to examine whether the association between SDO and inequality perception would hold when participants rated power differences between groups in a fictional asymmetric intergroup conflict. Given that all participants read the same text, we are able to rule out any role here of differential exposure to information relating to power differences. Moreover, by moving beyond

judgments of real-world power differences, we were able examine the generality of the phenomenon under investigation.

Study 2

Method

We collected data from 164 U.S. residents (*M* age = 35.33, *SD* = 12.65; 52.6% male; 116 White/European American; 12 Asian/Asian American; 11 Latino/Hispanic American; 9 Black/African American; 4 biracial/mixed race; 1 Other; 11 missing) on Amazon's mTurk platform, of whom 153 provided data on all focal variables. We asked participants to read about a fictitious asymmetric conflict taking place between two groups, a scenario modeled on one previously determined to reflect an asymmetric intergroup conflict (Kteily et al., 2013, Study 3). Specifically, participants were first told that they would be reading about a conflict between two groups in a country called 'Raga', and that they would be asked to represent one of the two groups involved in the conflict. Participants were randomly assigned to take on the role of either 'Group A' or 'Group B', pre-determined to be perceived as high *vs.* low in power on average, respectively (Kteily et al., 2013). Subsequently, all participants read about the history of the conflict: specifically, they were told that Group A and Group B both made claims to all the land in Raga, with tensions resulting in a war between the two sides. Group A had won the war, taking control of Raga and the vast majority of its resources. Group B were said to feel wronged by their situation, and to have been engaging in both violent and nonviolent resistance efforts in order to improve their situation, efforts which had scored some successes. Previous research had shown that assignment into the high *vs.* low power group in this scenario had psychological consequences (i.e., differentially influencing the

conditions under which individuals were willing to negotiate with the other side; Kteily et al., 2013).

 Measures

   Independent Variables.

   Social Dominance Orientation. This construct was assessed as in Study 1a (α= .92).

   Social Conservatism. This construct was assessed as in Study 1a.

   Dependent Variables.

   Power Differences. We assessed perceptions of power differences as we had assessed it in Study 1a. Thus, we asked participants: "How much power do each of the following groups enjoy?" Participants were asked to provide their responses for each of Groups A and B, using a 0 ('No power at all') to 100 ('Absolute power'). We subtracted ratings of the low power group (Group B) from ratings of the high power group (Group A), with greater scores reflecting a larger advantage for the high power group.

   Support for Egalitarian Social Policy. We assessed participants' support for egalitarian policies or actions intended to challenge the hierarchical status quo between the two sides by asking participants to indicate their support for each of the following 4 statements: "I support affirmative action programs for members of Group B in Raga", "International forces should enter Raga and ensure the equal treatment of members of Group A and Group B", "I would support the establishment of an international commission to investigate any injustices committed by Group A against Group B", and "I think the international community should place a great deal of pressure on both groups

until they agree a resolution." Responses were provided on a 1 ('Strongly disagree') to 7

('Strongly agree') scale ($\alpha = .83$).

 Results and Discussion

Group A ($M = 83.98$, $SD = 14.37$) was, on average, rated as significantly more

powerful than Group B ($M = 19.33$, $SD = 16.90$), paired-samples $t(155) = 27.02$, $p < .001$.

We examined our hypotheses using Hayes' (2013) PROCESS macro (Model 4),

controlling for social conservatism and membership in the high *vs*. low power group.

There was a nonsignificant trend such that being a member of the high power group

(Group A) was associated with a reduced perception of power advantage ($b = -7.78$, $\beta = -$

.13, $p = .11$, 95% CI: [-17.43, 1.58]). Social conservatism was not associated with power

perceptions ($b = -.11$, $\beta = -.01$, $p = .94$, 95% CI: [-2.99, 2.41]). On the other hand, and as

in previous studies, SDO was associated with perceiving less of a power advantage for

the dominant group ($b = -18.88$, $\beta = -.27$, $p = .002$, 95% CI: [-31.15, -7.67]). Moreover,

perceptions of a bigger advantage for the powerful group were associated with more

support for egalitarian social policies ($b = .01$, $\beta = .24$, $p = .004$, 95% CI: [.005, .02]).

The hypothesized indirect effect was significant (indirect effect: -.22 [-.43, -.09]).

Notably, and consistent with the idea that assignment into group was psychologically

meaningful, we further observed that beyond SDO, participants assigned to the high

power role were significantly less supportive of egalitarian policies in the Raga context (b

$= -.51$, $\beta = .18$, $p = .02$, 95% CI [-.93, -.08].

We next assessed whether the pattern associated with SDO were moderated by

group membership, examining whether the indirect effects differed among participants

assigned to play the role of the high power (Group A) *vs*. low power (Group B) group.

Despite the fact that those assigned to play the high power role were less supportive of egalitarian policies, the indirect effects of SDO on support for egalitarian actions via perceptions of power differences were not significantly moderated by group membership (index of moderated mediation: -.19 [-.53, .05]). Indeed, the indirect effects were significant for both the low power (indirect effect: -.15 [-.38, -.009]) and high power (indirect effect: -.34 [-.66, -.13]) groups.

Thus, we obtained results in a fictional intergroup context that were consistent with those observed among real-world groups. The greater individuals' motivational orientation towards inequality between groups, the smaller the power differential they perceived between the advantaged and the disadvantaged group. This was true controlling for individuals' social conservatism, and occurred even though all participants in this study were exposed to exactly the same information about the intergroup relationship. Consistent with prior studies, perceiving a smaller advantage for the high power group was associated with less support for policies intended to revise the hierarchical status quo. Notably, we replicated this indirect association between SDO and policy support via perceived power differences in a separate sample using a different fictional intergroup context (see Supplemental Study 2).

Furthermore, we observed similar patterns here across membership in high *vs*. low power groups: whether individuals were assigned to the high or low power group role, lower (*vs*. higher) levels of SDO led to a greater perceived power differential between groups, which was associated with more support for policies that would revise an unequal status quo.

In Studies 3a-3c, we examined whether the relationship between equality motives and perceptions of hierarchy extended even further, to basic and abstract visual representations of power differences. As in Study 2 (and Supplemental Study 2), we presented all participants with the same information (here, visual), again examining differential processing of the same underlying information about hierarchy.

Study 3a

Method

We collected data from 171 U.S. residents (M age = 31.90, SD = 10.49; 57.1% male; 122 White; 13 Asian/Asian American; 5 Black/African-American 4 Latino/Hispanic American; 2 Jewish; 7 Biracial/mixed race; 1 Other; 17 missing) on Amazon's mTurk platform, of whom 156 provided data for all focal variables. We asked participants to look at a randomized series of five images, one at a time, each of which they were told represented a hypothetical society. Each image consisted of a ladder with ten rungs, with a number of bags of money sitting adjacent to each rung (see Figure 1; see also Goodman et al., 2001; Sheehy-Skeffington, 2015). Participants were told that each rung represented 10% of the people in the fictitious society, and that the bags of money represented the wealth of that population decile. Power was operationalized as wealth in this study consistent with perspectives suggesting that access to resources is an important basis of power (Dubois, Rucker, & Galinsky, 2015; Emerson, 1962; Keltner, Gruenfeld, & Anderson, 2003). We used multiple images so that we could construct a reliable and valid measure of hierarchy perceptions (Judd, Westfall, & Kenny, 2012), systematically varying each image so that it depicted a different level of inequality in power (resulting in a ratio of the wealth held by the top decile to the bottom decile ranging from 1.67 to 14).

While viewing each image, participants responded to a set of questions about that image, before moving onto the next. Once five images had been shown, participants were presented with measures of our SDO and social conservatism (in randomized order), followed by a sociodemographic questionnaire.

Measures

Power Differences. In order to assess individuals' perceptions of the degree of the hierarchy between those at the top and at the bottom of the fictitious societies, we asked participants to respond on a 7-point Likert scale (1 = Strongly disagree to 7 = Strongly agree) to the following five questions, as they viewed each image: "The distribution of money in this society is very unequal", "There is **not** a big difference in the distribution of money from the bottom to the top of this society" (reverse-coded), "Resources in this society are fairly equally spread" (reverse-coded), and "The hierarchy that exists in this society is very steep", and "This society is **not** really a hierarchical one" (reverse-coded). We computed our index of perceived *power differences in* two steps. First, we created a composite using the mean score across all items assessing perceptions of power differences for *each* individual image (αs= .77 to .89). Next, we computed a composite from the mean scores *across* all five images ($\alpha = .65$).[12] As before, higher scores indicate a greater perception of a power differential across the hierarchy.

