Distinctive Negative Reactions to Intermediate Social Groups

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Abstract

Although considerable research has examined how members of advantaged groups think and feel about disadvantaged groups, fewer studies have examined responses to “intermediate” social groups—groups that are perceived to fall between more commonly acknowledged groups on the same dimension of social identity. We measured judgments of intermediate groups, including novel groups designed to manipulate social group intermediacy (Studies 1-5), Black/White biracial people (Study 6), and bisexual people (Study 7). In each study, participants provided separate evaluations of an intermediate group and two comparison groups (e.g., Black/White biracial people, Black people, White people). Intermediate groups were consistently rated as less conceptually legitimate (e.g., less distinctive, not a “real” group) than other groups. The view that intermediate groups are not “real” groups helped explain negative evaluations of them, and participants who strongly identified with an advantaged ingroup were especially prone to this pattern of judgments. These results are consistent with the idea that an intermediate group can threaten the distinctiveness of a valued ingroup, leading people to dismiss and denigrate the intermediate group. Studying perceptions of intermediate groups facilitates a nuanced account of an increasingly heterogeneous social world.

Keywords: entitativity, identity stability, intermediate groups, prejudice

Distinctive Negative Reactions to Intermediate Social Groups

Biracial people are increasing in number in the United States, and bisexual people are becoming more visible (Copen et al., 2016; Pew Research Center, 2015a). Although race and sexual orientation are markedly different types of social identities, biracial people and bisexual people share a key attribute—each is perceived as sharing defining characteristics with two other social groups. Historically, psychologists have examined how members of traditionally advantaged groups think and feel about traditionally disadvantaged groups, but there is much to be learned by studying perceptions of groups perceived to fall between more commonly acknowledged groups on the same dimension of social identity (Freeman et al., 2016; Gaither et al., 2019; Rust, 2000; Sanchez et al., 2015). Studying “intermediate” groups has the potential to illuminate psychological processes related to categorization in a complex social environment.¹

The present studies begin by manipulating the intermediate status of novel groups to test the possibility that respondents draw conclusions about the legitimacy and valence of intermediate groups *because they are intermediate*, separate from specific beliefs about dimensions of social identity such as race or sexual orientation. Isolating the concept of social group intermediacy using hypothetical groups divorced from prior beliefs and attitudes could identify promising common threads in judgments of intermediate social categories generally.

Specifically, some perceivers may view intermediate social categories as conceptually illegitimate, interpreting such categories as unnecessary or invalid components of a system of

¹ In this paper, we use the phrase “intermediate social group” to refer to a group that is perceived to share defining facets of its identity with more commonly acknowledged groups on the same dimension of social identity. The examples of bisexual people and Black/White biracial people are paramount because they are included in Studies 6 and 7. We draw an analogy between these groups, but this analogy is necessarily incomplete. Moreover, we focus on commonly acknowledged advantaged (White, heterosexual) and disadvantaged (Black, gay/lesbian) groups, but our interest lies in judgments of identities perceived as intermediate (biracial, bisexual), not groups that possess intermediate levels of institutional power, wealth, or the like. Thus, our use of the term “intermediate” should not be confused with Caricati’s (2018) “intermediate-status groups”; indeed, intermediate identity groups do not necessarily have higher status than the disadvantaged endpoint groups that they are typically compared to.

social categorization (Pew Research Center, 2015a; Rust, 2000; Skinner et al., 2020). In other words, intermediate groups may feel less like “real” groups to some. If one believes that a group label is a meaningful descriptor, then one may develop the intuitive sense that the group is socially “real.” If, instead, one believes that a group label is arbitrary, that it does not convey valuable information, or that it does not distinguish one social group from another, then the group may feel less “real” in this sense.

The goal of the present research is to test the possibility that intermediate groups can feel less “real” than other kinds of groups, even with very little contextual information. We will capture straightforward self-reports related to this idea, regardless of whether it maps directly onto terminology in common use in social psychology. The perceived “realness,” distinctiveness, or conceptual legitimacy of a group may be seen by some as a form of entitativity. Perceived entitativity has been defined as “the degree to which a collection of persons are perceived as being bonded together in a coherent unit” (Lickel et al., 2000, p. 224), comprising elements of shared goals and outcomes, unity and cohesion, internal organization, interactions among group members, and interdependence (Hamilton et al., 2009; Newheiser et al., 2009). To perceive a group as entitative under this definition, perceivers must make inferences about the attributes of individual group members and their relationships with one another, beyond considerations of whether the group label is legitimate. It is possible that intermediate groups may be perceived as low in conceptual legitimacy *and* unity, shared goals, etc., and that these sorts of judgments may overlap (Hamilton 2007; Lickel et al., 2000). Our theoretical point does not depend on drawing a hard distinction between them. Indeed, we hope to avoid making a claim about whether the sense that a group is conceptually legitimate is a form of entitativity or something else entirely, because the present report is long enough as it is. We contend only that the perception that

intermediate groups are conceptually illegitimate or “feel unreal” is an important feature of social judgments of such groups.

In the first few studies, we focus on “big picture” questions about hypothetical groups, casting a fairly wide net in our self-report items related to the sense of conceptual legitimacy. We refer to “legitimacy/realness” (with a slash) to emphasize that we are not making a narrow claim about what we are measuring in Studies 1 through 5, and to discourage viewing these studies as an attempt to pin down a specific form of conceptual legitimacy.² Later in this report (Studies 6 and 7), we address the role of the different sorts of items typically included on entitativity questionnaires, while continuing to remain agnostic about the “best” theoretical definition of perceived entitativity.³

Self-categorization theory and social identity theory predict that a group is more likely to feel meaningful if it can be readily distinguished from a well-recognized “opposite” group (Tajfel & Turner, 1979; Turner et al., 1994; Turner et al., 1987). Intermediate groups, by definition, lack an obvious opposite group, so they may be viewed by outsiders as less “real,” legitimate, or entitative than the opposing endpoint groups that situate them as intermediate. Framing an intermediate group as socially unreal may also be a way to maintain a simplistic, binary conceptualization of a dimension of social identity (see Burke & LaFrance, 2016; Gaither et al., 2014).

We expected that perceiving an intermediate group as illegitimate (not “real”) would be associated with negative evaluation, for several reasons. For example, viewing an intermediate

² The slash should be interpreted as an indication of our view that our procedure captures something in the general domain of legitimacy and/or realness, not as an indication that we treat the terms “legitimacy” and “realness” as interchangeable. Indeed, if we saw them as interchangeable, we would use only one of them.

³ We encourage readers who are interested in drawing finer distinctions among ideas related to conceptual legitimacy to have patience until Studies 6 and 7, wherein we distinguish related items on empirical grounds. Beginning with the results of Study 6, we use specific names for collections of items and drop the intentionally vague term “legitimacy/realness.”

group as illegitimate implies a binary categorization scheme that omits or downplays the intermediate group as a possible category. People who view intermediate groups as illegitimate or “unreal” might therefore experience members of those groups as difficult to categorize, which can be aversive and lead to negative evaluation (Halberstadt & Winkielman, 2014). There are several other possible reasons to expect the subjective sense of legitimacy and evaluation to be related (e.g., people may view intermediate group members as less authentic and sincere about their identities; Mohr & Rochlen, 1999). Whatever the reason, negative evaluation of hypothetical intermediate groups would be consistent with some previous findings pertaining to biracial and bisexual people (Mohr & Rochlen, 1999; Sanchez & Bonam, 2009).

Therefore, our primary predictions were that novel intermediate groups would be perceived as less conceptually “real”/legitimate than endpoint groups, and that this lack of legitimacy would help explain negative evaluations of intermediate groups.

We tested these predictions in seven experiments. Studies 1 through 5 presented sets of novel groups and compared participants’ reactions to intermediate and endpoint groups. Study 6 shifted the investigation to real-world groups, examining the perceived legitimacy and evaluation of biracial (Black/White) targets in comparison to White, Black, and Native American targets, and addressed the moderating role of ingroup identification. Study 7 repeated Study 6 but with sexual orientation instead of race. Taken together, these studies demonstrated the central role of conceptual legitimacy/“realness” in attitudes toward several types of intermediate social groups.

Study 1

Distinguishing reactions to intermediate groups from reactions to endpoint groups may depend on understanding how “real” these groups feel in the minds of the perceivers. We tested this idea by asking participants to imagine a world inhabited by beings with big spots, small

spots, or big and small spots. These three hypothetical groups were evaluated similarly when presented in isolation, but when all three were presented together, the group with big and small spots would be intermediate—it would be defined by shared characteristics with both other groups. If, in this context, participants were to respond differently to the intermediate group than to the other two groups, such a result would provide evidence for a pattern of thinking about social group intermediacy itself. There would remain an alternative possibility, however—that participants respond in a special way to the “odd one out” from a set of three items. Therefore, we included a control condition where the odd group out had spots of a different color rather than a combination of big and small spots.

We asked participants to explicitly report the extent to which they viewed the hypothetical groups as legitimate, distinctive, real-feeling groups, and we predicted that such ratings would be lower for the intermediate group (targets with big and small spots) than for the endpoint groups (targets with big spots and targets with small spots) in the experimental condition (the condition with an intermediate group). We anticipated no such difference for the odd group out in the control condition. Similarly, we predicted that the intermediate group would be evaluated more negatively than the endpoint groups in the experimental condition, but that no such difference would emerge in the control condition.

We designed the hypothetical alien creatures to create a conceptual analogue for social group intermediacy, not to imitate the objective qualities of any existing social groups. However, we did manipulate some of the characteristics of the fictional groups in order to reflect some socially relevant attributes on which real-world groups vary. Specifically, in this first study, we manipulated whether the distinguishing characteristics (the spots) were the result of a choice or a

biological trait. We had no specific predictions for the manipulation of choice versus biology, as it was a test of the generality of the effect of intermediacy.

Method

Participants. All participants in all studies in this paper were at least 18 years old and lived in the United States. Participants in the current study ($n=219$) were recruited in 2014 via Amazon Mechanical Turk (MTurk), a service that permits users to complete brief online tasks for payment. The mean age was 35.27 ($SD=12.50$). Participants included 116 women, 101 men, and 2 people with nonbinary gender identities. Most were White ($n=160$); 20 were Asian, 31 indicated another racial/ethnic category, and 8 declined to specify their race/ethnicity.

Those who opted to skip at least one of our measures of interest were excluded from the sample ($n=2$). Furthermore, a question at the end of the study asked participants, “Were any of your answers in this survey intended as jokes?” Those who answered “yes” or declined to respond were excluded from the sample ($n=1$). These two *a priori* exclusion criteria were applied to all of the subsequent studies in the same way. All reported sample sizes and descriptions, including those in the preceding paragraph, were computed after exclusions.⁴

Procedure. The first five studies employed similar procedures, so we provide the most detailed account here. These studies also contained extra procedural elements designed to inform research directions not included in the present report. We describe the complete procedures in Section A of the Supplementary Document.

⁴ In general, we attempted to recruit at least 50 participants per condition, considering that the within-subjects comparison between the target groups was of primary interest, but we also wanted to be able to detect large differences between conditions (e.g., 100 participants provides approximately 95% power to detect $d = .75$ with $\alpha = .05$ in a t -test). We kept this general goal in mind while also considering the limitations of the recruiting platforms and of our funds in order to arrive at a heuristic compromise for the initial recruitment number. We made this determination in advance for each study (there was no optional stopping). We then applied the stated exclusion criteria to determine the reported sample size. Those who skipped key measures (for studies 2 through 7 in order, $n=1$, $n=12$, $n=10$, $n=1$, $n=4$, $n=2$) or failed to affirm that their responses were not jokes ($n=2$, $n=2$, $n=4$, $n=3$, $n=2$, $n=4$) were excluded. We did not continue data collection after analysis.

First, all participants read a brief introduction to the scenario designed to engage them in the task. This introduction instructed them to imagine traveling through space to visit and learn about a “planet unlike any you have ever seen before” that is “populated by a society of intelligent beings.” Then, on a separate page, participants in the experimental condition read, “In this society, there are three types of beings: Xs, Ys, and Zs. Xs have small spots. Zs have big spots. Ys have some big spots and some small spots.” These verbal descriptions were accompanied by drawings of creatures featuring correspondingly-sized black spots on their bodies, labeled X (presented on the left), Y (presented in the middle), and Z (presented on the right). We pretested these drawings to establish that participants gave them equally favorable evaluations and equivalent ratings of legitimacy/realness when each participant saw only one drawing in isolation.⁵ Participants assigned to the control condition were exposed to the same information about Xs and Zs, but they were told that “Ys have white spots,” and the drawing labeled “Y” featured (medium-sized) white spots instead of small or large black spots.

After the descriptions of the three groups, on the same page, participants read one additional piece of information reflecting the manipulation of choice versus biological origin, either “All of these beings chose their spots” or “All of these beings were born with their spots due to a biological characteristic.”

Participants subsequently completed the measure of legitimacy/realness followed by the measure of evaluation. Each of these measures consisted of a set of questions that was asked

⁵ We conducted a pilot study in 2014 with 142 MTurk participants to verify that the drawings did not differ in aesthetic appeal or other relevant attributes. Each participant was randomly assigned to evaluate one group instead of three, so no group was presented as intermediate. The drawings tested in this way included the one with small spots, the one with big spots, the one with some big spots and some small spots (used in Study 1), and the one with medium-sized spots (used in Study 2). In isolation, these drawings did not significantly differ in their perceived legitimacy/realness (big: $M=4.79$, $SD=0.62$; big and small: $M=4.98$, $SD=0.81$; medium: $M=4.90$, $SD=0.73$; small: $M=5.13$, $SD=0.93$), $F(3, 138)=1.13$, $p=.34$, $\eta^2_p=.02$, or evaluation/liking (big: $M=66.23$, $SD=12.28$; big and small: $M=68.14$, $SD=15.25$; medium: $M=70.88$, $SD=13.52$; small: $M=71.08$, $SD=16.54$), $F(3, 138)=0.91$, $p=.44$, $\eta^2_p=.02$.

three times in a row, once per imagined group (Xs, Ys, and Zs), in a random order. For reference, the drawings of Xs, Ys, and Zs were always visible.

Legitimacy/realness. We wished to capture the degree to which each group was perceived as conceptually valid or felt like a “real” group. Because such perceptions are related to entitativity and essentialism, we drew on measures of these constructs to build a pool of items permitting participants to straightforwardly report these beliefs in a way that would be appropriate for the novel group scenario (Hamilton, 2007; Haslam et al., 2000, 2002; Newheiser et al., 2009; Lickel et al., 2000).

We measured this form of legitimacy/realness using eight items. Using “Zs” as a placeholder for Xs, Ys, and Zs, the items were as follows: “Zs are a completely distinct group in this society,” “It is sometimes uncertain whether any given being is a Z” (reverse-scored), “Zs feel unified as a group,” “Zs interact with other Zs very frequently,” “Zs share common goals with other Zs,” “Zs are sometimes confused with other groups in this society” (reverse-scored), “Most Zs are very similar to other Zs,” and “Zs are distinct from other groups in this society.” Each item had a 7-point response scale ranging from “Strongly disagree” to “Strongly agree,” and we averaged the separate item responses for Xs, Ys, and Zs to obtain a legitimacy/realness score for each target group ($\alpha=.83$ overall; $\alpha>.79$ for each target group individually).

Evaluation. To capture evaluation of the target groups, we asked participants “In general, how do you feel about [each group]?” and “In general, how do you think other beings in this society feel about [each group]?” Each of these questions was followed by two sliding response scales ranging from 0 to 100 marked “Very negative” to “Very positive” and “Very unfavorable” to “Very favorable,” for a total of four items per target group. We averaged these items to obtain

an evaluation score for each target group ($\alpha=.90$ overall; $\alpha>.89$ for each target group individually).

Results

The information about the origin of the spots (choice versus biology) did not have any significant effect on attributions of legitimacy/realness or evaluations, either as a main effect or an interaction with our other variables of interest, $F<2.13$, $p>.14$, $\eta^2_p<.010$. We omitted it from the rest of the analysis.

We predicted that the intermediate group with big and small spots would be perceived as less of a real, legitimate group than the endpoint groups, in contrast to the control condition's alternative "odd group out" with white spots. To test this hypothesis, we conducted a mixed-model ANOVA predicting the legitimacy/realness score on the basis of target group (within subjects: Xs/Ys/Zs) and condition (between subjects: intermediate/control).

As predicted, the interaction between target group and condition was statistically significant, $F(2, 434)=20.90$, $p<.001$, $\eta^2_p=.088$. The means, standard deviations, and pairwise comparison statistics can be found in Table 1. In the experimental condition, the intermediate group was rated as significantly less legitimate/real than the endpoint groups, whereas in the control condition, the odd group out (white-spotted group) was rated as significantly more legitimate/real than the same endpoint groups.

Similarly, in a mixed-model ANOVA predicting evaluation, the interaction between target group and condition was statistically significant, $F(2, 434)=4.48$, $p=.012$, $\eta^2_p=.020$ (see Table 1). In the experimental condition, the intermediate group was rated significantly more negatively than the endpoint groups. In the control condition, the white-spotted group was not evaluated significantly differently from the other groups.