Support for Egalitarian Social Policy. We assessed participants' support for policies or actions intended to revise the existing hierarchical status quo by asking them to use the same 7-point scale (1 = Strongly disagree to 7 = Strongly agree) to respond to

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[12] Due to the relatively low Cronbach's α value for this composite, we conducted an analysis of inter-item correlations, revealing that the removal of the mean score from the first (i.e. most equal) ladder image yielded a more reliable 4-item measure ($\alpha = .76$). We conducted all reported analyses with the 4-item version of this scale. However, analyzing results using the 5-item version yielded equivalent results on all tests.

the following five statements for each image: "Those at the top of this society should

share more of their wealth with those at the bottom", "There is a need to redistribute

wealth from the top to the bottom in this society", "There is **no** need to change the

income distribution in this society." (reverse-coded), "There is a need to flatten the

hierarchy in this society.", and "Support should be given for those at the bottom of this

society to receive more money." As with perceived power differences, we created a

composite measure of *support for egalitarian social policy* by first computing means

across all items for each of the images (αs =.90 to .93), and then computing a mean

across all images (using all five images, α = .88; using the four most reliable images, α =

.93).

> **SDO.** Participants completed the 16-item SDO-6 measure (Pratto et al., 1994), as

in Study 1a (α= .85).

> **Social Conservatism** was assessed as in previous studies.

Results and Discussion

> Replicating our previous findings, controlling for social conservatism (b = -.04, β

= -.09, p = .34, 95% CI: [-.13, .04]), SDO significantly predicted perception of power

differences, this time using abstract visual representations of hierarchy, b =-1.10, β = -

.42, $p < .001$, 95% CI: [-1.54, -.65]. Moreover, as in previous studies, perceiving greater

power discrepancies was significantly associated with more support for egalitarian

changes to the status quo (b = .63, β = .40, $p < .001$, 95% CI: [.38, .86]). We used Hayes'

(2013) PROCESS macro (Model 4) to investigate whether SDO exerted a significant

indirect effect on support for egalitarian social policy via power perceptions, controlling

for social conservatism. Indeed, the hypothesized indirect effect was significant (indirect

effect: -.69 [-1.14, -.29]). In sum, the more individuals were motivated to maintain hierarchy between groups in society, the less they perceived abstract depictions of unequal societies as hierarchical, and the more they rejected policies intended to equalize resource distribution between those at the top and those at the bottom.

We thus replicated the link between SDO, perceptions of hierarchy, and support for egalitarian social policy in an artificial context that was presented in the abstract form of a simple set of images. This provides further evidence that the relationship between SDO and perceptions of inequality extends even to contexts in which individuals are exposed to identical underlying information. Furthermore, it extends the findings of Study 2, which used a detailed description of conflict between two groups, to suggest that social dominance motives can shape the perception of inequality depicted even pictorially in ways that contribute to the protection of dominant group advantages. Once again, this link held controlling for the effects of social conservatism.

In study 3b, we created a novel set of images of intergroup hierarchy that centered on social (rather than resource-based) power, thus allowing us to test the generalizability and replicability of the findings of Study 3a across abstract operationalizations of power.

Study 3b

Method

We collected data from 240 U.S. residents (*M* age = 34.60, *SD* = 11.22; 51.3% male; 170 Caucasian/White; 22 Asian/Asian American; 15 Black/African American; 6 Latino/Hispanic; 5 Jewish; 6 biracial/mixed race; 16 missing) on Amazon's mTurk platform, of whom 227 provided data on all focal variables. Similarly to Study 3a, we asked participants to look at a series of five images, and presented them with questions

regarding the degree of hierarchy depicted in the images, and the need for challenge of the status quo. Consistent with recent calls for the diversification of stimuli (Judd et al., 2012), and in order to ensure that the findings of study 3a weren't dependent on the type of image (ladder) or of resource inequality (money), we designed a novel set of hierarchies modeled on organizational pyramids. Each image consisted of a pyramid with multiple layers, and different numbers of stick figures at each layer (see Figure 2). Participants were asked to imagine that each pyramid represented a fictitious organization, that each layer represented a level of power in that organization, and that the stick figures represented the number of people at that level. We again used multiple images so that we could construct a reliable and valid measure of hierarchy perceptions, systematically varying each image so that it depicted a different level of inequality in power (resulting in a number of layers that ranged from 4 to 11, and a ratio of the number of people in the top two layers to the bottom two layers that varied from 0.22 to 0.04).

Our theorizing suggests that SDO motives influence the perception of hierarchy between groups (rather than the reverse). In the previous studies, we assessed SDO prior to perceived hierarchy, in line with our proposed causal order. In Study 3a, however, we measured SDO after perceptions of hierarchy, because we reasoned that examining perceptions of hierarchy without directly making participants aware of our interest in their levels of SDO would represent a particularly conservative test. In order to directly examine whether order of measurement of SDO matters, we counterbalanced the order of SDO (and social conservatism) in Study 3b, assessing it either prior to, or after, ratings of perceived hierarchy.

Measures

Power Differences. In order to assess individuals' perceptions of how much hierarchy existed between groups of individuals at the top and at the bottom of the fictitious organizations we presented, we asked participants to respond on a 7-point Likert scale (1 = Strongly disagree to 7 = Strongly agree) to the following five questions, as they viewed each image: "The distribution of power in this organization is very unequal", "There is **not** a big difference in the distribution of power from the bottom to the top of this organization" (reverse-coded), "This organization is fairly 'flat'" (reverse-coded), and "The hierarchy that exists in this organization is very steep", and "This organization is **not** really a hierarchical one" (reverse-coded). As in Study 3a, we computed our index of *power differences* by first creating a composite using the mean score across all items for each image (αs ranged from .80 to .88), and then computing a composite as the mean score across all images (α= .75). As in previous studies, higher scores indicated a greater perception of advantage for groups with high power (top organizational layers) relative to those with low power (bottom organizational layers).

Support for Egalitarian Social Policy. We assessed participants' support for policies intended to reduce inequality by asking them to respond to the following 5 statements for each image: "Those at the top of this organization should share more of their power with those at the bottom", "There is a need to redistribute power from the top to the bottom in this organization", "There is **no** need to change the power distribution in this organization" (reverse-coded), "There is a need to flatten the hierarchy in this organization", and "Support should be given for those at the bottom of this organization to move higher." Participants again indicated their perceptions using a 7-point scale (1 = Strongly disagree to 7 = Strongly agree). As with power perceptions, we created a

composite measure of *support for egalitarian social policy* by first computing means

across all items for each images (αs ranged from .85 to .89), and then computing a mean

across all images (α= .92).

       Social Dominance Orientation. This construct was assessed as in Study 3a

(α=.95).

       Social Conservatism was assessed as in prior studies.

Results and Discussion

       We observed that order of SDO measurement had no effects on mean levels of

SDO ($F < 1$), on mean perception of power differences ($b = -.09$, $\beta = -.05$, $p = .37$, 95%

CI [-.27, .10]), or on the relationship between SDO and perception of power differences

($b = .28$, $p = .12$, 95% CI: -.08, .65]. Thus, we collapsed across this factor for all

remaining analyses; analyzing results in each of the experimental conditions separately

yielded conclusions consistent with those reported below.

       As in Study 3a, we found a significant relationship between SDO and the

perception of power differences across the visually-depicted social system ($b =-.59$, $\beta = -

.39$, $p < .001$, 95% CI: [-.81, -.39]), controlling for social conservatism ($b = -.04$, $\beta = -.10$,

$p = .17$, 95% CI: [-.10, .02]). Using Hayes' (2013) PROCESS macro (Model 4), we again

observed that the hypothesized indirect effect from SDO to support for egalitarian

changes to the status quo via perception of power differences was significant (indirect

effect: -.27 [-.42, -.15]): thus, SDO was associated with reduced support for redistributive

policy in the depicted hierarchical organizations through its link with decreased

perceptions of a power advantage for groups at the top relative to those at the bottom. We

further replicated these patterns in a separate sample ($N = 170$; see Supplementary Study 3).

Beyond suggesting that the results of Study 3a are unlikely to have depended on the order of assessment of SDO, these findings extend the results of Study 3a to a second abstract visual representation of power differences. Thus, the results of Study 3b provide further evidence for the generality of the relationship we observe: Whether the social hierarchy involves real or experimental groups, whether individuals themselves belong to advantaged or disadvantaged groups, and whether the intergroup relationship is represented using text descriptions or abstract images, individuals differ in their perception of the power gap between those at the top and those at the bottom as a function of their motivation toward hierarchy between groups in society. Moreover, those individuals perceiving more hierarchy between groups indicate greater support for policies intended to equalize conditions than do those who see power relations as relatively equal.

In Study 3c, we sought to examine whether the patterns we observed using SDO would generalize to other measures of (anti-)egalitarianism.

Study 3c

Method

We collected data from a sample of 236 residents of the U.S. on Amazon's mTurk (*M* age = 34.29, *SD* = 11.38; 55.2% male; 171 Caucasian/White; 16 Asian/Asian American; 17 Black/African American; 13 Latino/Hispanic; 1 Jewish; 1 biracial/mixed race; 1 Native American; 1 Middle Eastern; 15 missing), of whom 225 provided data on all focal variables.