Table 1*Legitimacy/realness, identity stability, and evaluation by target group for Studies 1 through 5*

Variable and study	Condition	Small-spotted		Intermediate (or control)		Big-spotted		Small vs. intermediate	Big vs. intermediate	Small vs. big
		Mean	SD	Mean	SD	Mean	SD			
Study 1: Legitimacy/realness	Intermediate group	5.31	0.80	5.10	0.98	5.33	0.86	$t(111)=3.28, p=.001, d=0.31$	$t(111)=3.37, p=.001, d=0.32$	$t(111)=0.45, p=.65, d=0.04$
	Control (no intermediate group)	5.03	0.94	5.33	0.88	5.13	0.93	$t(106)=3.93, p<.001, d=0.38$	$t(106)=3.03, p=.003, d=0.29$	$t(106)=3.15, p=.002, d=0.31$
Study 1: Evaluation	Intermediate group	78.76	14.19	76.21	17.40	78.70	14.97	$t(111)=2.16, p=.033, d=0.20$	$t(111)=2.10, p=.038, d=0.20$	$t(111)=0.09, p=.93, d=0.01$
	Control (no intermediate group)	71.30	17.75	72.05	17.50	71.14	17.08	$t(106)=0.99, p=0.32, d=0.10$	$t(106)=1.44, p=.15, d=0.14$	$t(106)=0.22, p=.83, d=0.02$
Study 2: Legitimacy/realness	Big and small spots	5.34	0.96	4.91	1.04	5.34	0.95	$t(153)=6.61, p<.001, d=0.53$	$t(153)=6.86, p<.001, d=0.55$	$t(153)=0.00, p=1.00, d=0.00$
	Medium-sized spots	5.32	0.91	5.18	1.02	5.34	0.97	$t(150)=2.76, p=.007, d=0.23$	$t(150)=2.87, p=.005, d=0.23$	$t(150)=0.44, p=0.66, d=0.04$
Study 2: Evaluation	Big and small spots	73.51	16.09	72.54	15.72	73.69	16.03	$t(153)=1.25, p=.21, d=0.10$	$t(153)=1.51, p=.13, d=0.12$	$t(153)=0.22, p=.83, d=0.02$
	Medium-sized spots	73.93	17.18	73.15	17.47	73.50	17.24	$t(150)=0.80, p=.42, d=0.07$	$t(150)=0.35, p=.73, d=0.03$	$t(150)=0.50, p=.62, d=0.04$
Study 3: Legitimacy/realness		5.16	1.01	4.47	1.11	5.13	1.02	$t(88)=5.71, p<.001, d=0.61$	$t(88)=5.73, p<.001, d=0.62$	$t(88)=0.31, p=.76, d=0.03$
Study 3: Identity stability		5.31	1.09	4.46	1.27	5.26	1.05	$t(88)=5.92, p<.001, d=0.63$	$t(88)=5.18, p<.001, d=0.55$	$t(88)=0.57, p=.57, d=0.06$
Study 3: Evaluation		69.93	18.09	65.82	18.42	69.16	18.23	$t(88)=2.72, p=.008, d=0.29$	$t(88)=2.52, p=.014, d=0.27$	$t(88)=0.65, p=.52, d=0.07$
Study 4: Legitimacy/realness		5.01	0.97	4.48	0.99	4.95	0.97	$t(88)=6.62, p<.001, d=0.70$	$t(88)=6.45, p<.001, d=0.68$	$t(88)=1.22, p=.22, d=0.13$
Study 4: Identity stability		5.29	1.02	4.57	1.12	5.18	1.03	$t(88)=5.70, p<.001, d=0.61$	$t(88)=4.85, p<.001, d=0.51$	$t(88)=1.63, p=.11, d=0.17$
Study 4: Evaluation		72.15	18.73	66.03	20.32	72.08	19.17	$t(88)=3.71, p<.001, d=0.39$	$t(88)=3.90, p<.001, d=0.41$	$t(88)=0.06, p=.95, d=0.01$
Study 5: Legitimacy/realness	Observer	5.43	1.02	4.76	1.04	5.34	1.03	$t(71)=5.65, p<.001, d=0.67$	$t(71)=4.59, p<.001, d=0.54$	$t(71)=1.52, p=.13, d=0.18$
	Ingroup	5.12	1.19	4.56	1.11	5.23	1.14	$t(73)=5.18, p<.001, d=0.60$	$t(73)=6.20, p<.001, d=0.72$	$t(73)=1.42, p=.16, d=0.16$
Study 5: Identity stability	Observer	5.44	1.09	4.65	1.31	5.47	1.13	$t(71)=4.62, p<.001, d=0.55$	$t(71)=4.67, p<.001, d=0.55$	$t(71)=0.33, p=.74, d=0.04$
	Ingroup	5.42	1.05	4.55	1.26	5.36	1.12	$t(73)=5.88, p<.001, d=0.68$	$t(73)=5.38, p<.001, d=0.63$	$t(73)=0.92, p=.36, d=0.11$
Study 5: Evaluation	Observer	71.11	19.85	67.73	18.96	71.69	19.04	$t(71)=2.10, p=.039, d=0.25$	$t(71)=2.90, p=.005, d=0.34$	$t(71)=0.53, p=.60, d=0.06$
	Ingroup	78.50	19.33	70.38	20.90	72.65	21.93	$t(73)=4.41, p<.001, d=0.51$	$t(73)=1.67, p=.10, d=0.19$	$t(73)=3.02, p=.004, d=0.35$

Discussion

Using novel groups that did not differ in aesthetic attractiveness, we demonstrated that a group presented as intermediate was rated as less legitimate/real and evaluated less positively than the other two groups it shared characteristics with (endpoint groups). In contrast, in the control condition, a different kind of “odd group out” was rated as more legitimate/real than the same endpoint groups, ruling out the possibility that simply being the notably distinctive member of a set of three explains the effect of intermediacy. These results demonstrate that intermediate status alone is sufficient to cause people to perceive a group as less legitimate and to evaluate it less positively.

There was no indication that the effects of social group intermediacy depended on whether the characteristics of the novel groups were described as inborn or chosen, raising the possibility that group intermediacy broadly construed may cause changes in thinking about group legitimacy and evaluation. The following studies further explore the breadth of these effects. Using the same novel groups paradigm, we test two key ideas—that intermediacy causes lower ratings of legitimacy/realness and that intermediacy causes less positive evaluation—under a variety of conditions. We include a combined summary of these key effects after Studies 1 through 5.

Study 2

In Study 1, presenting an otherwise neutral group as intermediate caused people to feel that it was less of a “real”/legitimate group and to evaluate it less favorably than other groups. Study 2 tested these effects under two variations in how the intermediate group was presented.

Conceptually, an intermediate group might be perceived as a wholly discrete category that shares some defining characteristics with two other, more readily recognized groups, or it

might be perceived as an intermediate point on a continuum of social identity with commonly recognized endpoints. Either way, the intermediate group would lack an obvious contrasting group, and thus perhaps feel “unreal” (see Turner et al., 1994; Turner et al., 1987). To capture this sort of variation in apparent discreteness of group characteristics, we manipulated whether the intermediate group in our scenario was portrayed with big spots and small spots or with medium-sized spots.

In ordinary social interaction, some people may form impressions of two groups first and only later learn that there is also an intermediate group. People who learn about an intermediate group later may experience that group as less familiar, partially explaining judgments about legitimacy/realness. To simulate variability in timing of information, we manipulated whether participants were introduced to the intermediate group on the same page of the survey as the other two groups or later in the survey.

As before, we predicted that the intermediate group would be perceived as less legitimate/real than the corresponding endpoint groups, and we predicted that the intermediate group would be evaluated less positively than the endpoint groups. We had no specific hypotheses about the effects of medium-sized spots or the late presentation of the intermediate group, as these conditions were intended as tests of the generality of the effects.

Method

Participants. Participants ($n=305$) were recruited in 2014 via MTurk. The mean age was 32.41 ($SD=10.65$). Participants included 125 women, 179 men, and one person who declined to specify a gender. Most were White ($n=225$); 22 were Asian, 22 were Black, 28 indicated another racial/ethnic category, and 8 declined to specify.

Procedure and materials. The procedure was identical to the experimental condition of Study 1, except for the following features. We manipulated whether the intermediate group had “some big spots and some small spots” (as in Study 1) or “medium-sized spots,” with corresponding cartoon drawings. The drawing featuring medium-sized spots was pretested along with the others from Study 1. We gave no information about the spots being biological or chosen.

We also randomly assigned participants to read about the intermediate group on the same page as the endpoint groups (as in Study 1) or at a later time, after some filler information (see Section A of the Supplementary Document). The remainder of the procedure, including the measures of legitimacy/realness ($\alpha=.85$ overall; $\alpha>.84$ for each target group individually) and evaluation ($\alpha=.92$ overall; $\alpha>.90$ for each target group individually), was identical to Study 1.

Results

The manipulation varying the timing of the information about the intermediate group did not significantly affect attributions of legitimacy/realness or evaluations, either as a main effect or an interaction with other variables, $F<2.42$, $p>.089$, $\eta^2_p<.008$. We omitted this factor from the rest of the analysis.

To test the hypothesis that the intermediate group would be perceived as less of a “real” group than the endpoint groups, we conducted a mixed-model ANOVA predicting legitimacy/realness score on the basis of target group (within subjects: Xs/Ys/Zs) and type of intermediacy (between subjects: big and small spots / medium-sized spots). The interaction between target group and type of intermediacy was statistically significant, $F(2, 606)=9.25$, $p<.001$, $\eta^2_p=.030$. The means, standard deviations, and pairwise comparison statistics can be found in Table 1. As in Study 1, the intermediate group with big and small spots was perceived

as less legitimate/real than the endpoint groups. In the condition featuring a medium-spotted intermediate group, the pattern was the same, but the differences were smaller in magnitude.

In a similar ANOVA predicting evaluation, the interaction between target group and type of intermediacy was not statistically significant, $F(2, 606)=0.23$, $p=.79$, $\eta^2_p=.001$, nor was the main effect of target group, $F(2, 608)=1.20$, $p=.30$, $\eta^2_p=.004$. Evaluation differences among the target groups did not reach statistical significance in this study (see Table 1).

Discussion

Study 2 replicated and extended the finding from Study 1 that intermediate groups were rated as less legitimate/real than the other groups. Specifically, the direction of this effect held regardless of whether the intermediate group was introduced at the same time as the other groups or later, and regardless of whether the style of intermediacy reflected a combination of discrete traits (big spots and small spots) or a more dimensional trait (medium-sized spots). The effect was bigger, however, for the combination of discrete traits. The data do not support a definitive explanation for this difference, but it may reflect a tendency for participants already thinking in discrete terms to discount the validity of overlapping categories. Nonetheless, the key finding is that the direction of the effect was the same for both kinds of intermediacy represented in the current study, because it supports the theoretical claim that the concept of social group intermediacy itself can make a group feel illegitimate or not “real.”

The group with medium-sized spots permitted us to test an alternative, more dimensional way of conveying intermediacy, but even in that condition each group had its own label and there were precisely three of them. (No images were shown of creatures with medium-large or medium-small spots, for example.) Therefore, this study does not necessarily test how participants would evaluate a truly dimensional attribute.

In Study 2, intermediacy did not have a significant effect on evaluation. We further discuss the evaluation results in the pooled analysis appearing after Study 5.

Study 3

Group size is an important moderator of intergroup biases in general, but it is unclear whether it would matter for novel intermediate groups. If intermediate groups are mildly disliked by default, then picturing an intermediate group as relatively large might amplify the reasons for aversion (e.g., feelings of threat), but it might also make the group seem more familiar and perhaps more “normal” (Schlueter & Scheepers, 2010). In Study 3, we manipulated the size of the intermediate group relative to the endpoint groups. We predicted that the intermediate group would be perceived as less legitimate/real and less positively evaluated than the endpoint groups, with no specific predictions about the effect of prevalence.

In addition to measuring legitimacy/realness and evaluation, Study 3 measured the attributed stability of each of the target group identities. We drew the concept of identity stability from the literature on attitudes toward bisexual people, a notable real-world intermediate group. Adopting Mohr and Rochlen’s (1999) term and extending it beyond the context of bisexuality, we define perceived identity stability as the perception that a group designation reflects a sincere identity that accurately describes people rather than an illegitimate or provisional identity that people adopt because they are confused or misled (see Burke & LaFrance, 2016, 2018).⁶

Recent evidence suggests that non-bisexual people view bisexuality as less stable than heterosexuality and homosexuality, and some have suggested that this difference in perceived identity stability stems from bisexuality’s intermediate status (Burke & LaFrance, 2016, 2018;

⁶ In this context, we use the word “stability” to refer to the perceived genuineness of the identity within individuals (as in Mohr & Rochlen, 1999), not its perceived consistency across historical time (as in Haslam et al., 2000), nor the degree to which differences between groups in access to resources or status are perceived as permanent (“stability of social stratification”; Caricati, 2012).

Rust, 2000). Therefore, we predicted that our novel intermediate group would also be perceived as lower in identity stability than its corresponding endpoint groups. Because identity stability is conceptually similar to legitimacy/“realness,” we expected them to be correlated, but we measured both to test the proposition that intermediacy can cause low ratings of identity stability just as it can cause low ratings of legitimacy/“realness.”

Method

Participants. Participants ($n=89$) were recruited in 2015 via Yale School of Management’s eLab service, which permits people to sign up to participate in surveys in exchange for fixed probabilities of earning gift cards. The mean age was 34.47 ($SD=13.64$). Participants included 63 women, 25 men, and one person who declined to specify a gender. Most were White ($n=54$); 13 were Asian, 17 indicated another racial/ethnic category, and 5 declined to specify.

Procedure. The procedure was identical to the experimental (intermediate) condition of Study 1 except for the features listed here. We manipulated the relative prevalence of the intermediate group. After participants read the descriptions and looked at the drawings of the beings with small spots (Xs), big spots (Zs), and big and small spots (Ys), they read one of two statements: “In this society, there are many Xs and Zs, but not as many Ys,” or “In this society, there are equally many Xs, Ys, and Zs.” These statements were accompanied by additional drawings depicting three clusters of beings, one representing each group. In the condition where the intermediate group was equally prevalent, all three clusters contained 14 example beings; in the condition where the intermediate group was relatively rare, there were 14 example beings in each endpoint group and two in the intermediate group. We gave no information about the spots being biological or chosen.

Legitimacy/realness. We measured legitimacy/realness in the same manner as before (8 items; $\alpha=.82$ overall; $\alpha>.78$ for each target group individually).

Beginning in Study 3, we also added two items to capture more explicit ratings of the target groups as “real” social groups: “Zs constitute a real social group” and “Not every collection of beings is considered to be a true ‘group.’ Do Zs qualify as a group?”⁷ (see Lickel et al., 2000). These items did not substantially alter the key results in Studies 3 through 5 pertaining to novel groups, so we report numeric results stemming from the same 8-item scale used in Studies 1 and 2.⁸ We perform more systematic comparisons among items related to conceptual legitimacy with regard to real-world social groups in Studies 6 and 7.

Identity stability. We measured identity stability using four items adapted from Mohr and Rochlen’s (1999) measure of stability beliefs about bisexual people. These items captured the perception that being an X, Y, or Z reflects a true identity rather than a state of confusion or indecision. Using “Zs” as a placeholder for Xs, Ys, and Zs, the items were as follows: “Being a Z is a stable identity,” “Zs have a clear sense of their true identities,” “Most Zs have not yet discovered their true identity” (reverse-scored), and “Zs are confused about their identities” (reverse-scored). Each item had a 7-point response scale ranging from “Strongly disagree” to “Strongly agree,” and we averaged the separate item responses for Xs, Ys, and Zs to obtain a stability score for each target group ($\alpha=.77$ overall; $\alpha>.72$ for each target group individually). As expected, identity stability was highly correlated with legitimacy/realness ($r=.66$ overall; $r>.52$ for each target group individually).

⁷ This item had a seven-point response scale ranging from “Not a group at all” to “Very much a group.”

⁸ We computed an alternative, 10-item version of the legitimacy/realness scale, featuring the eight original items and the two new items (in Study 3, $\alpha=.86$ overall, $\alpha>.83$ for each target group individually; in Study 4, $\alpha=.84$ overall, $\alpha>.81$ for each target group; in Study 5, $\alpha=.91$ overall, $\alpha>.89$ for each target group). Using this alternative measure in our analysis of Studies 3 through 5 did not alter the outcomes of any hypothesis tests or conclusions drawn on the basis of effect size. We also computed a 2-item composite based on the new items only, again with similar results, tabulated in Section B of the Supplementary Document.

Evaluation. We used the same measure of evaluation that we used in Studies 1 and 2 ($\alpha=.85$ overall; $\alpha>.77$ for each target group individually).

Results

The prevalence of the intermediate group had no main effect on legitimacy/realness, $F(1, 87)=0.03, p=.87, \eta^2_p=.000$, identity stability, $F(1, 87)=0.06, p=.81, \eta^2_p=.001$, or evaluation, $F(1, 87)=3.77, p=.055, \eta^2_p=.042$. More importantly, it did not interact with target group to predict identity/realness, $F(2, 174)=0.69, p=.51, \eta^2_p=.008$, identity stability, $F(2, 174)=0.14, p=.87, \eta^2_p=.002$, or evaluation, $F(2, 174)=0.05, p=.95, \eta^2_p=.000$. We omitted it from the core analysis.

There was a significant main effect of target group on all three variables of interest—legitimacy/realness, $F(2, 176)=27.36, p<.001, \eta^2_p=.237$, identity stability, $F(2, 176)=25.11, p<.001, \eta^2_p=.222$, and evaluation, $F(2, 176)=5.26, p=.006, \eta^2_p=.056$. As predicted, the intermediate group was rated as less “real,” less stable, and less positive than the endpoint groups (see Table 1).

Discussion

Study 3 replicated the finding (from Studies 1 and 2) that intermediate groups were perceived as less legitimate/real than endpoint groups. It also extended this result to identity stability, a construct closely related to legitimacy/realness, but pertaining to the genuineness of the group identity. Novel intermediate groups were perceived as having less stable identities than their corresponding endpoint groups. Study 3 also found that intermediate groups were evaluated less positively than other groups, replicating a finding that was statistically significant in Study 1 but not in Study 2.

There was no indication that the aforementioned effects differed depending on whether the intermediate group was equally prevalent or less prevalent than the endpoint groups. This

result suggests that the effect of intermediacy on legitimacy/realness, identity stability, and evaluation is not due primarily to inferences about the prevalence of the intermediate group.