Measures. We used the same stimuli and procedure as in Study 3b, but used different measures of egalitarianism and traditionalism (in place of SDO and social conservatism, respectively). Egalitarianism and traditionalism measures appeared prior to ratings of perceived power differences.

For our assessment of egalitarianism and traditionalism, we primarily drew on classic scales of political attitudes (see Table 3-3 in Knight, 1999). Some of these scales embed the assumption that (economic) conservatism directly reflects anti-egalitarianism, whereas others treat these as theoretically separate constructs. This parallels the fact that some theoretical perspectives assume conceptual overlap between economic conservatism and acceptance of inequality (e.g., Duckitt, 2001; Jost et al., 2009; Kandler, Bleidorn, & Reimann, 2012), whereas others emphasize the possibility that individuals embrace economic conservatism not because they are inegalitarian, but for 'principled' reasons (e.g., because they believe that economically conservative policies like low taxation rates are more efficient and provide incentives and opportunities to all for individual advancement; e.g., Tetlock & Mitchell, 1993).

Because we were primarily interested in (anti-) egalitarianism *per se*, we centered our analyses on those items directly assessing attitudes about equality, and include analyses using items assessing economic conservatism in the Supplemental Materials (see section 7).

Anti-egalitarianism. We assessed anti-egalitarianism using two separate measures. For our first metric, we adapted three items from a scale developed by McCloskey and Bann (1979, as cited in Knight, 1999; sample item: "Efforts to make everyone as equal as possible should be decreased"; α= .72; see section 10 of

Supplemental Materials for full scale). For our second metric of egalitarianism, we used a five-item scale of economic egalitarianism used by Hatemi et al. (2014) (sample item: "If wealth were more equal in this country, we would have fewer problems" (reverse-coded); α= .91).

Traditionalism. We assessed traditionalism using two separate measures. First, we adapted seven items from the same McCloskey and Bann (1979, as cited in Knight, 1999) scale (sample item: "Trying to make sweeping reforms in a society as complicated as ours is usually much too risky"; α= .76; see section 10 of Supplemental Materials for full scale). Our second metric of traditionalism adapted five items assessing 'traditional morality' from Ray's (1983, as cited in Knight, 1999) scale of conservatism (α= .67; sample item: "Law and order is more important than letting every kook have their say"; see section 10 of Supplemental Materials for full scale).

Power Differences. This construct was assessed using ratings of the same abstract depictions of fictitious organizations as in Study 3b (α= .80).

Support for Egalitarian Social Policy. This construct was assessed as Study 3b (α = .94).

Results and Discussion

We examined whether anti-egalitarianism was associated with perceptions of the degree of hierarchy between those at the top and at the bottom of the fictitious societies, controlling for traditionalism. Using the measures of anti-egalitarianism and traditionalism adapted from McCloskey and Bann (1979), we observed that anti-egalitarianism was significantly negatively associated with perceived hierarchy (b = -.16, β = -.27, p = .001, 95% CI [-.25, -.07]). On the other hand, the negative association for

traditionalism was marginally significant (b = -.12, β = -.14, p = .06, 95% CI [-.25, .01]).

We obtained similar results when we instead used Hatemi et al.'s (2014) anti-

egalitarianism measure and Ray's (1983) traditionalism measure: Specifically, anti-

egalitarianism was uniquely associated with perceiving less hierarchy (b = -.15, β = -.27,

p < .001, 95% CI [-.21, -.08]); here, traditionalism was significantly related too (b = -.19,

β = -.25, p < .001, 95% CI [-.29, -.09]).

Furthermore, as in earlier studies, we observed a significant indirect effect from

generalized anti-egalitarianism beliefs to support for context-specific egalitarian social

policies via perceptions of hierarchy between the relevant groups: Using Hayes' (2013)

PROCESS macro (Model 4), we observed that this indirect effect was significant for both

metrics of anti-egalitarianism (as assessed by McCloskey and Bann (1979, as cited in

Knight, 1999): indirect effect = -.06 [-.12, -.02]; as assessed by Hatemi et al. (2014):

indirect effect = -.05 [-.10, -.02]). Notably, results were comparable irrespective of which

combination of anti-egalitarianism and traditionalism measures we used.

In sum, the results of Study 3c are highly consistent with the idea that individuals'

equality-motives are associated their perception of hierarchy beyond traditionalism.

Moreover, the results of this study suggest that the patterns we observe are not restricted

to one measure of anti-egalitarianism (i.e., SDO), but rather generalize broadly to

measures reflecting beliefs about the desirability of social equality. Interestingly, we

further observed that results using economic conservatism (adapted from McCloskey and

Bann, 1979, as cited in Knight, 1999) closely paralleled those obtained using anti-

egalitarianism (see section 7 of the Supplemental Materials), consistent with theorizing

suggesting that anti-egalitarianism is a basis of political conservatism (e.g., Jost et al., 2009).

In our next study, we sought to arbitrate between two possibilities that could account for the relationship between anti-egalitarianism and perceptions of hierarchy. It is possible that, regardless of their motivational orientations towards inequality, individuals perceive the same extent of hierarchy, but consciously report it differently for strategic reasons. Thus, even if egalitarians and inegalitarians perceive the abstract depictions of hierarchy that we show them in exactly the same way, egalitarians individuals might consciously over-report hierarchy and/or inegalitarian individuals might consciously under-report it, in order to justify their desire *vs*. distaste (respectively) for redistributive policies. Alternatively, consistent with research on unconscious motivated information processing biases (e.g., Kahan et al., 2012), we reasoned that individuals may come to actually *see* the reality that conforms with their equality motives, thus perceiving the same abstract depictions of hierarchy differently.

To begin distinguishing between these possibilities, we experimentally manipulated whether or not participants had an incentive to report their perception of hierarchy as they honestly saw it. We reasoned that if this incentive changed the relationship between ideology and power perceptions, then participants might well be seeing one thing but consciously and strategically reporting another in order to ward off demands for greater equality. On the other hand, if the incentive for honest reporting had no effect on hierarchy perceptions, this would be more consistent with the idea that their social dominance motives were unconsciously influencing how they truly perceived hierarchy.

Study 4

Method

We collected data from 335 U.S. residents (*M* age = 33.99, *SD* = 10.99; 50.5% male; 246 Caucasian/White American; 25 Black/African American; 25 Asian/Asian American; 18 Latino/Hispanic American; 4 Native American; 2 Jewish; 1 Middle Eastern; 11 biracial/mixed race; 1 Other; 2 missing) on Amazon's mTurk platform, of whom 328 provided data on all focal variables. The protocol was identical to that in Study 3b, with the following exception: We randomly assigned participants to receive (or not receive) an instruction intended to incentivize honest reporting. In the incentivized condition, participants read the following instruction, adapted from Waytz, Young, and Ginges (2014), who showed that it successfully reduced a form of biased perception (i.e., the 'motive attribution asymmetry'): "You will see a series of 5 images, and will be asked questions about each one. The participant whose responses are most accurate across images will receive a \$12 bonus on mTurk." In a separate pre-test we conduced on mTurk (*n* = 58), we observed that this manipulation was successful in influencing participants' approach to the task: specifically, we found that participants in the experimental (*vs*. control) condition were significantly more likely to report being motivated to respond with accuracy, $F (1, 56 = 19.66, p < .001$, partial $\eta^2 = .26).$[13]

Social Dominance Orientation ($\alpha = .95$) and *Social Conservatism* were assessed, followed by *Power Differences* ($\alpha= .73$). These constructs were assessed as in Study 3b. We did not assess support for egalitarian policy in this study because our instructions to

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[13] Motivation to respond with accuracy was assessed using 9 items, including "I would not be very disappointed if I was less accurate than others on this task" (reverse-coded) and "I would be absolutely delighted if I was the most accurate person on this task" ($\alpha = .79$).

participants in the experimental condition focused on accuracy in perceptions of the

images (rather than ratings for the appropriate policies).

Results and Discussion

Using Hayes' (2013) PROCESS macro (Model 4), we assessed whether

experimental condition moderated the association between SDO and perceptions of

power differences. Consistent with prior studies, SDO was negatively associated with

perceptions of power differences (b= -.39, β = -.26, p < .001, 95% CI: [-.59, -.21]),

controlling for social conservatism (b= -.00, β = -.00, p = .98, 95% CI: [-.06, .05]).

Experimental condition (i.e., control *vs*. incentivization) had no main effect on perceived

power (b= .02, β = .02, p = .78, 95% CI: [-.14, .20]). Moreover, it did not moderate the

relationship between SDO and perceived power differences (b = .07, p = .67, 95% CI: [-

.25, .39]). Indeed, controlling for social conservatism, SDO was significantly associated

with reduced power perceptions in both the control (b= -.43, p < .001, 95% CI: [-.67, -

.19]) and incentivized (b = -.36, p = .002, 95% CI: [-.59, -.13]) conditions. Examining the

moderation from the other perspective, the incentive had no effect on either those lower

(b = -.01, p = .92, 95 % CI: [-.25, .22]) or higher in SDO (b = .06, p = .62, 95% CI: [-.18,

.29]).

In sum, incentivizing participants to honestly report their perception of power

differences in an abstract hierarchy had no influence on the relationship between higher

SDO and perception of less inequality (see also Supplemental Study 4, which obtained

highly consistent results using a similar paradigm). The fact that a strong incentive

manipulation which we showed had effects on individuals' motivations to respond

accurately had no discernible influence on the SDO-power perception relationship

suggests that individuals' underlying orientations towards equality may influence their actual perception of hierarchy, and not just their reporting of it. It is important to state that the lack of moderation cannot readily be explained by lack of statistical power, given that we purposely ensured that each of the experimental and control conditions had large sample size (over 150 individuals per condition), and found the hypothesized relationships in both conditions.

In our final study, we sought to develop a paradigm that would allow us to examine whether our effects extended to biased memory. If participants perceive hierarchy differently as a function of their equality motives, they might also be expected to remember it in a biased manner. In designing this study, we also sought to develop an objective metric with which to assess participants' cognitions about hierarchy as a function of their motivation toward hierarchy. One important benefit of developing an objective metric of hierarchy perception is its ability to shed light on whether our effects result from high SDO individuals *under-perceiving* hierarchy, low SDO individuals *over-perceiving* it, or both (see Chambers et al., 2014, 2015). Because our previous studies were based on individuals' subjective ratings of hierarchy, it was not possible to clearly distinguish which of these patterns was responsible for the differences in hierarchy-perception.

Study 5

In Study 5, we sought to examine whether individuals might show evidence of biased memory for hierarchy as a function of their underlying orientation toward hierarchy. Specifically, we asked whether individuals higher in SDO might misremember having seen less hierarchy than they actually had. Simultaneously, we wanted to examine

the possibility that individuals lower in SDO might misremember having seen *more* hierarchy than they had. In order to do this, we presented individuals with a series of images depicting hierarchical organizations, and subsequently spot-checked their memory by asking them to identify which images they had seen from an array of images, which included the real image as well as more and less hierarchical versions. Thus, we were able in this study to tap into *objective* accuracy in the perception of hierarchy, and to assess it using a measure other than the rating of hierarchy: the identification of which hierarchy individuals believe they had previously seen.

Method

Because we had developed this as a new paradigm, we had no objective metric by which to determine an appropriate sample size, though we suspected that effects, if any, would be small. We originally conducted this study among 226 U.S. residents on Amazon's mTurk. After analyzing the suggestive results of the first study, we decided to conduct an exact replication with a new sample of 351 U.S. residents on mTurk. Because the two studies were conducted in an identical fashion among the same population, and yielded extremely similar results, we decided to combine these two datasets here for brevity, and report the results of this pooled analysis (the full results of the original test and the exact replication are reported separately in section 8 of the Supplemental Materials). The final sample thus consisted of 577 participants (*M* age= 33.29, *SD* = 11.62, 57% female; 402 Caucasian/White American; 37 Black/African American; 34 Latino/Hispanic American; 29 Asian/Asian American; 8 Native American; 7 Jewish; 3 Middle Eastern; 20 biracial/mixed race; 6 other; 31 missing), of whom 539 provided data for all focal constructs.

As stimuli in this study, we constructed 4 sets of images depicting hierarchical organizations, similar to those used in Studies 3b and 4. Each set had a different color background, and contained 5 images of organizational pyramids, with varying levels of hierarchicalness. We selected the images based on a pretest, in which we asked a separate sample of participants (n = 208) to use a shortened version of the hierarchy-rating scale from Studies 3b and 4 (consisting of 3 of the 5 items) to rate the power differences in 5 sets of 7 images, designed to have differing objective levels of hierarchy.[14] Using this data, we selected 4 image sets for the current study, each containing 5 images— one 'focal' image and four 'distractor' images— based on an optimization of the difference in subjective ratings of degree of power differences across all 5 images.[15]

Participants were told that we were conducting a study about "perception of images", for which they would be shown and asked to make judgments about a series of 4 images. Participants were first shown each of the 4 focal images in randomized order, as part of the "Images task". As in Study 3b, participants rated the degree of power differential they perceived in each of the 'organizations' depicted in the images. After they had completed their ratings, participants were surprised with a "Memory task". Specifically, we told participants that they would be presented with 4 sets of images in an

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[14] We used three indicators to objectively vary and track the degree of hierarchy in each organization: the number of rows in that organization (with more rows meaning greater degree of hierarchy or difference in power), the height of the triangle depicting the organization (taller triangles conveying greater hierarchy), and the ratio of the number of employees in the top-two 'leadership' rows to the bottom two 'subordinate' rows (a smaller ratio indicating greater hierarchy).

[15] Specifically, the primary criterion was that the difference between the average of the subjectively-rated hierarchicalness between the two least hierarchical images and the hierarchicalness of the middle, focal image was equal (to an accuracy of 0.1 on a 9-point scale) to the parallel difference in subjectively-rated hierarchicalness between the focal image and the average hierarchicalness of the two most hierarchical images. Secondarily, our selection also kept in mind a desire for (1) equivalence of the difference between the least hierarchical image and the second-to-least on the one-hand, and the difference between the most hierarchical image and the second-to-most, (2) the final ordered sets not to reverse the order of objective hierarchicalness of the images.

array, and that, for each set, they would be required to select from among the images displayed the one that they had seen in the "Images task". Similar to Study 4, in order to incentivize performance, we told (all) participants that the participant who had the most correct responses would receive a substantial bonus ($7). Finally, because we wanted to assess participants' overall memory of the image rather than their ability to recall any minor idiosyncratic differences across images, participants were told that the image array would appear only for a short interval (45 seconds), and, thus, that they should rely on their memory of the overall shape of the images rather than focusing on image details.

Participants then completed the memory task for each image set, with the sets appearing in randomized order. For each of the four image sets, participants saw the focal image, along with four distractor images: the two less hierarchical images and the two more hierarchical ones (see Figure 3 for an example of one of the image sets). The images within each set also appeared in randomized order, and all the images within each set were presented using the same color background of the focal image in the "Images task" (so as to mitigate against confusing images across sets). Participants had 45 seconds to register their response, after which their response was coded as a missing value and the next trial was automatically presented. After completing the memory task, participants completed measures of their social conservatism and social dominance orientation ($\alpha =$ .94), using the same items as in Study 3b.

Results and Discussion

We were centrally interested in whether participants' levels of SDO could predict the direction of errors they made in the memory task. Specifically, we wanted to know whether individuals higher in SDO would misremember having seen less hierarchical

organizations than they actually had, and whether individuals lower in SDO would misremember having seen more hierarchical organizations. Across the image sets, we computed a score reflecting accuracy and direction of errors: specifically, for each of the four image sets, participants were given a score of 0 if they correctly identified the image they had previously seen, a score of -1 if they incorrectly indicated having seen a *less* hierarchical image than they actually had, and a score of +1 if they incorrectly indicated having seen a *more* hierarchical image. We summed participants' scores across the four image sets to compute our variable of *hierarchy memory bias*. On this index, negative scores indicated an overall tendency towards underestimating the level of hierarchy one had seen previously, and positive scores indicated a tendency towards overestimating the same.[16]

On average, this was a difficult task for participants: 37.2% of participants did not make the accurate selection for any of the four image sets, 45.2% made one accurate selection, 14.8% made two accurate selections, and 2.8% made three accurate selections. No participants were accurate for all four trials. On average, there was a slight bias towards remembering less hierarchy than actually encountered ($M = -.42$, $SD = 1.59$, one-sample $t (572)= -6.38$, $p < .001$). Neither of SDO ($r = -.02$, $p = .62$) nor social

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[16] Because we had a total of 5 organizations varying in hierarchy in each set, we also considered weighting each response by the level of hierarchy of the organization selected (i.e., -2 for incorrectly choosing the least hierarchical triangle, -1 for incorrectly choosing the second-least hierarchical organization, 0 for an accurate selection, +1 for incorrectly choosing the second-most hierarchical organization, and +2 for incorrectly choosing the most hierarchical organization). However, we chose not to pursue this as our primary analysis strategy because whereas our pretest ensured the selection of images with an equal difference in overall hierarchy between the *set* of more *vs.* less hierarchical organizations (relative to the focal organization), the difference in ratings of hierarchicalness between the most *vs.* second-most (and least *vs.* second-least) hierarchical organizations was not uniform (see also the previous footnote). Nevertheless, if we weight the responses in this way, we obtain similar results (see section 5 of the Supplemental Materials for full details).

conservatism ($r = -.02$, $p = .60$) were significantly associated with the number of accurate

trials.