Study 4

Study 4 again tested the predictions that presenting a group as intermediate would lead to lower ratings of legitimacy/realness, identity stability, and positive evaluation. Because biological explanations for group identities play an important role in some forms of prejudice (Hegarty & Golden, 2008; Lebowitz & Ahn, 2012), we manipulated types of biological explanations.

Although we tested the effect of attributing intermediacy to a biological characteristic in Study 1, we did not indicate that the distinguishing spots were inherited. Study 4 was designed to test our predictions under conditions where participants had more detailed information about how beings acquired their spots. Specifically, we manipulated whether beings inherited their spots from one parent as a fully discrete trait or from both parents as a hybrid. These explanations may guide participants to think about the traits in question as either relatively categorical or relatively continuous. As with previous studies, we had no specific prediction about the role of the type of biological explanation, except that the established effect of intermediacy on legitimacy/realness, identity stability, and evaluation would occur in both conditions.

Method

Participants. Participants ($n=89$) were recruited in 2015 via Yale School of Management's eLab service. The mean age was 37.29 ($SD=15.64$). Participants included 58 women and 31 men. Most were White ($n=65$); 10 were Asian, 9 indicated another racial/ethnic category, and 5 declined to specify.

Procedure. The procedure was identical to Study 3 except that the text and graphic explaining the relative prevalence of the three groups was replaced with text explaining the biological origin of the spots. Participants were randomly assigned to read one of two explanations. The first possible explanation was, “All of these beings were born with their spots. Upon investigation, you learn that the offspring have a combination of both of their parents’ spots. (It seems to be similar to how people on Earth end up being tall, short, or medium in height.)” The second possible explanation was, “All of these beings were born with their spots. Upon investigation, you learn that the offspring have the same spots as one of their parents. (It seems to be similar to how people on Earth end up with brown, blue, or green eyes.)” These descriptions (particularly the one about eye color) are not biologically accurate about humans, but we designed them to be plausible-sounding analogies to guide participants to think about the spots as either a more continuous characteristic like height or a more discrete one like eye color.

The measures of legitimacy/realness (8 items; $\alpha=.78$ overall; $\alpha>.75$ for each target group individually), identity stability (4 items; $\alpha=.73$ overall; $\alpha>.70$ for each target group individually), and evaluation (4 items; $\alpha=.93$ overall; $\alpha>.89$ for each target group individually) were identical to those in Study 3.

Results

The type of biological explanation given for the group characteristics had no significant main effect on legitimacy/realness, $F(1, 87)=0.09, p=.77, \eta^2_p=.001$, identity stability, $F(1, 87)=0.66, p=.42, \eta^2_p=.008$, or evaluation, $F(1, 87)=3.93, p=.051, \eta^2_p=.043$. More importantly, it did not interact with target group to predict legitimacy/realness, $F(2, 174)=0.94, p=.39, \eta^2_p=.011$, identity stability, $F(2, 174)=0.30, p=.74, \eta^2_p=.003$, or evaluation, $F(2, 174)=0.45, p=.64, \eta^2_p=.005$. We omitted it from the core analysis.

There was a significant main effect of target group on all three variables of interest—legitimacy/realness, $F(2, 176)=34.00$, $p<.001$, $\eta^2_p=.279$, identity stability, $F(2, 176)=24.79$, $p<.001$, $\eta^2_p=.220$, and evaluation, $F(2, 176)=10.99$, $p<.001$, $\eta^2_p=.111$. As predicted, the intermediate group was rated as less legitimate/real, less stable, and less positive compared to the endpoint groups (see Table 1).

Discussion

Study 4 replicated the core findings of the previous studies. The intermediate group was perceived as less legitimate/real than the endpoint groups, believed to reflect a less stable identity than the endpoint groups, and evaluated less positively than the endpoint groups, even when participants were given one of two different biological explanations for how the group characteristics were inherited.

Studies 1 through 4 provided support for the idea that distinguishing reactions to intermediate groups from reactions to endpoint groups depends on understanding how “real” these groups feel in the minds of the perceivers. However, all four studies framed the participant as an outside observer to the society in question rather than a member of one of the groups. Study 5 brought the paradigm one step closer to conventional social contexts by giving participants an ingroup.

Study 5

We next addressed evaluation of intermediate groups in an ingroup/outgroup context, perhaps the most fundamental type of group division in intergroup relations research (Tajfel & Turner, 1979). Study 5 built on the novel groups procedure from Studies 1 through 4, randomly assigning each participant to be either an outside observer (as in previous studies) or a member

of the small-spotted group. In the latter case, participants would evaluate their ingroup, one intermediate outgroup, and one non-intermediate outgroup.

Social identity theory (Tajfel & Turner, 1979) and self-categorization theory (Turner et al., 1987) suggest that most people, by default, evaluate their ingroups favorably. Indeed, research using the minimal group paradigm (Tajfel et al., 1971) has consistently found that people randomly assigned to a group tend to feel and behave positively toward other members of that group (Balliet et al., 2014; Diehl, 1990; Otten & Moskowitz, 2000). We therefore predicted that the pattern of evaluations would be different in Study 5 than in the previous studies, with participants evaluating their ingroup most positively.

In contrast, we did not expect that the manipulation of ingroup identity would suppress the legitimacy/realness or stability ratings of the non-intermediate outgroup. In fact, some have suggested that having a clear, conceptually legitimate outgroup is an important condition facilitating a positive impression of the ingroup (Turner et al., 1987). In past research using the stability measure, heterosexual and gay/lesbian participants alike viewed bisexuality as less stable than both heterosexuality and homosexuality (Burke & LaFrance, 2016, 2018). Therefore, we predicted that, consistent with Studies 1 through 4, participants would rate the intermediate group as lower in legitimacy/realness and identity stability than both endpoint groups, even when the participants themselves were members of one of the endpoint groups.

Study 5 also included a measure of the strength of identification with the ingroup, among those participants who had one. We expected this momentary (imagined) ingroup identification to predict more pronounced reactions to intermediate groups because people who identify strongly with a group tend to respond negatively to anything perceived as undermining the clear distinctions between groups (Diehl, 1990; Grant & Hogg, 2012; Jetten et al., 2004), including

reminders of shared characteristics and overlapping group boundaries (Hornsey & Hogg, 2000; Jetten et al., 1997, 2001). Because an intermediate group shares characteristics with the ingroup and the contrasted (“opposite”) outgroup, people who identify strongly with the ingroup may view the intermediate group as a threat to distinctiveness. Viewing the intermediate group as conceptually illegitimate and evaluating it negatively may both be strategies for maintaining distinctiveness in the face of this threat. We therefore predicted that participants who imagined themselves to be highly identified with their assigned novel ingroup would be especially likely (relative to participants low in identification) to view the intermediate group as low in social realness and to evaluate it negatively.

Method

Participants. Participants ($n=146$) were recruited in 2015 via MTurk. The mean age was 34.69 ($SD=10.57$). Participants included 74 women, 71 men, and one person who declined to specify their gender. Most were White ($n=105$); 15 were Asian, 25 indicated another racial/ethnic category, and 1 declined to specify.

Procedure. The procedure was identical to Studies 3 and 4 except for the features listed below. We shortened the scenario introduction to remove references to being an outside observer of the society. On the same page as the scenario instructions, participants were told, “You will also be a character in this scenario. Please enter your initials or a nickname for yourself in the box below.” On the next page, participants were introduced to the three groups of beings (Xs, Ys, and Zs) with the same cartoon drawings used in Studies 3 and 4 (but without the information about their relative prevalence or biological origin). Then, participants read either “You, [nickname], are an observer in this society,” or “You, [nickname], are an X in this society.” This statement was accompanied by a box containing the participant’s nickname and an avatar. In the

observer condition, the avatar was a human-like stick figure. In the ingroup condition, the avatar was a small-spotted being like the other Xs. To reinforce the participant's role, this avatar box was displayed on all subsequent pages of the survey before the feedback and demographics.

Next, participants completed a task designed to reinforce their randomly assigned role and their understanding of the scenario. Participants in the ingroup condition were asked, three times in a row, "Which of the three images below depicts a member of your group?" The response options were one cartoon image from each group in a random order. Participants in the observer condition saw the same three items, but were instructed to identify, one at a time, an X, a Y, and a Z, rather than "a member of your group."

Next, participants completed a measure of strength of identification with the imagined ingroup. We modified a six-item measure of ingroup identification (Castano et al., 2003), instructing each participant to "use your imagination" to respond "based on your understanding of your role in this fictional society." The six items for participants in the imagined ingroup condition ($n=74$) were "I identify with other Xs," "It is important for me to be an X," "Being an X is not part of my identity" (reverse-scored), "I perceive myself as an X," "Being an X does not mean a lot to me" (reverse-scored), and "I feel strong ties with other Xs" ($\alpha=.93$).⁹

Finally, participants completed measures of legitimacy/realness (8 items; $\alpha=.89$ overall; $\alpha>.86$ for each target group individually), stability (4 items; $\alpha=.82$ overall; $\alpha>.78$ for each target group individually), and evaluation (4 items; $\alpha=.95$ overall; $\alpha>.92$ for each target group individually) identical to those in Studies 3 and 4.

⁹ To keep the procedure as consistent as possible between conditions, participants in the observer condition also completed the measure, with the word "observer" in place of "X." The two items that refer to "other Xs" were omitted for observers because they were not told about any other observers, leaving four items ($\alpha=.84$). Identification with the observer role has little theoretical importance, so we do not discuss it further; we included it solely to keep the conditions equivalent except for the intended manipulation.

Results

The experimental manipulation of ingroup status versus observer status had no main effect on legitimacy/realness, $F(1, 144)=1.65, p=.20, \eta^2_p=.011$, or identity stability, $F(1, 144)=0.26, p=.61, \eta^2_p=.002$. More importantly, it did not interact with target group to predict legitimacy/realness, $F(2, 288)=0.86, p=.42, \eta^2_p=.006$, or identity stability, $F(2, 288)=0.11, p=.90, \eta^2_p=.001$. Instead, there was a significant overall main effect of target group on both legitimacy/realness, $F(2, 290)=49.77, p<.001, \eta^2_p=.256$, and identity stability, $F(2, 290)=47.47, p<.001, \eta^2_p=.247$. Consistent with Studies 1 through 4, the intermediate group was perceived as less legitimate/real and less stable than the endpoint groups across conditions (see Table 1).

However, the manipulation of ingroup status interacted with target group to predict evaluation, $F(2, 288)=4.52, p=.012, \eta^2_p=.030$ (see Table 1 for details). Specifically, the observer condition resembled the previous studies that it was based on: as before, the intermediate group was evaluated less positively than the other groups. In contrast, the ingroup condition demonstrated the predicted effects of ingroup favoritism. The ingroup (small-spotted group) was evaluated more positively than the other two groups.

Ingroup identification. For participants in the ingroup condition, the identification variable ranged from 1 to 7 ($M=4.49, SD=1.65$). Our hypotheses of interest concerned the differences among target groups on legitimacy/realness, stability, and evaluation at high and low levels of ingroup identification, here operationalized as one standard deviation above and below the mean. We tested these hypotheses using linear mixed models fit with the lme4 package for R (Bates et al., 2015). Each model predicted an outcome of interest (e.g., evaluation) on the basis of target group, identification, and their interaction, with a random intercept by participant. All p -values were obtained using likelihood ratio chi-squared tests. We explored the fitted values for

each target group estimated at high and low levels of identification (reported in parentheses below) and the differences among them in scale increment units (slopes denoted b) and in units of the overall standard deviation of the outcome (denoted b^*). Additional details can be found in Section C of the Supplementary Document.

There was a significant interaction between target group and ingroup identification for both legitimacy/realness, $X^2(2)=8.40, p=.015$, and stability $X^2(2)=8.80, p=.012$. Participants low in identification rated the ingroup and the opposite outgroup as similarly legitimate/real and stable, $b<.14, SE>.13, p>.3, b^*<.12$. They rated the intermediate group as less legitimate/real and stable than both the ingroup and the opposite outgroup, $b>.30, SE<.19, p<.03, b^*>.25$. Participants high in identification exhibited a similar pattern, but with larger effects. They rated the ingroup and the opposite outgroup as similarly legitimate/real and stable, $b<.08, SE>.13, p>.5, b^*<.07$, and they rated the intermediate group as less legitimate/real and stable than both the ingroup and the opposite outgroup, $b>.80, SE<.19, p<.001, b^*>.68$.

For evaluation, the interaction between target group and ingroup identification did not reach significance, $X^2(2)=4.13, p=.13$. There was a main effect of target group, $X^2(2)=22.00, p<.001$. We explored this main effect separately for people high and low in identification for comparison to social realness and stability. Participants low in identification evaluated the ingroup more positively than both the intermediate group and the opposite outgroup, $b>4.86, SE=2.44, p<.045, b^*>0.22$. They did not evaluate the two outgroups significantly differently, $b=0.44, SE=2.44, p=.86, b^*=0.02$. Participants high in identification also evaluated the ingroup more positively than both the intermediate group and the opposite outgroup, $b>6.41, SE=2.44, p<.01, b^*>0.30$, but they also evaluated the opposite outgroup more positively than the intermediate outgroup, $b=4.97, SE=2.44, p=.040, b^*=0.24$.

Discussion

Study 5 provided still more evidence that intermediacy causes low ratings of conceptual legitimacy/realness and identity stability. As before, participants perceived a novel intermediate group as reflecting less of a “real” social group than other novel groups, and they perceived intermediate group members’ identities as less stable (genuine, clearheaded) than other group identities. These effects were similar even when the participants imagined themselves to be members of the society in question. In the ingroup condition, the low ratings of legitimacy/realness and stability for the intermediate group cannot be interpreted simply as forms of outgroup derogation, because the other, non-intermediate outgroup was rated similarly to the ingroup in terms of legitimacy/realness and stability. Instead, the results reflect the consistent causal association between perceiving a group as intermediate and perceiving it as less conceptually legitimate than other groups.

The ingroup manipulation did shape the participants’ evaluations of the target groups. Consistent with a large body of previous research on minimal groups (e.g., Otten & Moskowitz, 2000), participants evaluated their assigned ingroup more positively than either of the two outgroups, whether intermediate or otherwise. Participants who were not assigned an ingroup evaluated the intermediate group less positively than the other two groups, consistent with the results of Studies 1, 3, and 4.

Furthermore, the tendency to view intermediate groups as less legitimate and less stable than other groups was especially pronounced among participants who identified strongly with their imagined ingroup. In contrast, participants did not perceive the “opposite” outgroup as any less legitimate or stable than the ingroup, regardless of their level of identification. This result is consistent with the view that an intermediate group can threaten the distinctiveness of a valued

ingroup, leading participants to dismiss it (see Jetten et al., 2004; Turner et al., 1987; Young et al., 2013).

Pooled Analysis of Studies 1 through 5

Having conducted several studies with similar designs, we examined effect size estimates from pooled data, a valuable strategy for summarizing the results of a small number of studies within a single report (Braver et al., 2014; Fabrigar & Wegener, 2016).

Studies 1 through 5 provided evidence that intermediacy is associated with low ratings of conceptual legitimacy/realness and the related concept of identity stability. They also provided evidence that intermediacy is at least sometimes associated with negative evaluation, although this effect was not significant in every instance. The pooled analysis consolidated the available evidence to estimate the overall magnitude of these two effects.

The pooled analysis also tested the relationship between the observed target group differences in legitimacy/realness and evaluation. Specifically, given that low perceived legitimacy and negative evaluation seem to co-occur for intermediate groups, we predicted that the former would help explain the latter. In other words, we predicted that the effect of a group's intermediate status on evaluation would be mediated by legitimacy/realness, for a few reasons. Participants who do not view a group as "real" may feel justified in evaluating it negatively because the usual norms against blatant group-based judgments may not apply when the group is not really a group. Some participants may denigrate such groups in order to make them less inscrutable. They may also experience discomfort when trying to formulate judgments of beings that do not fit into their working set of categories, leading to negative evaluation. Members of illegitimate groups may also be seen as claiming a non-genuine identity, and this perceived inauthenticity might be negatively valenced.

Therefore, our pooled analysis assessed the evidence for three hypotheses: that intermediate groups were perceived as less legitimate/real than endpoint groups, that intermediate groups were evaluated less positively than endpoint groups, and that legitimacy/realness mediated the effect of intermediacy on evaluation.

Method and Results

We combined all of the data from the conditions featuring intermediate groups ($n=741$). This combined sample includes all of the participants from Studies 2 through 5, but only the participants in the experimental condition in Study 1, as the control condition did not include an intermediate group. Our effect of interest was the difference between the intermediate group and the average of the two endpoint groups. We represented this effect as a standardized mean difference (Cohen's d). We computed this effect size estimate for each of the 12 conditions (across 5 studies) and for the overall combined sample. We computed confidence intervals based on noncentral t distributions using the MBESS package for R (Kelley, 2007).

Our first hypothesis pertained to the effect of intermediacy on legitimacy/realness. Intermediate groups were perceived as less legitimate/real than their corresponding endpoint groups by approximately half of a standard deviation, $d=0.51$, 95%CI=[0.43, 0.59].¹⁰ The magnitude of this effect for each condition separately is plotted in Figure 1.

Studies 3 through 5 included a measure of identity stability, designed to show the same kind of effect as legitimacy/realness. Based on the sample from Studies 3 through 5 ($n=324$), intermediate groups were perceived as having less stable identities than their corresponding endpoint groups, $d=0.61$, 95%CI=[0.49, 0.73].

¹⁰ We repeated this analysis using the 10-item version of the legitimacy/realness measure from Studies 3 through 5 ($n=324$). The overall effect size was $d=0.69$, 95%CI=[0.57, 0.81].

Our second hypothesis pertained to the effect of intermediacy on evaluation. Based on the sample from Studies 1 through 5 ($n=741$), intermediate groups were evaluated less positively than their corresponding endpoint groups by approximately one quarter of a standard deviation, $d=0.24$, $95\%CI=[0.17, 0.32]$. The magnitude of this effect for each condition separately is plotted in Figure 2.