We next turned to examine our central hypothesis. In zero-order terms, SDO was

negatively correlated with memory bias, $r = -.11$, $p = .01$, whereas social conservatism

was unassociated ($r = .05$, $p = .24$). When we entered SDO and social conservatism as

predictors into a simultaneous regression, we observed that SDO was negatively

associated with hierarchy memory bias ($b = -.45$, $\beta = -.14$, $p = .003$, 95% CI: [-.73, -.18]).

On the other hand, social conservatism was marginally positively associated with

memory bias ($b = .08$, $\beta = .09$, $p = .07$, 95% CI: [-.01, .17]), though this pattern is likely

best interpreted as a suppressor variable effect given that it social conservatism not

associated with hierarchy memory bias in zero-order terms. Thus, our results indicated

that the higher an individuals' level of SDO, the greater their tendency to incorrectly

remember having seen less hierarchical organizations than they actually had seen (and the

less their tendency to misremember having seen more hierarchal organizations).

Importantly, our outcome measure simultaneously took into account trials in

which participants had overestimated hierarchy, had underestimated it, or had been

accurate. Thus, our patterns may have been driven by low SDO individuals

misremembering too much hierarchy, high SDO individuals misremembering too little, or

both. In order to distinguish between these possibilities, we created two additional

outcome measures: the first, labeled *underestimation of hierarchy*, simply indexed the

number of trials in which participants had selected a less hierarchical image than they had

actually seen. The second, labeled *overestimation of hierarchy*, indexed the number of

trials in which participants had selected a *more* hierarchical image than they had actually

seen.

We examined each of these outcomes separately. In zero-order terms, SDO was

significantly associated with underestimation of hierarchy ($r = .11$, $p = .008$) whereas

social conservatism was not ($r = -.06$, $p = .15$). When entered into a simultaneous Poisson

regression, SDO was significantly and positively associated with underestimation of

hierarchy ($b = .19$, Wald $\chi^2 = 11.40$, $p = .001$, 95% CI [.08, .29]). Although not correlated

in zero-order terms, social conservatism was associated with less underestimation ($b = -$

$.04$, Wald $\chi^2 = 4.83$, $p = .03$, 95% CI: [-.07, -.004]), indicating a likely suppressor

variable effect. In sum, the higher individuals were on SDO, the more likely they were to

misremember having seen less hierarchy than they had actually seen. On the other hand,

we observed that SDO was (marginally) negatively correlated with overestimating

hierarchy ($r = -.07$, $p = .09$), whereas social conservatism was unassociated ($r = .02$, $p =$

$.57$). When entered into a simultaneous Poisson regression, SDO was significantly

associated with overestimating hierarchy ($b = -.16$, Wald $\chi^2 = 4.03$, $p = .045$, 95% CI: [-

$.31$, -.004]), whereas social conservatism was unassociated ($b = .02$, Wald $\chi^2 = 0.748$, $p =$

$.39$, 95% CI [-.025, .066]). Thus, the *lower* individuals were on SDO, the more likely

they tended to be to overestimate hierarchy.[17]

In sum, we observed evidence consistent with our theorizing. On average, and

even when we financially incentivized accuracy, participants were prone to errors when

we asked them to remember which of a series of abstract depictions of hierarchical

organizations they had seen in a previous task. Importantly, individuals' overall tendency

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[17] Because SDO was only marginally associated with overestimating hierarchy in zero-order terms, this
relationship should be considered more tentative.

to overestimate *vs*. underestimate the power differences in the organizations they had

seen could be predicted as a function of their orientation towards hierarchy-maintenance.

Specifically, individuals who prefer maintaining hierarchy in society remembered having

seen organizations that were less hierarchical than they really were. On the other hand,

there was a marginal tendency for those who reject hierarchy in society and prefer

egalitarian social arrangements to remember having seen *more* hierarchical organizations

than they actually had. Although it should be noted that these were small effects

(unsurprising, given the nature of the task and the degree of noise involved), the patterns

in the divergence between the memories of individuals higher *vs*. lower in SDO was

consistent across two separate large samples, here combined.[18]

Moreover, and importantly, this study allowed us to objectively assess perceptions

of hierarchy. Although we observed divergence in the perception of power differences as

a function of SDO in our prior studies, because these perceptions were inherently

subjective (i.e., there is no readily-discernible *correct* extent of power difference between

men and women, or Whites and Blacks), it was not possible to determine whether this

divergence was due to low SDO individuals exaggerating hierarchy, high SDO

individuals minimizing it, or both. Using our innovative biased memory methodology,

however, we were able to obtain evidence suggesting that both processes may be playing

a role. Finally, this study provided further evidence suggesting that the relationships we

observe likely do not reflect strategic misreporting of hierarchy, given that SDO was

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[18] We note that using the Stouffer method (Mostteller & Bush, 1954; see also Rosenthal and Rosnow (1991, p. 504)) to meta-analyze the effects from each of the two sub-studies combined here yielded the same conclusions. Specifically, SDO was significantly correlated with the hierarchy memory bias (weighted $z = 2.51$, $p = .01$) and underestimating hierarchy (weighted $z = 2.59$, $p = .009$), and marginally correlated with overestimating hierarchy (weighted $z = 1.71$, $p = .087$).

shown to relate to a measure of one's memory of hierarchy (as opposed to just ratings of it), and with their accuracy again financially incentivized.

General Discussion

Consensus on how to respond to inequality will remain elusive without agreement on how much of it there is in the first place. Yet the research presented here implies that people come to perceive systematically different levels of inequality depending on how desirable they believe it to be. Across eight studies (and four supplementary studies), we found evidence highly consistent with the notion that individuals' motivational orientation towards hierarchy influences their perception of the degree of social inequality: Individuals motivated to maintain hierarchy (i.e., those high in social dominance orientation or other measures of anti-egalitarianism) perceive less inequality, whereas those motivated to attenuate hierarchy perceive more.

This association between equality-motives and hierarchy perception applies broadly: We observed the above pattern among members of both advantaged and disadvantaged groups, across a wide range of contexts (both real-world and fictional), and using a variety of stimuli, methods, and measures of egalitarianism (see Study 3c). Anti-egalitarianism was associated —among both men and women, blacks and whites, and rich and poor— with perceiving less hierarchy between groups in real-world settings (Studies 1a, 1b, and Supplementary Study 1). The relationship between SDO and hierarchy-perceptions was also observed when we asked participants to read about an asymmetric intergroup conflict between novel, fictitious groups (Study 2 and Supplementary Study 2). We obtained strikingly similar results when we depicted power

relations using abstract visual diagrams, whether we examined perception (Studies 3a-4 and Supplementary Studies 3-4) or recognition memory (Study 5).

Beyond increasing our confidence in the robustness of the association between egalitarianism and inequality perceptions, our examination of this relationship across a range of methods and modalities allowed us to arbitrate between several theoretical accounts that could have explained our findings.

One possible explanation for the relationship between SDO and perception of hierarchy is that SDO is also associated with the kind of opportunities one might have to learn about group-based inequality. From this perspective, the results obtained in Studies 1a and 1b may be due to those high and low in SDO encountering different underlying information about hierarchy in the world, for example via self-selection into jobs or neighborhoods where power differences between groups happened to be less *vs*. more visible, respectively. Thus, it is possible that individuals high and low in SDO end up differing in their perception of inequality between racial, gender, and class groups only because their environments differ in the information they provide about group-based disparities (and not because of any biased information processing on individuals' part). Studies 2-5 allowed us to rule out this possibility, as they involved presenting all participants with exactly the same information about hierarchy: though everyone read the same text about an asymmetric intergroup context in Study 2 (and Supplementary Study 2), and saw the same abstract images of hierarchical societies and organizations in Studies 3a-5 (and Supplementary Studies 3-4), the association between SDO and perception of hierarchy persisted. This occurred despite the fact that these studies focused

on novel groups and organizations with which participants could not have had prior context-specific experiences that might have shaped their perceptions.

The second possibility we considered was that any differences in ratings of hierarchy reflected not intuitive perceptual biases, but conscious strategic minimization or maximization of hierarchy, intended to legitimize individuals' favored policy leanings. If participants were simply electing to strategically misreport the levels of hierarchy they were perceiving, then providing a strong countervailing incentive might have been expected to convince them to report their true perceptions. However, randomly incentivizing one group of participants (but not the other) to accurately report their power perceptions in Study 4 (and Supplementary Study 4) had no effect on the relationship between SDO and power perceptions, despite the fact that a pretest found this incentive to increase the desire to respond accurately. Combined with the fact low and high SDO participants (again incentivized to be accurate) in Study 5 incorrectly remembered having seen more or less hierarchal organizations, this suggests that participants may have truly biased perceptions of inequality, seeing what they want to see as a function of their underlying motivation toward *vs*. against hierarchy.

More than differential exposure to underlying information or strategic reporting, then, our results support the possibility that individuals are in fact *processing* information about hierarchy to which they were exposed in a biased manner. This is in line with research on motivated information processing (Balcetis & Dunning, 2013; Chambers et al., 2014, 2015; Crawford et al., 2013; Ditto et al., 2009; Munro & Ditto, 1997; Hennes et al., under review; 2015-b; Kahan, 2012; Kteily et al., 2014; Taber & Lodge, 2006), to which our findings make several contributions.

In assessing perceptions of hierarchy using pictorial depictions of societies and organizations, our work is among the few studies to examine how motives related to complex real-world political constructs (i.e., social hierarchy) are associated with the processing of even highly abstracted (though still motivationally-relevant) stimuli (see also Okimoto & Gromet, in press). Our work thus provides evidence supporting the idea that individuals' political motives may be quite powerful, potentially influencing the processing of even very basic stimuli that lack the richness of stimuli previously considered in this context (e.g., newspaper articles favoring one political view over another, or videos of protest behavior; Crawford et al., 2013; Kahan et al., 2012): Individuals' motives may lead them not only to dismiss the validity of news content that disagrees with their views, but even to rate abstract organizational hierarchies as looking 'flatter' or 'steeper'.

The memory paradigm we introduced in Study 5 also makes important contributions to research on motivated perception, on both the conceptual and empirical levels. First, by showing that our findings extended to the domain of memory, we contribute to the limited existing research on motivated memory biases, adding equality-motives to a short list of social-psychological motivations known to influence the information individuals remember (see also Hennes et al, under review; Story, 1988; Sanitioso, Kunda, & Fong, 1990). Second, the empirical paradigm itself has advantages that may be of use to other researchers. By asking participants to correctly recall which of a series of organizations (that systematically varied in their hierarchy) they had previously seen, we were able to create an objective metric against which to assess

accuracy, providing clarity about whether our effects were driven by individuals high (*vs*. low) in our independent variable (or both).

Finally, our work extends research suggesting that motivated perceptions can have important implications (Riccio, Cole, & Balcetis, 2013). Indeed, across several studies in real-world and fictional contexts, we consistently found that perceptions of power differences mediated the effects of SDO on support for social policy. Our findings are consistent with the idea that individuals whose low (high) SDO leads them to actually see more (less) hierarchy subsequently feel a greater (lesser) need to enact policies intended to equalize group-based differences. Whereas there is a good deal of research suggesting that individuals' motivations can lead them to perceive the world differently, there is less research documenting downstream implications of these perceptions (see also Okimoto & Gromet, in press).

Beyond its contributions to research on motivated cognition, our work also has several implications for theorizing in intergroup relations, and social dominance theory in particular. One interesting observation was the fact that levels of SDO predicted perceptions of inequality between each of racial, gender, and class groups (which were highly inter-correlated and formed a unidimensional scale). Whereas prior work on motivated biases in perceptions of hierarchy focused on one specific context, such as race (e.g., Kahn, Ho, Sidanius, & Pratto, 2009) or class (e.g., Chambers et al., 2014, 2015; Kraus & Tan, 2015), we reasoned that, as an orientation towards hierarchy broadly considered, SDO would predict biased perceptions in a wide range of hierarchy-relevant contexts. Thus, our findings are consistent with the conceptualization of SDO as a *general* orientation towards hierarchy (Ho et al., 2015; Kteily et al., 2012; Sibley & Liu,

2010), rather than simply reflecting feelings about (or membership within) any particular group categorization (Schmitt, Branscombe, & Kappen, 2003; see also Kteily, Sidanius, & Levin, 2011).

Our finding that the link between SDO and perceptions of hierarchy tended not to differ as a function of membership in advantaged (e.g., Whites, men, high SES individuals) *vs*. disadvantaged (e.g., Blacks, women, low SES individuals) groups is also theoretically noteworthy.[19] First, it supports theoretical perspectives arguing that individuals' views about the social system are shaped not only by the social standing of the groups to which they belong (Tajfel & Turner, 1979), but also by their ideological motives (Sidanius & Pratto, 1999; Jost et al., 2004). Thus, high SDO subordinate group members under-perceive hierarchy despite the fact that it is not in their group interest to do so, consistent with the argument in system justification theory that disadvantaged group members are sometimes motivated to defend the societal status quo that disadvantages them (Jost, Banaji, & Nosek 2004; see also Sidanius & Pratto, 1999, for a discussion of 'behavioral asymmetry', which describes how members of low status groups sometimes hold beliefs or behave in ways that harm the ingroup). Second, this finding is also consistent with the view that SDO reflects generalized support for hierarchy rather than simply reflecting desire for the dominance of the ingroup (i.e., Ho et al., 2015; Pratto & Stewart, 2012).

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[19] Although we focused on examining the moderating effect of ethnicity, class, and gender in Studies 1a, 1b and Supplementary Study 1, where we expected them to be most relevant (because of these studies' emphasis on hierarchy perceptions within these three contexts), we also examined the potential moderating effect of these variables in the remaining studies (see section 4 of the Supplemental Materials for full details). Consistent with the conclusions in Studies 1a, 1b, and Supplementary Study 1, we observed little evidence of reliable moderation in these studies (across the 30 tests we conducted, only 4 were significant).

Furthermore, the finding that perceptions of hierarchy mediate effects of SDO on policy support importantly extends social dominance theory's concept of hierarchy-enhancing and attenuating beliefs (Sidanius & Pratto, 1999), to encompass not only ideologies but also *perceptual biases*. Previous work suggests that high and low SDO individuals reject or support egalitarian social policies in part because they endorse hierarchy-enhancing (e.g., Protestant worth ethic; racism) or attenuating (e.g., socialism; noblesse oblige) ideologies, which rationalize or problematize existing levels of hierarchy. The present work suggests another reason: high and low SDO individuals may also come to display biased perceptions of the *degree* of hierarchy, which subsequently reinforce their convictions about the types of social policies they tend to favor. The notion of hierarchy-enhancing and attenuating perceptual biases is consistent with recent evidence that individuals' SDO motives influence their perception of racially ambiguous targets in ways that help maintain or attenuate hierarchy (see Ho et al., 2013; Kteily et al., 2014; McClanahan, Kteily, & Ho, under review).

Such perceptual biases could be particularly resistant to persuasion, entrenching polarization and increasing frustration in political debates: whereas it may be possible (if challenging) to present compelling logical arguments that lead individuals to reconsider their support for a particular policy position, it may be more difficult for two individuals who perceive the same reality differently to establish common ground. This is likely to be especially difficult if individuals are unaware that their perception is biased. It is noteworthy in this regard that participants continued to perceive hierarchy differently even when we experimentally induced a desire for accuracy in Study 4. This is consistent with research on the involuntary nature of cognitive biases, which regularly occur outside

conscious awareness and may thus be insensitive to financial incentives (Kahneman, 2003; see also Camerer & Hogarth, 1999).[20]

Finally, because the memory paradigm we developed allowed us to investigate whether the correlation between SDO and hierarchy perception was a sign of distorted perception of those high vs. low in SDO, we were able to contribute to the debate on whether motivated cognition is a feature of those with right-wing attitudes, left-wing attitudes, or both (see also Bakshy et al., 2015; Barberá et al., 2015; Chambers et al., 2014, 2015; Kahan et al., 2012). We found qualified support for the bidirectional perspective: there was a significant relationship showing that those higher in SDO remembered less hierarchy than objectively experienced, whereas we observed a marginally significant relationship such that those lower in SDO remembered more.[21] Given the relationship between SDO and economic conservatism (Jost et al., 2009), our results suggest that any attempts to addressed biased perception of inequality in society will likely need to target those at both ends of the ideological spectrum.

Limitations and Future Directions

Notwithstanding the contributions made by the present research, several questions are worth considering further. For one, it should be acknowledged that a majority of our studies (though not all; see Study 1a and Supplementary Study 1) employed samples recruited from Amazon's mTurk platform. Although mTurk is known to be a reliable and

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[20] Interestingly, this work suggests that one method which can sometimes be effective in attenuating unconscious cognitive and perceptual biases is to make individuals aware of how they work (Kahneman, 2003). However, the biases this research refers to (e.g., the accessibility heuristic; ignorance of base-rates) tend not to have the ideological aspects of the bias we consider here. Thus, it remains to be seen whether informing individuals of the association between their political motives and their hierarchy perception would be effective in reducing biased perception.

[21] We examined this question among a relatively large sample ($n = 577$). Nevertheless, because the effects in our memory paradigm were relatively small, these conclusions should be considered tentative until future work has replicated the effects with still larger samples.

high-quality platform for recruiting relatively diverse participant samples (Buhrmester, Kwang, & Gosling, 2011), participants on this platform are known to be relatively experienced study-takers (Rand et al., 2014) and to differ in certain respects from the general population (e.g., exhibiting greater anxiety; Arditte, Çek, Shaw, & Timpano, in press). Thus, it would be worthwhile for future work to examine the patterns we observe in other populations.