Our third hypothesis pertained to the relationship between social realness and evaluation. Overall, ratings of legitimacy/realness were correlated with positive evaluations for intermediate groups, $r(739)=.30$, and both endpoint groups, $r=.27$, $r=.29$. More critically, though, we predicted that differences in legitimacy/realness would explain some of the differences in evaluation—that legitimacy/realness would mediate the effect of intermediacy on evaluation. We used Judd, Kenny, and McClelland's (2001) method for estimating indirect effects in mixed models, using the average of the ratings for our two endpoint groups in place of a single score from a control group. In brief, we computed evaluation difference scores and legitimacy/realness difference scores in the same manner as above, and we computed legitimacy/realness sum scores by averaging the endpoint groups and adding the intermediate group. This sum score is not relevant to our theory, but including it permits this modeling strategy to make fewer assumptions (Judd et al., 2001). To estimate the indirect effect of intermediacy on evaluation via legitimacy/realness, we regressed the evaluation difference on the legitimacy/realness difference and the legitimacy/realness sum. To convert the results to standardized effect size measures, we computed partial correlations between the evaluation difference and the legitimacy/realness difference adjusting for the legitimacy/realness sum. Variants of this analytic approach are described in Section D of the Supplementary Document.

Based on the sample of 741 participants from Studies 1 through 5, the indirect effect was statistically significant, $r=.20$, 95%CI=[.13, .27]. The magnitude of this effect for each condition separately is plotted in Figure 3. To test the possibility that this effect was moderated by experimental condition, we modified the underlying regression model to include interaction terms between the legitimacy/realness difference and condition (12 levels) and between the legitimacy/realness sum and condition. Condition did not significantly moderate the magnitude of the indirect effect of intermediacy on evaluation via legitimacy/realness, $F(11, 705)=1.48$, $p=.13$, $\eta^2_p=.023$. We repeated this analysis using studies (5 levels) rather than conditions; study did not significantly moderate the indirect effect, $F(4, 726)=1.77$, $p=.13$, $\eta^2_p=.010$.

Figure 1

Novel intermediate groups were perceived as less conceptually legitimate/real than their corresponding endpoint groups.

Note. Each row in this figure represents a single experimental condition from Studies 1 through 5. The plotted points represent effect sizes (Cohen's d) quantifying the extent to which the intermediate group in that condition was seen as less legitimate/real than the average of the two endpoint groups in that condition. The area of each dot is proportional to its corresponding sample size. The bars are 95% confidence intervals based only on the data in the given condition.

Figure 2

Novel intermediate groups were evaluated less favorably than their corresponding endpoint groups.

Note. Each row in this figure represents a single experimental condition from Studies 1 through 5. The plotted points represent effect sizes (Cohen's d) quantifying the extent to which the intermediate group in that condition was evaluated less positively than the average of the two endpoint groups in that condition. The area of each dot is proportional to its corresponding sample size. The bars are 95% confidence intervals based only on the data in the given condition.

Figure 3

The extent to which intermediate groups were viewed as less conceptually legitimate/real helped to explain their relatively less positive evaluations.

Note. Each row in this figure represents a single experimental condition from Studies 1 through 5. The plotted points represent the magnitude of each indirect effect as a (partial) Pearson correlation coefficient. The area of each dot is proportional to its corresponding sample size. The bars are 95% confidence intervals based only on the data in the given condition.

Discussion

By compiling the data from Studies 1 through 5, we provided strong evidence that presenting a novel group as intermediate causes it to receive low ratings of legitimacy/realness and to be evaluated relatively negatively. We also showed that these two processes were related—the extent to which an intermediate group was perceived as illegitimate/unreal predicted the extent to which it was evaluated negatively.

Figure 3 demonstrates that the indirect effect of social group intermediacy on evaluation via legitimacy/realness would have been impossible to detect in several of our studies individually. In order to isolate social group intermediacy in a novel context, we instructed participants to imagine themselves in wholly unfamiliar situations and come to conclusions on the basis of very little information. Furthermore, the indirect effects we estimated depended on a linear relationship between two computed differences, which can be noisy. However, taken together, our studies provide ample evidence for a relationship between the tendency to evaluate an intermediate group as low in legitimacy/realness and the tendency to evaluate it negatively.

We interpret the observed relationship as evidence that some element of conceptual legitimacy/realness mediates the effect of intermediacy on evaluation. However, our mediation results alone do not rule out the possibility that framing a group as intermediate causes negative evaluations which in turn cause low ratings of legitimacy/realness (see Judd et al., 2001). We believe our interpretation to be more plausible, because the effect of intermediacy on social realness was consistently about twice as large as the effect of intermediacy on evaluation. The fact that intermediacy had a larger effect on legitimacy/realness than on evaluation is consistent with the idea that it was causing differences in legitimacy/realness directly, and causing differences in evaluation indirectly.

Study 6

Manipulating the characteristics of novel social groups permitted us to draw conclusions about the direct consequences of social group intermediacy—most notably, that judgments of intermediate groups reflect a sense that they are not “real” groups. In contrast to novel groups, familiar social groups have many attributes at once, so the attitudes toward any given intermediate group are likely to be complicated by other aspects of the dimension of social identity in question. In spite of these complications, we expected that the basic underlying principle that low legitimacy/realness explains some of the distinctive views of intermediate groups would extend to a variety of real-world contexts. Study 6 tested this idea in the domain of race, examining the perceived legitimacy/realness, identity stability, and evaluation of Black/White biracial people, and capturing self reports of perceived legitimacy in a more detailed fashion. Black and White racial categories have been highly salient in the US throughout its history, so these group designations provide a valuable initial test case in this cultural context.

Mirroring our procedure with novel groups, we instructed all participants to consider three target groups. Two of the groups were White people and Black people. The third group was randomly assigned to be either biracial (Black/White) people or Native American people. We selected Native American people for the comparison condition because both biracial and Native American people are historically important groups in the United States that nonetheless receive relatively little mainstream attention. Importantly, however, biracial people are an intermediate group whereas Native Americans are not.¹¹

We expected biracial people to be perceived as less of a legitimate/real group than Black or White people in part because previous research reveals a tendency for some lay people to

¹¹ Many Native Americans are multiracial. We do not mean to imply that “biracial” and “Native American” are incompatible terms, only that they have different implications for intermediacy when used as identity labels.

avoid using biracial as a category when possible (Chen & Hamilton, 2012; Chen et al., 2014; Pauker et al., 2009; Sanchez et al., 2011). For example, the historical “one drop rule” and modern research findings on hypodescent in face categorization may be viewed as reflecting a tendency to view intermediate categories as conceptually illegitimate as a way of maintaining an unambiguous categorization system (Chen et al., 2018; Halberstadt et al., 2011; Ho et al., 2015; Ho et al., 2011; Peery & Bodenhausen, 2008).

We also expected biracial identities to be perceived as unstable. Biracial children are sometimes perceived as confused and conflicted about their identities (Chesley & Wagner, 2003; Jackman et al., 2001), and biracial adults report experiencing pressure to “choose a side” from those who view their identities as illegitimate (Sanchez, 2010).

The previous research on positive or negative evaluation of biracial people is mixed. Some evidence for negative evaluation stems from one study showing that biracial college applicants were perceived as less warm than White and Black applicants (Sanchez & Bonam, 2009) and one showing that biracial job applicants were perceived as less socially skilled than White and Black applicants (Remedios et al., 2012). There is also some evidence that biracial children are viewed by some as socially maladjusted (Chesley & Wagner, 2003; Jackman et al., 2001). However, these impressions of biracial people seem to depend on perceptions of identity instability and specific stereotypes rather than a more global negativity (see Skinner et al., 2020). In contrast, there is ample evidence for widespread globally negative views of Black people (Greenwald et al., 2009; Hall et al., 2015; Kinder & Drake, 2009; Oswald et al., 2013). Indeed, at least one study has found negative evaluations of Black people relative to biracial people (Freeman et al., 2016).

Therefore, we did not expect biracial people to be evaluated negatively in comparison to Black people. Given the complex patterns of racial bias in the US, the status of biracial people as an intermediate group is likely only one of many processes influencing their relative evaluation; others may include widespread motivation to avoid expressing overt racial prejudice (Dovidio et al., 2002; Plant & Devine, 1998) and the stereotype that biracial people are especially physically attractive (Lewis, 2010; Rhodes et al., 2005; Skinner et al., 2020).

Study 6 introduced a much broader set of items related to conceptual legitimacy, “realness,” and identity stability, in order to provide a clearer picture of how participants respond to these items. For example, some of the legitimacy/realness items from Studies 1a-1e asked about how “real” the groups were, some asked about how “distinctive” they were, and some asked about how similar the members were to each other in various ways. We anticipated that the core “realness” concept, exemplified by the sense that a term describes a “real group,” would be correlated with but distinguishable from beliefs about the actual characteristics of the group, such as internal cohesion, shared goals, etc.

Study 6 also addressed the strength of ingroup identification. Specifically, we expected that White participants who identified strongly with their White ingroup would evaluate both Black and biracial people negatively, as suggested by findings associating identification with a socially advantaged ingroup with prejudice (Brown, 2000; Pehrson et al., 2009; Sassenberg & Wieber, 2005; Verkuyten, 2005). More notably, we hypothesized that ingroup identification would lead to a heightened tendency to view biracial people as “not a real group” as a way of maintaining strong distinctions between the White ingroup and the traditional Black outgroup (see, for example, Jetten et al., 2004).¹²

¹² Black participants who identify strongly with their ingroup may view biracial people as “not a real group,” too, but our sample lacks the statistical power to test such a claim.

Therefore, Study 6 permitted us to (a) characterize legitimacy/realness in relation to more concrete group characteristics and (b) test the hypotheses that biracial people, but not Native Americans, would be perceived as less legitimate/real and less stable than White and Black people, and that strength of White ingroup identification would help explain this perception.

Method

Participants. Participants ($n=153$) were recruited in 2014 via MTurk. The mean age was 33.92 ($SD=10.51$). Participants included 77 women, 75 men, and one person who declined to specify a gender. Most were White ($n=113$); 12 were Asian, 10 were Black, 9 were Hispanic or Latino/a, 3 were Native American (including 2 who marked Native American and White), 2 indicated another monoracial identity, 3 indicated another multiracial identity, and 1 declined to specify.

Procedure. After providing informed consent, all participants completed measures of Personal Need for Structure (Neuberg & Newsom, 1993) and Openness (John et al., 1991; John et al., 2008), for exploratory purposes unrelated to the present manuscript. Then participants were introduced to the main social group evaluation task with the following instructions: “The next part of the survey asks you to think about how certain types of people relate to each other in our society. You will be asked the same sets of questions about three types of people: White people, biracial (Black/White) people, and Black people.” Half of the participants were randomly assigned to read “Native American” in place of “biracial (Black/White).”

Next, participants responded to items related to legitimacy/realness/stability, followed by items capturing evaluation of the target groups, described in the Measures section. They then completed a third set of items, not discussed in the present report, pertaining to the origin of group membership (e.g., “People can choose not to be Black”). Participants were then asked,

“The previous part of this survey asked questions about three specific categories of people. Do you feel that you are a member of any of these categories?” Any participants who indicated that they were White in response to this question were directed to the White ingroup identification measure, described in the Measures section. Finally, participants indicated their demographic information, including a more general measure of race/ethnicity.

Measures. The items related to social realness and the evaluation items were each presented three times in a row, once per target group, in a random order.

Legitimacy/realness and related topics. We presented participants with 27 items to more fully explore conceptual legitimacy, identity stability, and related constructs from the research literature on perceptions of social groups. All 14 items used to measure legitimacy/realness and stability in Study 1 were included, along with additional items referring explicitly to realness (e.g., “The word ‘Black’ describes a real group of people.”) We also drew items from previous measures of entitativity and essentialism. We included items to capture the concepts of uniformity/homogeneity, informativeness, inherence, and naturalness of groups (Haslam et al., 2000, 2002; Roets & Van Hiel, 2011) and the ability to easily tell groups apart (e.g., discreteness; Haslam et al., 2000, 2002; see also Bastian & Haslam, 2006). We also included items to capture entitativity in the sense of unity and shared goals (Newheiser et al., 2009; see Hamilton, 2007; Hamilton et al., 2009). The full set of items can be found in Table 2.

One of the goals of Study 6 was to determine which items would cluster with the explicit “realness” items and which would be distinguishable from them, so we grouped these items into scales on empirical grounds as described in the Results section.

Evaluation. We measured evaluation of the target groups by asking “In general, how do you feel about [target] people?” This question was followed by three sliding response scales

ranging from 0 to 100 marked “Very negative” to “Very positive,” “Very cold” to “Very warm,” and “Very unfavorable” to “Very favorable.” We averaged these three items to obtain an evaluation score for each target group ($\alpha=.96$ overall; $\alpha>.93$ for each target group individually).¹³

White ingroup identification. We measured ingroup identification for White participants by adapting the same six-item measure of identification from Study 5 (Castano et al., 2003) to refer to “White people” instead of the novel groups ($\alpha=.85$).

¹³ We also included six supplementary items capturing positive regard for each group based on the concept of social distance. The new items, using Black people as the example target group, were “I could become very good friends with a Black person,” “I would be comfortable socializing with a Black person for one evening,” “I sometimes avoid Black people,” “I would not want to have a Black person marry into my family,” “I believe that Black people are mostly likeable,” and “Black people are the kind of people I would like to get to know.” These items had 7-point response scales ranging from “Strongly disagree” to “Strongly agree” and were averaged to form a measure of “social closeness” ($\alpha=.84$ overall; $\alpha>.72$ for each target group individually). This measure was highly correlated with evaluation, $r(456)=.66$, and yielded similar results. We focus on evaluation in the main text because it is conceptually simpler and because it was present in all studies.

Table 2

Items measuring social realness, identity stability, certainty, similarity, and genetics and their rotated component loadings (Studies 6 and 7)

	Study 6 (race)					Study 7 (sexual orientation)				
	Real.	Stab.	Cert.	Sim.	Gen.	Real.	Stab.	Cert.	Sim.	Gen.
Not every collection of people is considered to be a true "group." Do Black people qualify as a group?	0.86	0.00	-0.04	0.00	-0.02	0.85	0.06	0.01	0.00	0.06
The word "Black" describes a real group of people.	0.85	-0.03	-0.03	-0.08	0.03	0.82	0.15	0.09	-0.01	0.01
People who are Black constitute a real social group.	0.88	0.01	-0.02	-0.02	-0.03	0.86	0.13	0.03	0.06	0.02
Black people are a completely distinct group in this society.	0.78	-0.10	-0.05	0.05	0.00	0.93	-0.08	-0.08	-0.04	-0.05
Black people are distinct from other groups in this society.	0.75	0.04	-0.14	0.08	0.02	0.90	-0.11	-0.04	-0.01	-0.01
Most people who identify as Black have not yet discovered their true identity.	0.03	0.83	0.12	0.06	-0.01	0.00	-0.84	0.13	0.06	-0.06
Black people are confused about their identities.	0.07	0.89	0.11	0.06	-0.01	0.04	-0.86	0.10	0.06	-0.06
Being Black is a stable identity.	0.45	-0.52	0.05	0.11	0.07	0.14	0.78	0.05	0.10	0.09
Black people have a clear sense of their true identities.	0.31	-0.68	0.21	0.15	0.01	0.22	0.79	0.07	0.09	-0.01
It is sometimes uncertain whether any given person is Black.	-0.16	-0.01	0.82	-0.06	0.00	-0.09	-0.10	0.79	0.03	-0.04
Black people are sometimes confused with other groups in this society.	-0.03	0.11	0.81	-0.03	-0.05	0.08	-0.50	0.60	0.02	0.09
Despite apparent differences between Black people, in essence they are the same.	-0.03	-0.01	-0.01	0.83	0.00	-0.02	0.06	0.01	0.81	0.02
Black people may share superficial attributes, but actually they are quite different.	0.19	0.05	0.11	-0.74	0.07	0.06	0.29	0.38	-0.46	0.03
Black people share a large number of underlying characteristics besides their superficial resemblances or differences.	0.05	-0.01	-0.02	0.73	0.16	-0.02	0.07	0.17	0.81	0.08
If you know someone is Black, you know a lot about his/her personality.	-0.06	0.06	0.00	0.84	-0.04	0.01	-0.04	-0.03	0.82	-0.03
Being Black largely determines someone's identity.	0.17	0.04	0.19	0.72	0.00	0.09	-0.03	-0.02	0.72	-0.05
Being someone who is Black says nothing about a specific person.	0.04	-0.01	0.02	-0.64	0.11	-0.08	0.27	0.26	-0.51	0.09
Most Black people are very similar to other Black people.	0.11	0.09	-0.05	0.81	0.04	0.07	0.03	0.05	0.85	0.01
Black people are usually identical in many respects.	0.07	0.01	0.01	0.85	0.06	-0.10	0.10	-0.01	0.85	-0.08
Black people usually differ a lot from each other.	0.12	0.12	0.06	-0.77	0.11	-0.05	0.35	0.35	-0.52	-0.01
Being Black is caused by genetics.	-0.06	-0.04	0.01	0.00	0.94	-0.03	-0.07	-0.03	0.00	0.96
People are naturally Black because of their biology.	0.02	0.04	-0.03	-0.01	0.93	0.03	0.10	-0.01	0.00	0.88

Note. The first several eigenvalues in Study 6 were 7.09, 4.40, 1.61, 1.42, 1.05, 0.87, 0.61, 0.53. The first several eigenvalues in Study 7 were 5.93, 5.30, 2.04, 1.51, 1.00, 0.83, 0.67, 0.58. Loadings stem from principal component analysis with an oblimin rotation. In the item texts, the word "Black" is used as a placeholder for the target group. In addition to the word "Black" as shown, these items referred to "White," "biracial (Black/White)," and "Native American" people in Study 6, and "heterosexual," "bisexual," "gay/lesbian," and "asexual" people in Study 7. This table includes 22 of the 27 items. The other five items did not load as clearly on these five components (see footnote 10). Those items were: "It would be possible to accurately categorize people without ever using 'Black' as a category"; "Black people feel unified as a group"; "Black people interact with other Black people very frequently"; "Black people share common goals with other Black people"; and "For Black people, being Black is in their nature." Bold text indicates that the item in the corresponding row was included in the composite score named in the corresponding column.

Results

Social realness and concepts related to legitimacy. We examined the intercorrelations among items capturing concepts related to legitimacy in order to group them into empirically-derived scales for further analysis. Specifically, given our special emphasis on “realness,” we wished to ascertain which other items would associate most strongly with the explicit sense that a group is a “real group” or that members “qualify as a group.” Because we expected this form of “realness,” identity stability, and other concepts to be correlated with one another, we used principal component analysis (PCA) with an oblimin rotation. For the main analysis reported numerically, we included all participants regardless of race/ethnicity ($n=153$), and we included all target groups as separate observations (459 total observations).¹⁴

Initially, we included all 27 items in the PCA. Six eigenvalues were greater than 1, and examination of a scree plot suggested retaining five or six factors (first ten eigenvalues: 8.47, 4.49, 1.78, 1.43, 1.14, 1.08, 0.89, 0.77, 0.63, 0.59). Restricting it to five rotated components resulted in clear groupings of items. Allowing additional components resulted in the same core set of five plus some single-item factors, factors with no loadings over .6, or factors composed entirely of reverse-coded items from existing factors. After settling on a five-component model, we removed five items with weak, ambiguous loadings.¹⁵ The results of a PCA with the resulting

¹⁴ To ensure that the conceptual results were not dependent on this decision, we repeated the same PCA with only White participants ($n=112$) and with all participants who were not Black or Native American ($n=139$). We also repeated the same PCA restricted to each target group individually rather than all of the target groups together, again for all participants, White participants, and non-Black, non-Native American participants. In all cases, the items grouped together in the same way.

¹⁵ We removed “It would be possible to accurately categorize people without ever using ‘[Black]’ as a category” because it did not load on any factor and because its phrasing was convoluted. We removed “[Black] people feel unified as a group” and “[Black] people interact with other [Black] people very frequently” because they loaded only weakly ($<.43$) on several components. The item “[Black] people share common goals with other [Black] people” loaded on the similarity component (.67), but we removed it because it loaded more weakly than the other positively-worded items and because adding additional components dropped its loading relative to the other items (e.g., to .53 in a six-component model). We removed “For [Black] people, being [Black] is in their nature” because its literal meaning seems to muddle the distinction between similarity and genetics, although it loaded on similarity (.64).

subset of 22 items can be found in Table 2, illustrating the items kept on each conceptual factor. We refer to the groupings as social realness, identity stability, certainty, similarity, and genetics.

The social realness component included items calling the group in question “real” and “distinct” (5 items; $\alpha=.91$; mean inter-item correlation=.67).¹⁶ We focused much of our attention on these items because they included the most explicit endorsement of the “real group” concept that motivated the research. (We use the provisional phrase “social realness” for convenience when discussing Studies 6 and 7 to distinguish the idea that a group feels “real” from the rest of the items related to conceptual legitimacy. We refer to it as *social* realness to emphasize that participants are not reporting their beliefs about the physical existence of group members.)

The stability component precisely matched the stability measure from previous studies (4 items; $\alpha=.84$; mean inter-item correlation=.57). Two of the stability items also loaded (weakly) on social realness, reflecting the close association between the two constructs. The certainty component comprised the two items about ease of categorization ($r=.59$). The similarity component included items framing the group as homogenous, regardless of whether they referred to essential underlying attributes or simply shared personality characteristics (9 items; $\alpha=.92$; mean inter-item correlation=.55). The genetics component comprised the two items referring to a genetic or biological cause of group membership ($r=.77$). We computed scale scores using unweighted means of the items on each scale. See Table 3 for the correlations among scales.

Because social realness is related to perceived entitativity, but no clear entitativity factor emerged from the PCA, we separately tested the association between social realness and a composite measure of three items conventionally used as indicators of perceived entitativity

¹⁶ We do not intend to argue that items describing a group as “distinct from other groups” and as “a real social group” are synonymous in theory. Rather, the correlations among these types of items in our studies implied that participants saw them in a similar light. We leave it to future research to determine the details of how lay people make sense of questions about conceptual distinctiveness (as indicators of conceptual legitimacy, of a general feeling that a group counts as “real,” or of something else correlated with the latter feeling).

("[Black] people feel unified as a group," "[Black] people interact with other [Black] people very frequently," and "[Black] people share common goals with other [Black] people," $\alpha=.67$; Hamilton et al., 2009; Newheiser et al., 2009). The correlation between social realness and this entitativity measure was substantial, $r(457)=.51, p<.001$. However, it was considerably weaker than the minimum item-scale correlation within the social realness scale, $r=.71$ (the correlation between "[Black] people are distinct from other groups in this society" and the realness scale computed without that item). The purpose of this manuscript is not to resolve the question of whether social realness should be considered a form of entitativity or merely a correlate, but at the very least it seems that participants did not treat their beliefs about group cohesion or shared goals as equivalent to the idea that a group feels "real." Indeed, Table 3 reveals that the strongest correlate of social realness among our computed scales was identity stability. We focus on realness and stability in this manuscript, leaving many of the results pertaining to certainty, similarity, and genetics to the Supplementary Document.

Table 3

Correlations among social realness, identity stability, certainty, similarity, and genetics (Studies 6 and 7)

	Study 6 (race)				Study 7 (sexual orientation)			
	Stability	Certainty	Similarity	Genetics	Stability	Certainty	Similarity	Genetics
Social realness	0.60	0.44	0.29	0.19	0.42	0.13	0.12	0.15
Stability		0.45	0.12	0.16		0.35	-0.23	0.38
Certainty			0.22	0.15			0.08	0.01
Similarity				-0.14				-0.25

Note. These correlations include ratings of all target groups.

Differences among target groups. Having characterized the measure of social realness, we turn to our hypotheses about the overall differences among target groups. For these calculations, we omitted Black ($n=10$) and Native American ($n=3$) participants (and the one participant who declined to specify race/ethnicity) to focus on participants who rated the socially disadvantaged target groups as outgroups ($n=139$). We examined target group differences for all

five constructed scales, and the means and standard deviations can be found in Table 4. For each scale, we fit a mixed ANOVA model with target group (White, Black, third group) and condition (whether the third group was biracial or Native American) as predictors. Realness and stability were of primary interest; results for certainty, similarity, and genetics are discussed in Section E of the Supplementary Document.

Table 4

Means of social realness, identity stability, certainty, similarity, genetics, and evaluation for each target group (Study 6)

	<u>Biracial condition</u>			<u>Native American condition</u>		
	White	Biracial (Black/White)	Black	White	Native American	Black
Realness	5.12 (1.40)	4.42 (1.27)	5.53 (1.20)	5.43 (1.29)	5.84 (1.09)	5.82 (1.03)
Stability	4.82 (1.37)	4.41 (1.39)	5.25 (1.27)	5.15 (1.12)	5.57 (1.19)	5.44 (1.07)
Certainty	4.40 (1.59)	2.90 (1.15)	4.81 (1.40)	4.46 (1.58)	4.35 (1.61)	5.22 (1.46)
Similarity	2.73 (1.24)	2.56 (1.04)	3.18 (1.46)	3.15 (1.21)	3.67 (1.23)	3.70 (1.40)
Genetics	6.02 (1.27)	5.70 (1.49)	6.10 (1.18)	5.91 (1.33)	5.23 (1.78)	5.89 (1.46)
Evaluation	74.24 (18.07)	73.78 (19.75)	67.38 (23.92)	80.07 (16.75)	76.75 (16.78)	68.25 (21.53)

Note. Standard deviations are in parentheses. The response scale ran from 1 to 7 for realness, stability, certainty, similarity, and genetics. The response scale ran from 0 to 100 for evaluation. In both conditions, participants were informed of which three groups they were comparing early in the procedure, so we would not expect ratings of White and Black targets to be identical across conditions.

For social realness, there was a significant interaction between condition and target group, $F(2, 274)=20.75, p<.001, \eta^2_p=.132$. In the biracial condition, as predicted, biracial people were viewed as significantly less socially real than both White people, $t(84)=4.40, p<.001, d=0.48$, and Black people, $t(84)=7.40, p<.001, d=0.80$. Black people were perceived as more socially real than White people, $t(84)=3.71, p<.001, d=0.40$. In the Native American condition, White people were perceived as significantly less real than both Native American people, $t(53)=3.17, p=.003, d=0.43$, and Black people, $t(53)=3.65, p=.001, d=0.50$. Attributed realness did not differ significantly between Native American and Black people, $t(53)=0.20, p=.84, d=0.03$.

A supplementary linear mixed model with a random intercept by participant revealed that biracial people were perceived as less socially real than both White people, $b=0.24$, $SE=0.11$, $p=.032$, $b^*=0.18$, and Black people, $b=0.34$, $SE=0.12$, $p=.005$, $b^*=0.25$, even when statistically adjusting for stability, certainty, similarity, and genetics. This result reinforces our view that social realness is conceptually distinct with regard to judgments of intermediate groups.

For stability, there was also a significant interaction between condition and target, $F(2, 274)=12.91$, $p<.001$, $\eta^2_p=.086$. In the biracial condition, biracial identities were viewed as significantly less stable than both White, $t(84)=2.69$, $p=.009$, $d=0.29$, and Black, $t(84)=6.02$, $p<.001$, $d=0.65$, identities. Black identities were perceived as more stable than White identities, $t(84)=3.64$, $p<.001$, $d=0.40$. In the Native American condition, White identities were perceived as significantly less stable than both Native American, $t(53)=3.10$, $p=.003$, $d=0.42$, and Black, $t(53)=2.27$, $p=.027$, $d=0.31$, identities. Attributed identity stability did not differ significantly between Native American and Black targets, $t(53)=0.82$, $p=.42$, $d=0.11$.

Although we did not specifically predict that biracial targets would be evaluated negatively on average, we examined the effects of condition and target group on evaluation. The means and standard deviations for each target group can be found in Table 4. There was no significant main effect of condition, $F(1, 137)=1.17$, $p=.28$, $\eta^2_p=.008$, only a main effect of target group, $F(2, 274)=20.12$, $p<.001$, $\eta^2_p=.128$. Across conditions, Black people were evaluated more negatively than all other groups, $t>2.81$, $p<.007$, $d>.31$. The interaction was not significant, $F(2, 274)=1.34$, $p=.26$, $\eta^2_p=.010$.

White ingroup identification. Our final research question pertained to the effect of ingroup identification among White participants. For the analysis of ingroup identification, we

excluded non-White participants ($n=26$) and one White participant who declined to respond to the identification measure, leaving 112 participants.

Our hypotheses of interest concerned the differences among target groups at high and low levels of ingroup identification. We tested these hypotheses using linear mixed models. Each model predicted an outcome of interest (e.g., social realness) on the basis of target group, condition, identification, and relevant interactions, with a random intercept by participant. All p -values were obtained using likelihood ratio chi-squared tests. Reported effect sizes (denoted b^*) are slopes based on standardized outcome variables but not standardized dummy variables.

The identification variable ranged from 1 to 7 ($M=4.68$, $SD=1.28$). We fit models at one standard deviation above and below the mean, which we refer to as “high” and “low” levels of identification. Table 5 summarizes the resulting fitted values. For all of the variables of interest, White ingroup identification was a statistically significant moderator of the differences among target groups, in some cases as part of a three-way interaction with target group and condition, and in other cases as part of a two-way interaction with target group in parallel with the known joint effects of target group and condition. We examined the interactions by comparing target groups within each condition at high and low levels of identification.

Table 5

Social realism, identity stability, certainty, similarity, genetics, and evaluation by target group and ingroup identification among White participants (Study 6)

Variable	Low White ingroup identification (1 SD below mean)						High White ingroup identification (1 SD above mean)					
	Biracial condition			Native American condition			Biracial condition			Native American condition		
	White	Biracial	Black	White	Native American	Black	White	Biracial	Black	White	Native American	Black
Realness	4.67	4.44	5.18	4.58	5.20	5.17	5.57	4.45	5.91	6.00	6.21	6.18
Stability	4.45	4.60	5.00	4.66	5.06	5.04	5.03	4.05	5.42	5.60	5.90	5.67
Certainty	4.04	2.85	4.47	4.51	3.94	5.30	4.83	2.70	5.24	4.37	4.78	5.02
Similarity	1.91	2.04	2.15	2.41	3.02	2.78	3.40	3.02	4.07	3.38	4.01	4.08
Genetics	6.06	5.93	6.16	5.69	5.01	5.81	6.09	5.63	6.29	6.23	5.54	6.17
Evaluation	71.92	75.99	73.48	76.59	76.28	75.58	78.92	70.83	62.38	84.93	78.57	62.80

Note. These fitted values stem from linear mixed models predicting the variables shown in the first column, each with a random intercept by participant. To avoid artificially constraining these fitted values, we obtained them from fully saturated models that included the three-way interaction between target group, condition, and identification.

As predicted, White ingroup identification was associated with viewing biracial people as socially unreal. Specifically, White participants low in ingroup identification viewed biracial people as less socially real than Black people, $b=0.74$, $SE=0.16$, $p<.001$, $b^*=0.58$, but not White people, $b=0.23$, $SE=0.16$, $p=.14$, $b^*=0.18$. In contrast, they viewed Native American people as similar in social realism to Black people, $b=0.03$, $SE=0.23$, $p=.90$, $b^*=0.02$, and more socially real than White people, $b=0.62$, $SE=0.23$, $p=.007$, $b^*=0.48$. White participants high in ingroup identification viewed biracial people as less socially real than both Black people, $b=1.46$, $SE=0.17$, $p<.001$, $b^*=1.14$, and White people, $b=1.13$, $SE=0.17$, $p<.001$, $b^*=0.88$. They did not attribute different levels of social realism in the Native American condition, $b<0.22$, $SE=0.20$, $p>.28$, $b^*<0.17$.

The pattern for stability was similar to the pattern for social realism. At low levels of participant ingroup identification, biracial identities were perceived as less stable than Black identities, $b=0.40$, $SE=0.19$, $p=.036$, $b^*=0.30$, but not White identities, $b=0.15$, $SE=0.19$, $p=0.43$,

$b^*=0.11$. In contrast, Native American identities were not perceived as significantly more or less stable than Black identities, $b=0.02$, $SE=0.27$, $p=.94$, $b^*=0.01$, or White identities, $b=0.40$, $SE=0.27$, $p=.14$, $b^*=-.30$. At high levels of participant ingroup identification, biracial identities were perceived as less stable than both Black identities, $b=1.37$, $SE=0.20$, $p<.001$, $b^*=1.03$, and White identities, $b=0.99$, $SE=0.20$, $p<.001$, $b^*=0.74$. In contrast, Native American identities were not perceived as significantly more or less stable than Black identities, $b=0.23$, $SE=0.23$, $p=.32$, $b^*=0.17$, or White identities, $b=0.30$, $SE=0.23$, $p=.20$, $b^*=0.23$.

We predicted that ingroup identification would be associated with greater discrepancies in evaluation. Indeed, participants low in White ingroup identification did not show significant differences in their evaluations of any target groups, $b<4.08$, $SE>2.35$, $p>.084$, $b^*<0.21$.

Participants high in White ingroup identification evaluated White people more positively than biracial people, $b=8.08$, $SE=2.56$, $p=.002$, $b^*=0.40$, and biracial people more positively than Black people, $b=8.45$, $SE=2.56$, $p=.001$, $b^*=0.42$. They also evaluated White people more positively than Native Americans, $b=6.36$, $SE=2.94$, $p=.031$, $b^*=0.31$, and Native Americans more positively than Black people, $b=15.77$, $SE=2.94$, $p<.001$, $b^*=0.78$.

Discussion

Study 6 illustrated the idea that participants can judge a real-world intermediate group to be socially unreal (and conceptually illegitimate), taking Black/White biracial people as an illustrative example. Examining the intercorrelations of items provided evidence that social realness was distinct from (a) the ability to easily discern group membership (certainty), (b) the perceived essential or descriptive similarity of group members to each other (similarity), and (c) the biological etiology of group membership (genetics). The evidence that social realness was distinct from identity stability was weaker. We see social realness as focusing on the validity of

the group designation itself in a larger social context, and stability as focusing on the validity of the internal psychological identities of group members. The strong correlation between these two constructs (coupled with the fact that two items loaded on both factors) suggests that they are conceptually analogous, at least in the context of race. In short, when people report that a racial group feels “real,” they are not simply saying that it is easy to tell who is in that group or that membership implies shared attributes, they are saying that the group itself is conceptually distinctive and, often, that identification with it is genuine and stable. This concept is central to understanding judgments of intermediate social groups.

Biracial (Black/White) people were perceived as substantially less socially real and less stable (in the sense of having a stable identity) than White and Black people. Native Americans, on the other hand, were not perceived as any less socially real or stable than White and Black people. This result helped to rule out the possibility that low ratings of social realness for biracial people could be attributed to their being the “odd one out” of a set of three rather than their status as an intermediate social group.

Biracial people, and not Native Americans, were also rated lower than White and Black people on certainty and similarity. These results are consistent with studies showing that people experience cognitive difficulty categorizing faces as biracial even when biracial faces are actually less graphically varied than monoracial faces (Chen & Hamilton, 2012), and that racial ambiguity can reduce essentialist thinking (Young et al., 2013).