From a theoretical perspective, future work would benefit from more directly isolating the role of motivation in the perceptual bias we identify. Consistent with a large body of work on motivated cognition and perception examining the influence of chronic motivations (e.g., Chambers et al., 2014, 2015; Cole, Balcetis & Dunning, 2013; Crawford et al., 2013; Dijksterhuis, Van Knippenberg, Kruglanski, & Schaper, 1996; Epley & Whitchurch, 2008; Gollwitzer, Kappes, & Oettingen, 2011; Isaacowitz, Wadlinger, Goren, & Wilson, 2006; Makhanova, Miller, & Maner, 2015), we measured individual differences in equality motives. Our studies also ruled out two alternative explanations for the relationship we observed that do not rely on motivated perceptual biases: encountering different underlying information about hierarchy, and strategically misreporting perceptions. Nevertheless, because we do not directly manipulate motivation in our studies, we cannot definitively rule out all alternative explanations (although we are not aware of alternative non-motivational explanations that could readily account for the patterns we observe).

Beyond manipulating individuals' preference for equality between groups, future work could provide further support for our motivated account by examining the SDO-equality perception link cross-culturally. We reasoned that egalitarian social norms in the

U.S. (Kahn et al., 2009; Katz & Hass, 1988) create social pressures for attenuating hierarchy when it is extensive, generating an incentive among high SDO individuals to under-perceive hierarchy (i.e., making them want to see the 'flatness' that justifies avoiding egalitarian change) and low SDO individuals to over-perceive it (i.e., making them want to see the 'steepness' that justifies corrective action). If this reasoning is correct, one way to isolate the role of motivation would be to compare our effects in the U.S. with those in other cultural contexts without such norms. In contexts where hierarchy is perceived as natural or even desirable (e.g., India, China; Hofstede, Hofstede, & Minkov, 1997), high levels of inequality might not generate pressure for egalitarian policy. In such settings, our theorizing would predict a reduced incentive among high SDO individuals to under-perceive hierarchy and among low SDO individuals to over-perceive it. Such evidence would provide strong support for our motivated account.

Although we did not have such cross-cultural evidence in the present work, we did conduct supplementary analyses that bolster our motivated account. We reasoned that if individuals' biased perception is stemming from their motivation to over-perceive (low SDO) and under-perceive (high SDO) hierarchy in response to social pressures, we should observe a fairly specific pattern of bias. Specifically, high SDO individuals' motive to under-perceive hierarchy should be stronger the greater hierarchy is (and thus, the stronger social pressure to reduce it might be). Conversely, low SDO individuals should show a stronger motivation to over-perceive hierarchy the *less* hierarchy there is (and thus, the more likely others in society will deem it unproblematic and ignore it). Following this logic, one would expect the perceptions of low and high SDO individuals to deviate systematically from those with more moderate levels, with high SDO

individuals' perceptions diverging more from those of the average person the more

hierarchical society becomes, and low SDO individuals showing the opposite pattern (see

Figure 4). We examined this possibility with the data from Studies 3b and 4, in which we

had a large group of participants rate the hierarchy of five organizations that varied in

their degree of hierarchy. We find that the pattern of divergence in the ratings among low

and high (*vs*. average) SDO individuals tracks the theoretical pattern our reasoning would

predict (see section 6 of the Supplemental Materials for full details).

One important job for future research is to further specify the mechanisms by

which individuals' motivations result in their biased perception of hierarchy. For

example, future work could explore exactly how individuals' equality motives influenced

their perceptions of the organizations depicted in Studies 3b-5. One possibility is that

individuals directed their attention to different parts of the image. Thus, high SDO

individuals might have focused on the large number of individuals at the bottom of the

organizational pyramid, interpreting them as a formidable potential threat to those at the

top; low SDO individuals might instead have focused their attention on the large number

of layers that those at the bottom would need to traverse to get to the top (see Riccio et

al., 2013, for a discussion of directed attention). It would be interesting to examine this

question using eye-tracking technology, to see whether individuals do indeed fixate on

different parts of the image in ways that might contribute to the perceptual impression

they form (see Balcetis & Dunning, 2006 for a similar approach).

Processing information from different vantage points might similarly have

contributed to the findings in Study 2 (and Supplemental Study 2), even if visual

perception was not involved. For example, in reading about the dispute between the

(advantaged) Group A and (disadvantaged) Group B in Study 2, high SDO individuals might have anchored on the challenges involved in maintaining power in the face of resistance (leading them to see less of an advantage for Group A), whereas low SDO individuals might have anchored on the relative deprivation facing the members of Group B, who were said to have lost access to the majority of resources in 'Raga' (making them see Group B as more disadvantaged). Future studies that assess (or manipulate) the interpretive frames that individuals apply in processing information about hierarchy could shed light on this possibility (see also Eibach & Ehrlinger, 2006). Lastly, it would be interesting to employ longitudinal methods to examine whether, over time, the news articles or television programs that individuals high *vs*. low in SDO choose to engage with contribute to differences in their perceptions of group-based disparities in the real-world contexts we examined in Studies 1a and 1b (and Supplementary Study 1).

Future work could also more extensively test the causal order of the variables in our model. Our theorizing proposes that individuals' social dominance motives influence their perceptions of hierarchy between groups, rather than the reverse. This is consistent with the widespread view of SDO as a stable individual difference variable that predicts downstream attitudes and behavior and that, once formed, is relatively (though not completely) impervious to change (e.g., Duckitt, 2001; Kteily et al., 2011; see Dhont, Van Hiel, & Hewstone, 2014). In Study 1b, we conducted a longitudinal study examining whether levels of SDO predicted perceptions of hierarchy between real-world groups 4-6 weeks later, controlling for original levels of perceived hierarchy. In line with our perspective, the results of this study provided evidence for an effect of SDO on hierarchy perceptions over time; on the other hand, perceptions of hierarchy did not have a

longitudinal effect on SDO. At the same time, because this study examined a short period of time, its results are best interpreted as suggestive rather than definitive. Future work should employ longitudinal designs over a longer time course, and could further consider examining the cross-lagged relationship between SDO and perceptions of hierarchy during 'impressionable years', or periods of time (e.g., adolescence; early adulthood) in which individuals' sociopolitical beliefs are thought to be more malleable (Alwin et al., 1991). Relatedly, future research could examine the effects on hierarchy perceptions of experimentally manipulating levels of SDO (see Guimond, Dambrun, Michinov & Duarte, 2003).

Finally, it would be good for future work to simultaneously examine the roles of perceptual biases and legitimizing ideologies in influencing policy attitudes. We argue here that, in addition to adopting ideologies that legitimize their stance on whether existing levels of hierarchy are problematic, individuals may perceive the degree of hierarchy itself in ways that justify their policy stances. Future studies could examine how each of perceiving hierarchy and explaining it are inter-related, and whether each uniquely mediates the effects of SDO on egalitarian policy support.

Conclusion

Across a range of studies, we provide evidence consistent with the idea that individuals' support *vs*. opposition to hierarchy biases the basic ways in which they perceive the extent of inequality between social groups. By potentially changing the very way in which we perceive hierarchy-relevant information, individual differences in our orientation toward group-based hierarchy may even come to influence attitudes toward

egalitarian social policies, thus contributing to the intensity and intractability of debates about how to structure our societies.

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Table 1a. Regression coefficients predicting support for overall power differences and social policies in Study 1a.

	Overall Power Differences	Social Welfare Support	Anti-Discriminatory Policy Support	Legacy Admissions	New Hierarchy	Affirmative Action Support	Overall Egalitarian Policy Support
SDO (logged)	-.36***	-.45***	-.50***	.20***	.20***	-.03	-.47***
Social Conservatism	-.10**	-.19***	-.11**	.03	-.01	-.11*	-.11***
Social Class	-.01	-.04	-.07*	.09*	.04	-.00	-.09**
Race	-.15***	-.07*	-.01	.16***	.05	.27***	-.10***
Sex	-.08*	-.03	-.03	-.00	.10*	-.08*	-.05
Overall Power Differences	--	.20***	.24***	-.17***	-.20***	-.03	.28***
Indirect effect (SDO → Power Differences → Policy)	--	-.19 [-.29, -.12]	-.23 [-.31, -.15]	.18 [.09, .29]	.19 [.09, .31]	.02 [-.05, .11]	-.20 [-.27, -.14]

Note. With the exception of the indirect effects, all coefficients reflect standardized beta coefficients. *** $p < .001$ ** $p < .01$ * $p < .05$
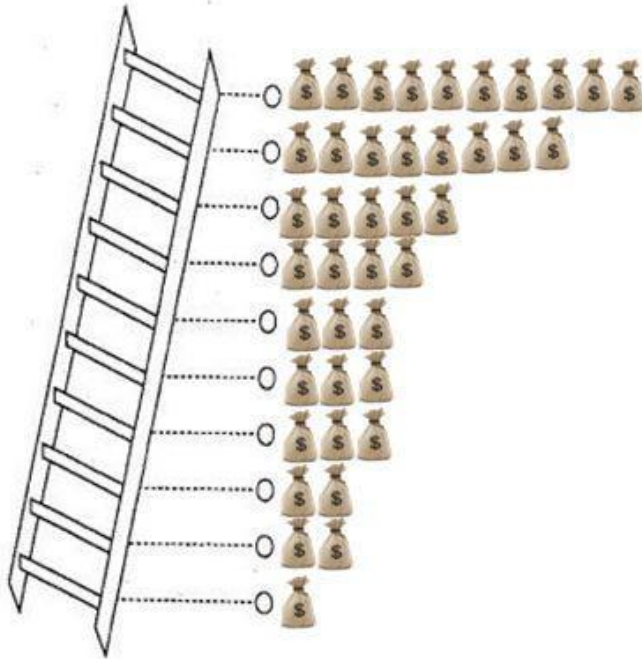Sex was coded 0= female, 1=male; Race was coded 0=White; 1= Black.

Figure 1. Example of an image of a fictitious society used in Study 3a.

The image shown is the median image in terms of degree of hierarchy/inequality.
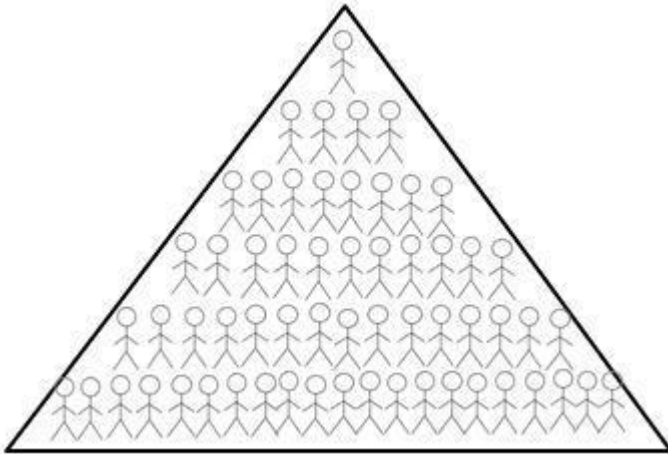
Figure 2. Example of an image of a fictitious organization used in Study 3b.

The image shown is the median image in terms of degree of hierarchy/inequality.

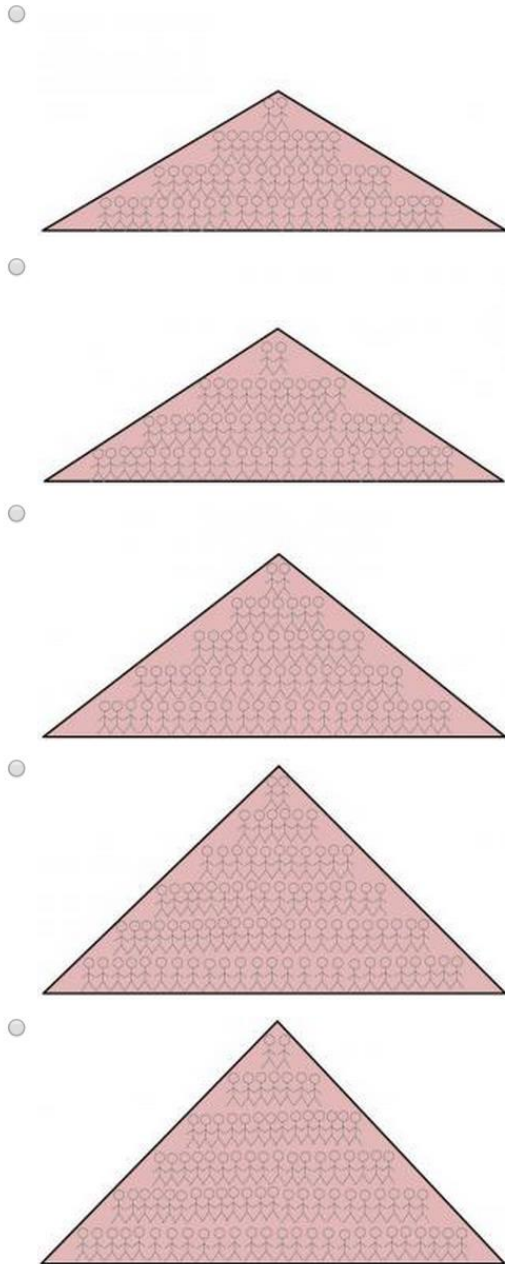Which of the following did you see earlier in the Images Task?

Figure 3. An example of one of the four image sets in Study 5. The middle image here is the focal image (i.e., the actual image participants saw earlier in the study), with the top two images reflecting less hierarchical and the bottom two images more hierarchical versions. For each array, participants were presented with these images in randomized order.
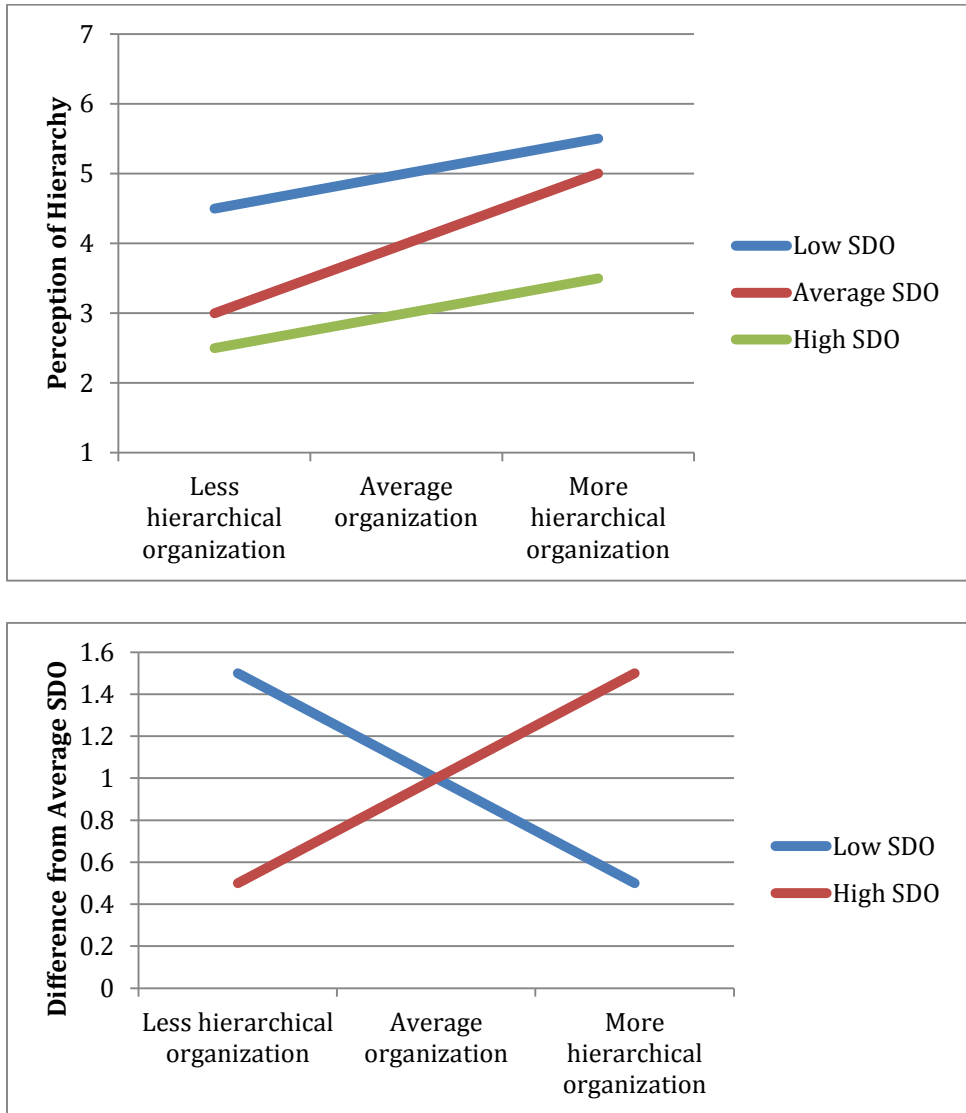
Figure 4. Stylized example of the theoretical pattern of motivated biases in perception of hierarchy. The upper panel indicates predicted ratings of perceived hierarchy as a function of individuals' SDO and the degree of hierarchy of the organization being rated. The lower panel plots this same information from the perspective of low and high SDO individuals' deviations (in absolute value) from the theoretical ratings of those moderate in SDO.

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