Biracial people were not, however, evaluated more negatively than White and Black people. In other words, the effect of social group intermediacy on evaluation found with novel groups in the previous studies did not manifest for racial groups in Study 6. Instead, Black people were evaluated negatively, relative to all of the other target groups. This result is

consistent with past work demonstrating a clear explicit evaluative bias against Black people (Greenwald et al., 2009; Hall et al., 2015; Kinder & Drake, 2009; Oswald et al., 2013), even relative to biracial people (Freeman et al., 2016), and it highlights the differences between novel groups and groups with long histories of prejudice. For example, evaluations of biracial people may depend on attributes other than their intermediate status, such as a stereotype that biracial people are more physically attractive than monoracial people (see Lewis, 2010; Rhodes et al., 2005; Skinner et al., 2020) or a motivation to avoid expressing racial prejudice (Dovidio et al., 2002; Plant & Devine, 1998).

White ingroup identification helped to clarify the results. White participants high in ingroup identification were especially likely to perceive biracial people as less socially real and less stable than their ingroup. They were also the only participants for whom we found even limited evidence for negative evaluation of biracial people. Ingroup identification can enhance the motivation to view the ingroup and the “opposite” outgroup as highly distinct (Diehl, 1990; Jetten et al., 2004; Tajfel & Turner, 1979), and to challenge anything that undermines that distinctness (Hornsey & Hogg, 2000; Jetten et al., 1997, 2001). Due to the oppositional nature of race relations in the United States (Norton & Sommers, 2011), White participants may view Black people as the quintessential opposite outgroup (heightening both prejudice and the sense that they are a “real group”; see Dasgupta et al., 1999; Newheiser et al., 2009). The present results suggest that an intermediate group may represent a threat to the positive distinctiveness of a strongly endorsed advantaged group identity. Viewing the intermediate group as socially unreal may mitigate this threat because it implies that the group does not “count.”

White participants low in ingroup identification rated White people as less socially real and less stable than Black people and Native Americans. This response pattern is not central to

the purpose of the current report, but we speculate that it may reflect a strategy of downplaying the White category in order to manage threats associated with seeing one's group as privileged (see Knowles et al., 2014).

This study provided one real-world example of an intermediate group perceived as conceptually illegitimate. White and Black endpoint groups provide a useful initial example due to the central role these groups play in mainstream thinking about the history of the US, but our choice of example should not be taken as an indication that White and Black are the only two important monoracial groups in the US or that Black/White biracial people are the only important biracial group. A more complete understanding of the role of social realness and identity stability in judgments of biracial people will depend on applying these concepts to other biracial groups in future research (see Skinner et al., 2020).

Study 7

Study 6 explored the perception that a real-world intermediate social group, biracial people, does not constitute a “real” group. Many of the effects resembled those seen with novel groups in Studies 1-5, which we interpreted as evidence for a pattern of attitudes particular to social group intermediacy itself, hinging on the idea that many people see intermediate groups as illegitimate groups. Study 7 aimed to test this pattern in the context of another real-world intermediate social group, bisexual people.

Specifically, in Study 7, we repeated the procedure of Study 6 almost exactly, but with bisexual, heterosexual, and gay/lesbian people as our main groups of interest. Previous research has shown that bisexuality is perceived as less stable than heterosexuality and homosexuality (Burke & LaFrance, 2016, 2018; Mohr et al., 2009). Based on the strong relationship between identity stability and social realness in Study 6, we predicted that bisexual people would also be

seen as less socially real than heterosexual and gay/lesbian people (see Israel & Mohr, 2004; Rust, 1995, 2000; Worthen, 2013).

Although Study 6 found biracial people to be evaluated as positively as White people, we again tested the evaluation of the intermediate group in Study 7. Negative evaluation of gay/lesbian people is a well-established phenomenon (Herek, 1984, 1988, 2009), and some evidence suggests that bisexual people are evaluated even more negatively (Burke & LaFrance, 2016; Eliason, 1997; Herek, 2002). However, these effects seem to be decreasing in magnitude over time, likely because the overall acceptability of overt negative views of sexual minorities has shifted (Herek & McLemore, 2013; Pew Research Center, 2015b). Indeed, attitudes toward gay/lesbian people are susceptible to the effects of perceived social norms against expressing overt sexual orientation bias in the US (Cox & Devine, 2014; Ratcliff et al., 2006; West & Hewstone, 2012). Some recent evidence suggests that changing norms can influence expression of attitudes toward bisexual people as well (Anderson et al., 2015; McCormack et al., 2014). Therefore, while we predicted that bisexual people would be evaluated negatively, especially among participants high in heterosexual ingroup identification, we anticipated that this effect would be smaller than the effect on social realness.

In addition to the main experimental condition in which participants compared heterosexual, gay/lesbian, and bisexual people, we included a secondary condition in which participants compared heterosexual, gay/lesbian, and asexual people. We included asexual people as an example of a sexual orientation group with both very low familiarity and negative evaluations more extreme than those directed at gay/lesbian and bisexual people (Hoffarth et al., 2016; MacInnis & Hodson, 2012). We expected that many participants would doubt the validity of asexuality as a sexual orientation for reasons unrelated to intermediate groups (Bogaert, 2006;

Hoffarth et al., 2016), and thus that asexual people would be rated as low in both social realness and stability. Since asexual people are not an intermediate group in any obvious way, attitudes toward them are not vital to our theory; they simply provide a conceptual benchmark for the effect size of the difference in social realness between bisexual and gay/lesbian people.

As with many social groups, attitudes toward gay/lesbian, bisexual, and asexual people have been shown to correlate with the strength of ingroup identification among heterosexual participants (Hodson et al., 2009; MacInnis & Hodson, 2012). We therefore predicted that both bisexual people and asexual people would be perceived as less socially real and less stable than heterosexual and gay/lesbian people, and that strength of heterosexual ingroup identification would help explain this perception.¹⁷

Method

Participants. Participants ($n=148$) were recruited in 2014 via MTurk. The mean age was 35.91 ($SD=11.17$). Participants comprised 62 women and 86 men. Most were White ($n=119$); 10 were Hispanic or Latino/a, 8 were Black, 9 indicated one or more other identities, and 2 declined to specify. Most were heterosexual ($n=128$), 8 were bisexual, 7 were gay/lesbian, and 5 declined to specify.

Procedure. The procedure was identical to Study 6 except for the descriptions of the target groups. All participants evaluated three target groups—“heterosexual people,” “gay/lesbian people,” and a third group randomly assigned to be “bisexual people” or “asexual people.” After telling participants what groups they would be considering, we provided definitions of each one in case some participants were unfamiliar with the terms. The text of the definitions was as follows: “Heterosexual people are those who experience sexual attraction

¹⁷ Gay/lesbian participants who identify strongly with their ingroup may view bisexual people as “not a real group,” too, but our sample lacks the statistical power to test such a claim.

primarily to people who are not the same gender as themselves,” “Gay/lesbian people are those who experience sexual attraction primarily to people who are the same gender as themselves,” “Bisexual people are those who experience sexual attraction to both people who are and people who are not the same gender as themselves,” and “Asexual people are those who do not experience sexual attraction.”

The measures were identical to those from Study 6. We examined evaluation (3 items; $\alpha=.98$), identification with the heterosexual ingroup (6 items; $\alpha=.87$), social realness (5 items; $\alpha=.93$), identity stability (4 items; $\alpha=.91$), certainty (2 items; $r=.38$), similarity (9 items; $\alpha=.90$), and genetics (2 items; $r=.73$).

Results

Social realness and related constructs. We again examined the intercorrelations of items capturing social realness, stability, certainty, similarity, and genetics using PCA with an oblimin rotation. For the main analysis reported numerically, we included all participants regardless of sexual orientation ($n=148$), and we included all target groups as separate observations (444 total observations). However, to ensure that the conceptual results were not dependent on this decision, we repeated the same PCA with only heterosexual participants and with each target group individually. In all cases, the items grouped together in the same way, except that when focusing specifically on bisexual targets and asexual targets, the three reverse-coded similarity items (asserting that group members are different from one another) loaded on certainty rather than similarity.

The results of a PCA with the 22 core items can be found in the right half of Table 2.¹⁸ The items grouped into the same five components as in Study 6—social realness, identity stability, certainty, similarity, and genetics. None of the stability items loaded more than .23 on

¹⁸ We omitted the five items that loaded ambiguously, just as in Study 6.

social realness, suggesting that there may be less conflation of these concepts in the context of sexual orientation than in the context of race. Indeed, the overall correlation between social realness and stability was weaker in Study 7 than in Study 6 (see Table 3 for all of the correlations among the constructed scales in both studies).

Differences among target groups. For the remainder of the Results section, we omitted non-heterosexual participants ($n=15$), participants who did not specify their sexual orientation ($n=5$), and one heterosexual participant who declined to complete the ingroup identification measure, leaving a sample size of 127 heterosexual participants. As in Study 6, we examined target group differences for all five constructed scales; the means and standard deviations can be found in Table 6. For each scale, we fit a mixed ANOVA model with target group (heterosexual, gay/lesbian, third group) and condition (whether the third group was bisexual or asexual) as predictors. Realness and stability were of primary interest; results for certainty, similarity, and genetics are discussed in Section F of the Supplementary Document.

Table 6

Means of social realness, stability, certainty, similarity, genetics, and evaluation for each target group (Study 7)

	<u>Bisexual condition</u>			<u>Asexual condition</u>		
	Heterosexual	Bisexual	Gay/lesbian	Heterosexual	Asexual	Gay/lesbian
Realness	5.02 (1.61)	4.57 (1.65)	5.47 (1.37)	5.20 (1.39)	4.60 (1.55)	5.64 (1.23)
Stability	5.79 (1.06)	4.49 (1.69)	5.41 (1.42)	5.82 (1.10)	4.45 (1.39)	5.42 (1.33)
Certainty	4.70 (1.59)	3.44 (1.63)	4.30 (1.54)	4.31 (1.60)	3.26 (1.41)	3.82 (1.47)
Similarity	2.96 (1.34)	3.08 (1.27)	3.30 (1.35)	2.69 (1.09)	3.04 (1.02)	3.22 (1.22)
Genetics	5.54 (1.40)	4.32 (1.69)	4.72 (1.83)	5.23 (1.53)	4.18 (1.56)	4.65 (1.75)
Evaluation	79.00 (18.44)	66.70 (25.72)	68.31 (28.33)	75.64 (19.54)	68.65 (21.82)	67.58 (25.46)

Note. Standard deviations are in parentheses. The response scale ran from 1 to 7 for realness, stability, certainty, similarity, and genetics. The response scale ran from 0 to 100 for evaluation. In both conditions, participants were informed of which three groups they were comparing early in the procedure, so we would not expect ratings of heterosexual and gay/lesbian targets to be identical across conditions.

For social realness, there was a significant main effect of target group, $F(2, 250)=30.92$, $p<.001$, $\eta^2_p=.198$. The main effect of condition was not significant, $F(1, 125)=0.31$, $p=.58$,

$\eta^2_p=.002$, nor did it interact with target, $F(2, 250)=0.24, p=.79, \eta^2_p=.002$. In both conditions, gay/lesbian targets were perceived as more socially real than heterosexual targets, $t>2.64, p<.01, d>0.32$. More importantly, as predicted, both bisexual and asexual targets were perceived as less socially real than heterosexual targets, $t>2.31, p<.03, d>0.28$, and gay/lesbian targets, $t>5.51, p<.001, d>0.70$.

For stability, too, there was a significant main effect of target group, $F(2, 250)=51.74, p<.001, \eta^2_p=.293$. The main effect of condition was not significant, $F(1, 125)=0.00, p=1.00, \eta^2_p=.000$, and the interaction was not significant, $F(2, 250)=0.04, p=.96, \eta^2_p=.000$. In both conditions, contrasting with the effect observed for social realness, gay/lesbian identities were perceived as less stable than heterosexual identities, $t>1.99, p<.05, d>0.25$. More critically, consistent with our prediction, both bisexual and asexual identities were perceived as less stable than heterosexual identities, $t>6.18, p<.001, d>0.76$, and gay/lesbian identities, $t>4.61, p<.001, d>0.58$.

For evaluation, there was a significant main effect of target group, $F(2, 250)=16.91, p<.001, \eta^2_p=.119$. The main effect of condition was not significant, $F(1, 125)=0.04, p=.84, \eta^2_p=.000$, and the interaction between condition and target was not significant, $F(2, 250)=0.98, p=.38, \eta^2_p=.008$. In both conditions, heterosexual targets were evaluated more positively than other targets, $t>2.45, p<.02, d>0.31$. Neither bisexual nor asexual targets were evaluated significantly differently from gay/lesbian targets, $t<0.97, p>.3, d<0.11$.

Do differences in social realness associate with differences in evaluation? In contrast to Study 6, Study 7 included an intermediate group (bisexual people) that was evaluated significantly more negatively than its socially advantaged counterpart (heterosexual people). This permitted us to test the mediating role of social realness in the relatively less positive

evaluation of bisexual people. We tested the extent to which the difference in negative evaluation between bisexual and heterosexual targets could be explained by a difference in social realness, using a strategy identical to the mediation tests in the pooled analysis of Studies 1 through 5 (Judd et al., 2001).

Overall, social realness significantly mediated the extent to which bisexual people were evaluated more negatively than other groups, $r=.56$, 95% CI=[.36, .71]. The corresponding indirect effect was not statistically significant for asexual people, $r=.22$, 95% CI=[-.03, .45]. We compared these indirect effects by permitting the condition variable to interact with the sum and difference terms in Judd and colleagues' (2001) model, and the difference did not reach statistical significance, $b=3.42$, $SE=2.14$, $p=.11$. Our main strategy compared bisexual targets to heterosexual and gay/lesbian targets simultaneously, but the evaluation difference between bisexual and gay/lesbian targets was not statistically significant in this study, so we repeated the estimation of the indirect effect separately using heterosexual and gay/lesbian as the point of comparison. Social realness differences explained differences in evaluation between bisexual and heterosexual targets, $r=.50$, 95% CI=[.29, .67], and between bisexual and gay/lesbian targets, $r=.45$, 95% CI=[.23, .63]. In contrast, social realness differences did not explain differences in evaluation between gay/lesbian and heterosexual targets, $r=-.02$, 95% CI=[-.20, .15].

We repeated the procedure for stability and found that stability also significantly mediated the extent to which bisexual people were evaluated more negatively than other groups, $r=.44$, 95% CI=[.22, .62]. The corresponding indirect effect was also statistically significant for asexual people, $r=.60$, 95% CI=[.41, .74], and they did not differ significantly, $b=3.36$, $SE=1.90$, $p=.079$. Examining heterosexual and gay/lesbian targets separately, stability differences explained differences in evaluation between bisexual and heterosexual targets, $r=.48$, 95%

CI=[.26, .65], and between bisexual and gay/lesbian targets, $r=.34$, 95% CI=[.10, .54]. In contrast, stability differences did not explain differences in evaluation between gay/lesbian and heterosexual targets, $r=-.04$, 95% CI=[-.21, .14].

Heterosexual ingroup identification. Our final research question pertained to the role of ingroup identification among heterosexual participants. As in Study 6, we fit linear mixed models, each of which predicted an outcome of interest (e.g., social realness) on the basis of target group, condition, identification, and relevant interactions, with a random intercept by participant. All p -values were obtained using likelihood ratio chi-squared tests.

The identification variable ranged from 1 to 7 ($M=4.95$, $SD=1.38$). We fit models at one standard deviation above and below the mean, which we refer to as “high” and “low” levels of identification. Table 7 summarizes the resulting fitted values. We again focus on social realness, identity stability, and evaluation; for each of those variables, there was a significant interaction between heterosexual ingroup identification and target group. We report simple effects specific to the bisexual condition because it is of primary interest and the results did not significantly differ between the bisexual and asexual conditions.

Table 7

Social realness, identity stability, certainty, similarity, genetics, and evaluation by target group and ingroup identification among heterosexual participants (Study 7)

Variable	Low heterosexual identification (1 SD below mean)						High heterosexual identification (1 SD above mean)					
	Bisexual condition			Asexual condition			Bisexual condition			Asexual condition		
	Het.	Bis.	G/L	Het.	Ase.	G/L	Het.	Bis.	G/L	Het.	Ase.	G/L
Realness	4.60	4.47	5.16	4.89	4.64	5.23	5.35	4.66	5.72	5.59	4.55	6.16
Stability	5.49	5.08	5.45	5.67	4.87	5.75	6.02	4.02	5.38	6.01	3.90	5.00
Certainty	4.03	3.08	3.83	3.93	3.46	3.69	5.23	3.72	4.67	4.79	2.99	3.97
Similarity	2.54	2.59	2.63	2.37	2.76	2.73	3.29	3.47	3.84	3.10	3.39	3.84
Genetics	5.47	4.84	5.12	5.20	4.33	4.87	5.59	3.90	4.39	5.26	3.98	4.36
Evaluation	75.14	72.02	75.68	69.03	70.99	71.68	82.05	62.50	62.48	84.10	65.65	62.33

Note. These fitted values stem from linear mixed models predicting the variables shown in the first column, each with a random intercept by participant. To avoid artificially constraining these fitted values, we obtained them from fully saturated models that included the three-way interaction between target group, condition, and identification.

We predicted that high levels of heterosexual ingroup identification would be associated with a more pronounced belief that bisexual people are not socially real. Indeed, as with biracial targets in Study 6, bisexual targets were only differentiated from the ingroup among high identifiers. Specifically, heterosexual participants low in ingroup identification viewed bisexual people as less socially real than gay/lesbian people, $b=0.70$, $SE=0.26$, $p=.007$, $b^*=0.46$, but not heterosexual people, $b=0.13$, $SE=0.26$, $p=.61$, $b^*=0.09$. Heterosexual participants high in ingroup identification viewed bisexual people as less socially real than both gay/lesbian people, $b=1.06$, $SE=0.23$, $p<.001$, $b^*=0.70$, and heterosexual people, $b=0.69$, $SE=0.23$, $p=.003$, $b^*=0.46$.

The pattern for stability was similar. At low levels of participant ingroup identification, bisexual identities were not perceived as significantly less stable than gay/lesbian identities, $b=0.37$, $SE=0.27$, $p=.18$, $b^*=0.25$, or heterosexual identities, $b=0.41$, $SE=0.27$, $p=0.13$, $b^*=0.28$. At high levels of participant ingroup identification, bisexual identities were perceived as less

stable than both gay/lesbian identities, $b=1.36$, $SE=0.24$, $p<.001$, $b^*=0.94$, and heterosexual identities, $b=2.00$, $SE=0.24$, $p<.001$, $b^*=1.37$.

We predicted that ingroup identification would be associated with greater discrepancies in evaluation. Indeed, participants low in ingroup identification did not show significant differences in their evaluations of heterosexual, bisexual, and gay/lesbian people, $b<3.67$, $SE=3.72$, $p>.32$, $b^*<0.16$. Participants high in ingroup identification evaluated heterosexual people more positively than both bisexual people, $b=19.55$, $SE=3.30$, $p<.001$, $b^*=0.82$, and gay/lesbian people, $b=19.58$, $SE=3.30$, $p<.001$, $b^*=0.82$.

Discussion

Study 7 demonstrated a similar pattern of attitudes toward intermediate groups to that found in the novel groups studies. Specifically, bisexual people were perceived as less socially real and lower in identity stability than heterosexual and gay/lesbian people. Both bisexual and gay/lesbian people were evaluated more negatively than heterosexual people. Differences between target groups in social realness and identity stability helped explain the negative evaluation of bisexual targets (as with novel intermediate groups in the pooled analysis of Studies 1 through 5). The equivalent indirect effect did not hold for gay/lesbian targets, consistent with the possibility that social realness and stability have a special explanatory role for an intermediate group (as opposed to any negatively evaluated group), and that negative attitudes toward bisexual people and gay/lesbian people stem from different psychological processes.

As with attitudes toward biracial people, ingroup identification heightened the distinctive attitudes toward bisexual people. Heterosexual participants who identified strongly with their ingroup were especially likely to view bisexual people as low in social realness compared to heterosexual and gay/lesbian people, to view bisexuality as unstable compared to heterosexuality

and homosexuality, and to evaluate bisexual people negatively compared to heterosexual people. The fact that participants high in heterosexual ingroup identification rated gay/lesbian people as more socially real than their own group, but bisexual people as less socially real than their own group, suggests that the observed effects are more than simple ingroup favoritism. The existence of bisexuality may represent a threat to the distinctiveness of the valued ingroup in a way that homosexuality does not, leading to the view that bisexual people do not count as a real group and the accompanying negative evaluation.

Throughout Study 7, the results for asexual targets were similar to the results for bisexual targets, in form and in magnitude. Some evidence and commentary suggests that asexual people are viewed as a highly illegitimate sexual orientation group (Bogaert, 2006; Hoffarth et al., 2016; MacInnis & Hodson, 2012). We expected them to be rated as low in social realness for reasons other than intermediacy, but exploring other reasons that social groups can be viewed as conceptually illegitimate is not the main focus of this report. Notably, our participants viewed bisexual people as similarly unreal and unstable as asexual people.

Although we found evidence that bisexual and gay/lesbian people were evaluated negatively for different reasons, we did not find that bisexual people were evaluated more negatively than gay/lesbian people on average. This result is inconsistent with a number of previous studies, including one with a large random phone sample (Herek, 2002). Although our nonrepresentative sample may explain some of the discrepancy, we suspect that the main reason is that overt negative attitudes toward sexual minorities, including bisexual people, have become less socially acceptable over time (Anderson et al., 2015; Cox & Devine, 2014; McCormack et al., 2014; Pew Research Center, 2015b; Ratcliff et al., 2006). The suppression of explicit bias among some participants may obscure some differences among stigmatized target groups.

General Discussion

Across seven experiments, we identified a distinctive pattern of attitudes toward intermediate social groups, drawing evidence from judgments of hypothetical groups, biracial people, and bisexual people. Intermediate groups were perceived as less conceptually legitimate than corresponding endpoint groups, most notably in the sense that they were perceived not to count as “real” groups (here referred to as “social realness”). This pattern of conceptual rejection aligns with the tendency to frame intermediate groups as not “belonging” in society (e.g., Skinner et al., 2020). In several cases, intermediate groups were also evaluated less positively than endpoint groups, and this evaluation discrepancy was related to the sense that they are less socially real: the extent to which an intermediate group was perceived as less socially real than other groups predicted the extent to which it was evaluated less positively than those groups. Conceptual legitimacy, and perhaps specifically social realness, seems to be an explanatory factor in the relative negative evaluation of intermediate groups, working in conjunction with more well-known processes of intergroup attitudes such as ingroup favoritism.

There are several possibilities for why intermediate groups are perceived as less socially real than endpoint groups. Many dimensions of social identity in the US, including race and sexual orientation, are frequently discussed in binary terms—often readily summarized as “us” and “them.” People who commonly rely on a binary heuristic for social judgments in general may disregard intermediate groups (even novel ones) out of habit to avoid complicating their working model of identity. For participants focusing on certain real-world dimensions of identity such as race, intermediate categories may also simply have been less familiar or less commonly considered (see Chen & Hamilton, 2012; Chen et al., 2014). Alternatively, participants may have made reasoned inferences about which groups were most distinctive based on how many other

groups shared any of their defining characteristics—if an intermediate group shares defining characteristics with two other groups, each of which shares defining characteristics with only the intermediate group, then the intermediate group may seem inherently less distinctive and perhaps less necessary for categorization.

The current results suggest that viewing an intermediate group as socially unreal may contribute to prejudice. Encountering members of a group that is excluded or downplayed in one's categorization scheme can be aversive, so people who view intermediate groups as socially unreal may evaluate those groups less positively due to the expectation of classification difficulty (Halberstadt & Winkielman, 2014). Additionally, if a group is not socially real, then its members may be seen as labeling themselves with a false or illegitimate identity, implying that they are inauthentic and insincere (Mohr & Rochlen, 1999). Insincerity is widely viewed as an undesirable characteristic (Cuddy et al., 2009; Fiske et al., 2002). This latter possibility is consistent with the strong relationship we observed between identity stability and evaluation.

Our use of novel groups enabled us to separate the intermediate status of a social group from its other characteristics. The three hypothetical target groups of interest were given equivalent ratings when presented alone to different participants; the drawing with big and small spots only took on a distinctive rating when it was contrasted with the big-spotted and small-spotted drawings, thereby framing it as an intermediate group. In other words, intermediate social status alone was sufficient to cause people to perceive groups as less socially real and to evaluate them less positively.

The key effects of novel social group intermediacy did not substantially depend on (a) whether the characteristics of the novel groups were inborn or chosen, (b) the relative timing of information about the intermediate group, (c) whether the style of intermediacy reflected a

combination of discrete traits or a more dimensional trait, (d) the relative prevalence of the intermediate group, (e) the type of biological explanation given for how the group characteristics were inherited, or (f) whether the participant was assigned to an ingroup. This breadth suggests that the idea of intermediacy (rather than a particular form of intermediacy) causes changes in thinking about social realness and evaluation.

Intermediate status was associated with low ratings of social realness for novel groups, sexual orientation groups, and racial groups, but it was only associated with negative evaluation for novel groups and sexual orientation groups, not racial groups. In modern US culture, most people feel some motivation to avoid expressing overt racial bias even when they harbor prejudice privately (e.g., Dovidio et al., 2002; Plant & Devine, 1998). This motivation may have hindered our ability to detect evaluative biases against biracial people, because our measure of evaluation involved overt comparisons between racial groups on the same measurement scale. We would anticipate that viewing biracial people as low in social realness would be associated with subtle bias under conditions of plausible deniability or detected via implicit measures (Crandall & Eshleman, 2003; Dovidio, 2001). Subtler experimental strategies may be fruitful in the context of sexual orientation as well, given recent changes in social norms about sexual prejudice (Cox & Devine, 2014; Herek & McLemore, 2013; Pew Research Center, 2015b).

We focused on social realness as the most explicit manifestation of the idea that a group feels like a “real group” and the most relevant illustration of differences in perceived conceptual legitimacy. However, we also captured a variety of other self-report ratings related to this idea. Most notably, identity stability (Mohr & Rochlen, 1999) was correlated with social realness and exhibited nearly identical patterns with respect to the intermediate groups we tested. Social realness pertains to the abstract idea of the group—whether it is a meaningful, distinct

designation in society. Identity stability pertains to the inferred authenticity or legitimacy of the group identity in the minds of its members—whether it reflects something true about them.

These concepts may be viewed as distinct because realness addresses the category as a concept and stability addresses inferences about personal identities, but they are closely related because both pertain to the legitimacy of the social grouping. If a group is socially unreal or its identities are unstable, one might feel justified in excluding that group from one's system of social categorization, in the former case because the group designation is not meaningful, and in the latter case because the group members are expected (at least in principle) to eventually recognize an underlying alternative identity that is more accurate. We therefore view these constructs as playing the same role in our studies. We leave it to future research to explore the limits of the connection between them.¹⁹

In addition to an intermediate social group, Studies 1 and 6 included a condition with an alternative “odd group out.” In Study 1, the alternative novel group had a different color of spots; in Study 6, the alternative racial group was Native Americans. In both of these cases, the non-intermediate “odd group out” was rated as more (rather than less) socially real than the endpoint groups, ruling out the possibility that simply being the notably distinctive member of a set of three fully explains the effect of intermediacy. Study 7 also included an alternative “odd group out,” but with a different purpose—asexual people are a highly stigmatized sexual orientation group whose identities are widely dismissed, and they also received low ratings of realness, but not to a significantly greater degree than the intermediate group.

¹⁹ Also, reasonable experts might disagree about whether what we are calling “social realness” is a form of entitativity by definition or merely a correlate of it. The present results depend only on the idea that it is sensible to measure the explicit belief that a group is or is not a “real group,” distinct from other groups, whatever this belief may be called. This belief was correlated with traditional entitativity items (e.g., the perception that group members share goals or feel unified), but not so strongly as to imply that they are the same.

In several of our studies, both intermediate groups and other outgroups were evaluated negatively relative to the participants' ingroup. The evaluation of intermediate groups, however, seemed to stem from more than outgroup derogation. Studies 1 through 4 demonstrated with novel groups that participants evaluate an intermediate group negatively even when they have no ingroup to favor over it. Also, the evaluation of intermediate groups was consistently associated with low ratings of social realness, which did not show a more general ingroup favoritism effect. Instead, the non-intermediate outgroups that people most often think of as "opposite" their ingroup were rated as equally or more socially real than the ingroup, rather than less real.

Ingroup identification moderated our effects of interest. Higher levels of participant ingroup identification were associated with a more pronounced tendency to view the intermediate group as less socially real than the ingroup and the opposing outgroup. Higher levels of ingroup identification were also associated with less positive evaluations of the intermediate group relative to the ingroup. These results are consistent with the view that an intermediate group can threaten the distinctiveness of a valued ingroup, leading participants to dismiss and denigrate it. The existence of an opposing outgroup heightens the distinctiveness of the ingroup (see Turner et al., 1987), but the existence of a legitimate intermediate group may undermine the conceptual separation between the ingroup and the opposing outgroup (see Young et al., 2013). Previous research links ingroup identification to heightened reactions to distinctiveness threats (Jetten et al., 2004). In our studies, the moderating role of ingroup identification is therefore consistent with our explanation that intermediate groups are viewed as socially unreal because they do not fit into an established binary system of categorization in which each group has a traditionally recognized contrasting group.

We describe a pattern of thinking about intermediate groups as conceptually illegitimate, but we have only demonstrated aspects of this pattern with two real-world examples (Black/White biracial people and bisexual people).²⁰ This research rests on a provisional analogy between intermediate groups—an analogy that may be more useful in some cases than others. Studying judgments of other intermediate groups will be necessary to identify instances where the analogy breaks down. We have used the phrase “intermediate group” to refer to a group that shares (or is perceived to share) defining characteristics with more commonly acknowledged groups on the same dimension of social identity. Many types of social identity work this way—we have focused on race and sexual orientation, but religion, nationality, and disability are also frequently thought of in discrete terms and also include historically advantaged groups and historically disadvantaged groups. However, some types of social identity, such as age and weight, are commonly thought of as dimensions rather than as collections of discrete groups, and the points of relative social advantage tend to fall somewhere in between the extremes on these dimensions. We do not anticipate that our results would extend to intermediate groups on dimensions not commonly thought of as discrete.²¹

Our focus on perceptions of conceptual legitimacy coheres with previously documented patterns of reactions to groups such as biracial and bisexual people (Burke & LaFrance, 2016; Skinner et al., 2020), but there are also reasons for positive or negative evaluation specific to each intermediate group individually. For example, some people may evaluate bisexual people

²⁰ It is worth noting that race and sexual orientation are perceived very differently in ways that fundamentally alter the dynamics of intergroup relations. For example, disadvantaged racial and sexual orientation groups evoke different kinds of threat (Brambilla & Butz, 2013) and differ in the subjective importance of perceived controllability (Jayaratne et al., 2006).

²¹ For a discussion of groups that are defined by being intermediate in social status, power, or authority, see Caricati (2018).

negatively in part because they fear that bisexual people will be interested in them sexually (Pirlott & Neuberg, 2014).

Our results are also likely culturally bounded. Participants lived in the United States, which has not historically placed much emphasis on explicit biracial or multiracial identities—for example, the census did not permit people to mark more than one race until 2000. Members of cultures that include a named intermediate racial group in their standard lexicon (e.g., *Coloured* in South Africa or *pardo* in Brazil) may not view that intermediate racial group as socially unreal. Furthermore, we only examined one type of biracial group in the United States, Black/White biracial people. The effects we observed may depend on the type of racial group.

Nonetheless, in spite of the obvious differences between sexual orientation, race, and fictional alien beings, we identified a common link in perceptions of intermediate social groups across these contexts. Many intermediate group members face exclusion on two fronts: they are excluded from lay models of group identity through the view that their group is not real, and they are socially rejected because of these dismissive perceptions. Understanding and addressing this exclusion has the potential to bolster the well-being of intermediate group members (Albuja et al., 2019; Brewster & Moradi, 2010; Garr-Schultz & Gardner, 2021; Maimon et al., 2021; Nadal et al., 2011; Sanchez, 2010; Sarno & Wright, 2013; Shih & Sanchez, 2005; Wadsworth & Hayes-Skelton, 2015). More broadly, it expands the theoretical conception of intergroup bias to account for increasing degrees of heterogeneity within dimensions of group identity. Like the general public, psychologists will be increasingly confronted with intermediate groups as these groups gain social presence (Copen et al., 2016; Pew Research Center, 2015a). Exploring the implications of social realness and identity stability may help describe reactions to this changing demographic landscape.

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Supplementary Document

Distinctive Negative Reactions to Intermediate Social Groups (Burke, Perry, Dovidio, & LaFrance)

Main document: <https://doi.org/10.1111/jasp.12942>

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Section A: Complete Description of Procedures for Novel Groups Studies

In studies 1 through 5, participants imagined novel groups designed to isolate the concept of social group intermediacy. As stated in the manuscript body text, the first few studies contained extra procedural elements not included in the present report. Here, we describe the full procedure of Study 1 in detail and then briefly explain which elements were retained and which were dropped in subsequent studies (2 through 5).

Study 1 Procedure

Personal Need for Structure. After providing informed consent, all participants responded to the Personal Need for Structure scale (Neuberg & Newsom, 1993). The items, presented in a random order, were “It upsets me to go into a situation without knowing what I can expect from it,” “I’m not bothered by things that interrupt my daily routine,” “I enjoy having a clear and structured mode of life,” “I like to have a place for everything and everything in its place,” “I find that a well-ordered life with regular hours makes my life tedious,” “I don’t like situations that are uncertain,” “I hate to change my plans at the last minute,” “I hate to be with people who are unpredictable,” “I find that a consistent routine enables me to enjoy life more,” “I enjoy the exhilaration of being in unpredictable situations,” and “I become uncomfortable when the rules in a situation are not clear.”

Novel groups scenario. Next, participants read the introductory instructions for the novel groups scenario. The text of these instructions is quoted below with formatting removed.

We are interested in how people form impressions of fictional worlds. Imagine that you have been sent on a journey through space to discover new worlds and learn all that you can about them. After a long period of uneventful travel, you finally arrive at a planet unlike any you have ever seen before. When you land, you learn that the climate is

conducive to life and the planet is populated by a society of intelligent beings. Your mission is to learn about these beings. So far, you have been able to obtain some simple information about them. You will be expected to report back with your own personal impressions about what these beings are like and how they relate to one another. You must do your best to understand them based on whatever information you have. Please click through to the next page to learn more.

The experimental manipulation hinged on the presentation of three imaginary social groups to each participant. Participants in the experimental condition read, “In this society, there are three types of beings: Xs, Ys, and Zs. Xs have small spots. Zs have big spots. Ys have some big spots and some small spots.” These verbal descriptions were accompanied by cartoon drawings of creatures featuring correspondingly-sized black spots on their bodies, labeled X (presented on the left), Y (presented in the middle), and Z (presented on the right). See Figure S1 for an illustration. Participants assigned to the control condition were exposed to the same information about Xs and Zs, but they were told that “Ys have white spots,” and the drawing labeled Y featured medium-sized white spots instead of small or large black spots.

Figure S1

Cartoon drawings featuring different sizes of spots

After the descriptions of the three groups, on the same page, participants read one additional piece of information reflecting the manipulation of choice versus biological origin,

either “All of these beings chose their spots” or “All of these beings were born with their spots due to a biological characteristic.”

Information about the skills of each novel group. Next, participants read information about which groups of beings in the society were skilled at various tasks. This information was included for use in a later reaction time game not pertinent to the present report. Participants were told, “On this planet, the beings have to accomplish many tasks as a society. They have to make tools, build houses, and grow food. They sometimes work together to do these things, but they also have certain ideas about which types of beings are best at accomplishing these tasks.” Then the cartoon images were shown again, accompanied by statements of the following form: “Many of the beings on this planet believe that Xs are good at building houses, but bad at growing food.” Each participant saw three such statements. Each skill was mentioned twice—once as something a group was good at, and once as something a different group was bad at. The combinations of tasks were fully randomized within these constraints. Participants then read that “Some of the beliefs the beings have about each other may be more accurate than others.”

Legitimacy/realness. We measured conceptual legitimacy/realness using a set of items presented three times in a row, once per imagined group, in a random order. Each instance of this set of items included the instruction, “Please indicate whether you agree or disagree with the following statements based on your knowledge of this fictional society. There are no right answers - we just want to know what you think of these different types of beings.” The text of each item referred to Xs, Ys, or Zs, the assigned names of the groups, but each page of the survey also included, for reference, the cartoon drawings with their corresponding letter labels. Using “Zs” as a placeholder for Xs, Ys, and Zs, the items were as follows: “Zs are a completely distinct group in this society,” “It is sometimes uncertain whether any given being is a Z”

(reverse-scored), “Zs feel unified as a group,” “Zs interact with other Zs very frequently,” “Zs share common goals with other Zs,” “Zs are sometimes confused with other groups in this society” (reverse-scored), “Most Zs are very similar to other Zs,” and “Zs are distinct from other groups in this society.”

Memory for skills. Next, participants were prompted to recall the information they previously read about the skills of the beings. The instructions read, “Earlier, we told you about certain beliefs the beings have about each other. Now we want to see which of those beliefs you remember. Please fill in the blanks below. If you do not remember one of them, you may guess or enter ‘I don’t know.’” Participants then saw three items. Using “Zs” as a placeholder for Xs, Ys, and Zs, these items were phrased “Many of the beings on this planet believe that Zs are good at [blank], but bad at [blank],” with the blanks replaced by open-ended input fields.

On the next page, participants were told, “Earlier, we told you about certain beliefs the beings have about each other. Here is that information again.” The information about skills from earlier was repeated verbatim, and then participants were told, “Some of these beliefs may be more accurate than others. We want you to guess how accurate these beliefs are, imagining that the society you have learned about is real.” Participants were then asked nine questions of the form, “How good do you think Zs really are at building houses?” These questions paired each of the three target groups with each of the three skills, and they had response scales ranging from “Not good at all” to “Extremely good.”

Evaluation. Participants then completed the measure of evaluation, with items referring to each imagined group in the same manner as the social realness measure. At the top of each page was the instruction, “Please answer the following questions, imagining that the society you have learned about is real.” The items were “In general, how do you feel about [each group]?”

and “In general, how do you think other beings in this society feel about [each group]?” Each of these questions was followed by two sliding response scales ranging from 0 to 100 marked “Very negative” to “Very positive” and “Very unfavorable” to “Very favorable,” for a total of four items per target group.

Reaction time game. Participants then played a reaction time game using the information about the skills that they had learned earlier. The instructions for this game are quoted below with formatting removed.

Next, you will be given a series of decisions to make. On each page, you will be presented with a task that needs to be done in the fictional society, and two beings to choose from to do the task. You must select the being who you believe would most effectively complete the specified task. To select a being, simply click on its picture.

These questions are timed. Please respond as quickly as you can. As soon as you click on one of the beings, your answer will be submitted and the next question will appear. Press “Continue” when you are ready for the first timed question.

Each page of the reaction time game featured a question of the form, “Who should make some tools?” below which were two cartoon images labeled “This X,” “This Y,” or “This Z.” After eighteen trials representing every possible combination of task (building houses, making tools, and growing food) and every possible ordered pair of target groups, participants were told, “You have now completed the timed questions. Press ‘Continue’ to proceed to the rest of the survey.”

Reactions to the novel groups task. Next, participants were asked to guess why the hypothetical beings had certain combinations of spots and indicate how easy it was for them to imagine the fictional world.

For each target group, participants were asked, “Why do you think Zs have big spots? Please select your best guess,” with the response options, “They obtained their spots through experiences in life,” “Their spots are the result of a disease or accident,” “They chose their spots,” “Other beings (such as their families) chose their spots for them,” “They were born with their spots due to a biological or genetic characteristic. This characteristic came from a combination of their parents’ types of spots,” “They were born with their spots due to a biological or genetic characteristic. This characteristic came from one parent who had the same type of spots,” “They were born with their spots due to a biological or genetic characteristic. This characteristic is a normal biological feature of these beings that does not come from their parents,” “They were born with their spots due to a biological or genetic characteristic. This characteristic was a defect or an abnormality,” and “Other reason” accompanied by an open-ended field.

Participants were asked, “How easy was it for you to imagine the fictional society?” and “How similar do you think the fictional society was to the real society you live in?” with graded response scales. They were then instructed, “Please feel free to share any other comments you have about the fictional society you read about,” with an open-ended response field.

Demographics. Finally, participants completed the demographic measures. There were open-ended response fields for “Birth Year,” “Gender,” and “Race and/or Ethnicity.” To more easily categorize race/ethnicity responses, participants were asked, “Which of the following racial or ethnic identities do you feel best describe you?” with checkboxes for “Black or African American,” “Hispanic or Latino/a,” “White or Caucasian,” “East Asian,” “South Asian,” “Middle Eastern or Arab American,” “Native American or Alaskan Native,” “Native Hawaiian or Pacific Islander,” and “Other.”

Next, there was an open-ended response field for “Religious Identification(s).”

Participants were asked “How religious would you say you are?” with a response scale from “Not at all religious” to “Extremely religious.”

Participants were asked, “Which of these best describes your political views?” with the options, “Very conservative,” “Conservative,” “Moderate,” “Liberal,” and “Very liberal,” and an optional separate item noting, “If your political views fall into some other category, feel free to specify it here.” Participants were then asked, “If you had to categorize yourself as either ‘more liberal’ or ‘more conservative,’ which would you pick?” with only the two named response options.

The next item asked, “What is the highest level of formal education you have achieved so far?” with options ranging from “Have not reached high school” to “Graduate degree (e.g., M.A., Ph.D.).” Participants were then asked, “What is your sexual orientation?” with an open-ended response field, and “Which of the following terms do you feel best describes you?” with the options, “Heterosexual or straight,” “Homosexual, gay, or lesbian,” “Bisexual,” and “None of these terms describe me.”

At the end of the demographics page, we included the item that served as our exclusion criterion, “People take online surveys for a lot of reasons. Some people give serious answers in online surveys and other people give joking responses. Were any of your answers in this survey intended as jokes?” The response options were “yes” and “no.”

Study 2 Procedure

The procedure of Study 2 was identical to that of Study 1 except as described in the main text.

Study 3 Procedure

Study 3 involved a visual indication of the relative prevalence of the categories of alien creatures. As stated in the main body text, in the condition where the intermediate group was described as equally prevalent, all three graphical clusters contained 14 example beings; in the condition where the intermediate group was described as relatively rare, there were 14 example beings in each endpoint group and two in the intermediate group. See Figure S2 for an illustration.

Figure S2

Visual indication of relative prevalence (in the low prevalence condition)

Study 3 introduced the measure of identity stability. Items for this measure were presented on the same page as the legitimacy/realness items, with all items in a random order.

In Study 3, in addition to the new manipulation mentioned in the text, we moved all of the information about the beings having particular skills to just before the reaction time game, so that it could not interfere with our measures of interest. Because this information was presented all at once, we omitted the memory test portion of it.

Study 3 also introduced some new supplementary items after the measures of interest and before the information about skills. Examples of these items include, “For the beings in this society, big spots are fundamentally different from small spots,” and “It is normal for a being to

have big spots and small spots at the same time.” Participants were also instructed to recall the manipulated information about the relative numbers of Xs, Ys, and Zs in the imagined society.

Study 4 Procedure

The procedure of Study 4 was identical to that of Study 3 except as described in the main text.

Study 5 Procedure

Study 5 diverged from previous studies in that some participants were assigned to imagine being a member of one of the novel groups. This characteristic of the procedure is described in the main text. Study 5 also included a measure of participants’ levels of identification with their assigned roles, as described in the main text.

Here, we describe two other updates to the procedure relative to Studies 1 through 4. First, Study 5 omitted the reaction time game and all accompanying information about the beings having particular skills.

Second, Study 5 included a supplementary measure of positive regard for the novel groups, here referred to as “social closeness.” This measure consisted of three items presented at the same time as the evaluation measure. The new items, using Zs as the example target group, were “I could become very good friends with a Z,” “I would be comfortable socializing with a Z,” and “I sometimes avoid Zs.” These items had 7-point response scales ranging from “Strongly disagree” to “Strongly agree” and were averaged to form a composite measure of social closeness ($\alpha = .84$ overall; $\alpha > .81$ for each target group individually). This measure was highly correlated with evaluation ($r = .51$ overall, $r > .46$ for each target group individually) and yielded similar results. We focus on evaluation in the main text because it is conceptually simpler and because it was present in all studies.

Section B: Explicit “Realness” Items in Studies 3, 4, and 5

In Studies 3 through 5, we included two items to capture more explicit ratings of the novel target groups as “real” social groups. The first was “Zs constitute a real social group” with a seven-point response scale ranging from “Strongly disagree” to “Strongly agree.” The second was “Not every collection of beings is considered to be a true ‘group.’ Do Zs qualify as a group?” (see Lickel et al., 2000), with a seven-point response scale ranging from “Not a group at all” to “Very much a group.” These two items, when referring to race and sexual orientation groups, were central to the operationalization of “social realness” in Studies 6 and 7.

This table provides the same kind of information as Table 1 of the main body text, except with regard to a composite measure of “realness” (or “social realness”; see Study 6 for an explanation of how we use this term) formed by averaging together the above two items only, rather than the eight “realness/legitimacy” items that Studies 1 through 5 had in common.

Table S1

Two-item version of “realness” by target group for Studies 1 through 5

Study	Condition	Small-spotted		Intermediate		Big-spotted		Small vs. intermediate	Big vs. intermediate	Small vs. big
		Mean	SD	Mean	SD	Mean	SD			
Study 3		5.98	1.07	5.49	1.40	5.95	1.14	$t(88)=3.73$, $p<.001$, $d=0.40$	$t(88)=3.79$, $p<.001$, $d=0.40$	$t(88)=0.38$, $p=.71$, $d=0.04$
Study 4		5.43	1.43	5.06	1.50	5.29	1.49	$t(88)=3.41$, $p=.001$, $d=0.36$	$t(88)=2.49$, $p=.015$, $d=0.26$	$t(88)=1.47$, $p=.15$, $d=0.16$
Study 5	Observer	5.83	1.22	5.17	1.44	5.69	1.39	$t(71)=4.40$, $p<.001$, $d=0.52$	$t(71)=3.42$, $p=.001$, $d=0.40$	$t(71)=1.80$, $p=.076$, $d=0.21$
	Ingroup	5.58	1.35	5.22	1.41	5.73	1.16	$t(73)=2.53$, $p=.014$, $d=0.29$	$t(73)=3.79$, $p<.001$, $d=0.44$	$t(73)=1.40$, $p=.17$, $d=0.16$

Section C: Ingroup Identification in Study 5

This section contains additional statistical details about the ingroup identification results from Study 5. (It restates the same conceptual information, but with more of the individual numbers filled in.)

For legitimacy/realness, there was a significant interaction between target group and ingroup identification, $X^2(2)=8.40$, $p=.015$. Participants low in identification rated the ingroup (fitted value=4.53) and the opposite outgroup (4.67) as similarly real, $b=0.13$, $SE=0.14$, $p=.32$, $b^*=0.11$. They rated the intermediate group (4.22) as less socially real than both the ingroup, $b=0.31$, $SE=0.14$, $p=.022$, $b^*=0.26$, and the opposite outgroup, $b=0.44$, $SE=0.14$, $p=.001$, $b^*=0.37$. Participants high in identification exhibited a similar pattern, but with larger effects. They rated the ingroup (5.71) and the opposite outgroup (5.79) as similarly real, $b=0.07$, $SE=0.14$, $p=.58$, $b^*=0.06$, and they rated the intermediate group (4.90) as less socially real than both the ingroup, $b=0.81$, $SE=0.14$, $p<.001$, $b^*=0.69$, and the opposite outgroup, $b=0.89$, $SE=0.14$, $p<.001$, $b^*=0.75$.

For stability, there was also a significant interaction between target group and ingroup identification, $X^2(2)=8.80$, $p=.012$. Participants low in identification rated the ingroup (4.99) and the opposite outgroup (4.91) as similarly stable, $b=0.08$, $SE=0.18$, $p=.64$, $b^*=0.07$. They rated the intermediate group (4.44) as less stable than both the ingroup, $b=0.55$, $SE=0.18$, $p=.002$, $b^*=0.46$, and the opposite outgroup, $b=0.47$, $SE=0.18$, $p=.007$, $b^*=0.39$. Participants high in identification exhibited a similar pattern, but with larger effects. They rated the ingroup (5.84) and the opposite outgroup (5.80) as similarly stable, $b=0.04$, $SE=0.18$, $p=.81$, $b^*=0.03$, and they rated the intermediate group (4.67) as less stable than both the ingroup, $b=1.17$, $SE=0.18$, $p<.001$, $b^*=0.97$, and the opposite outgroup, $b=1.13$, $SE=0.18$, $p<.001$, $b^*=0.94$.

For evaluation, the interaction between target group and ingroup identification did not reach significance, $X^2(2)=4.13$, $p=.13$. There was a main effect of target group, $X^2(2)=22.00$, $p<.001$. We explored this main effect separately for people high and low in identification, despite the lack of a significant interaction, in order to fully test the hypotheses and to permit readers to compare the pattern to social realness and stability. Participants low in identification evaluated the ingroup (73.45) more positively than both the intermediate group (68.58), $b=4.87$, $SE=2.44$, $p=.044$, $b^*=0.23$, and the opposite outgroup (68.17), $b=5.28$, $SE=2.44$, $p=.029$, $b^*=0.25$. They did not evaluate the two outgroups significantly differently, $b=0.44$, $SE=2.44$, $p=.86$, $b^*=0.02$. Participants high in identification also evaluated the ingroup (83.55) more positively than both the intermediate group (72.17), $b=11.39$, $SE=2.44$, $p<.001$, $b^*=0.54$, and the opposite outgroup (77.14), $b=6.42$, $SE=2.44$, $p=.008$, $b^*=0.31$. At high levels of identification, however, participants also evaluated the opposite outgroup more positively than the intermediate outgroup, $b=4.97$, $SE=2.44$, $p=.040$, $b^*=0.24$.

Section D: Variants of the Pooled Analysis of Studies 1 through 5

In this section, we report two variants of the pooled analysis described in the main body text. Each of these variants has certain minor advantages over the main reported analysis, but we elected to focus on the simplest reasonable version given that the results are similar in all cases.

Indirect Effects

Our primary way of estimating indirect effects in the pooled analysis was adapted from Judd, Kenny, and McClelland's (2001) method, using the average of the ratings for our two endpoint groups in place of a single score from a control group. As stated in the body text, to estimate the indirect effect of intermediacy on evaluation via legitimacy/realness, we regressed the evaluation difference on the realness difference and the realness sum, then converted the result to a partial correlation, $r=.20$, 95%CI=[.13, .27].

We conducted three supplementary tests of the indirect effect under different conditions. First, we omitted the sum term from Judd and colleagues' (2001) model, $r=.21$, 95%CI=[.14, .28]. Second, we noted that the difference scores had inflated frequencies of values close to zero, so we refit the model using the hyperbolic arcsine of each difference score (for realness and evaluation) rather than the raw difference scores, to reduce the influence of large positive and negative values (see Burbidge et al., 1988), $r=.17$, 95%CI=[.10, .24]. Finally, we omitted the sum term from this model featuring the hyperbolic arcsine transformation, $r=.17$, 95%CI=[.10, .24]. All three of these supplementary tests produced comparable effect sizes and identical conclusions supporting the presence of an indirect effect.

Inclusion of Endpoint Groups in Study 5

It could be argued that the condition in which participants evaluated their ingroup in Study 5 does not represent an appropriate comparison for estimating the effects of intermediacy,

due to the added effect of ingroup preference influencing the evaluation measure. We therefore repeated the pooled analysis using only the outgroup (big-spotted group) ratings in that condition rather than the average of the two endpoint groups. For Studies 1 through 4 and the observer condition in Study 5 we retained the average of the two endpoint groups as the comparison.

In short, this approach provided effect size estimates from data devoid of any ingroup ratings. The conclusions were the same, including similar estimates for the overall effect of intermediacy on social realness, $d=.51$, 95%CI=[.44, .59], the overall effect of intermediacy on evaluation, $d=.22$, 95%CI=[.14, .29], and the indirect effect of intermediacy on evaluation via social realness, $r=.19$, 95%CI=[.12, .26].

Section E: Supplementary Results from Study 6

This section contains results from Study 6 not reported in the main body text. The first two subsections below provide additional details about certainty, similarity, and genetics, mirroring some of the results reported in the main body text about social realness and identity stability. The third subsection notes associations between evaluation and social realness, identity stability, certainty, similarity, and genetics.

Differences Among Target Racial Groups

Manuscript Table 4 reports numeric target group differences for all five constructed scales. For each scale, we fit a mixed ANOVA model with target group (White, Black, third group) and condition (whether the third group was biracial or Native American) as predictors.

For certainty, there was a significant main effect of condition, $F(1, 137)=10.76, p=.001, \eta^2_p=.073$, and of target group, $F(2, 274)=63.46, p<.001, \eta^2_p=.317$. There was also a significant interaction, $F(2, 274)=13.55, p<.001, \eta^2_p=.090$. In the biracial condition, as predicted, participants felt significantly less certain about categorizing biracial people than about White people, $t(84)=8.35, p<.001, d=0.91$, and Black people, $t(84)=10.11, p<.001, d=1.10$. Participants also felt more certain about Black people than White people, $t(84)=2.48, p=.015, d=0.27$. In the Native American condition, participants did not give significantly different certainty ratings to White and Native American targets, $t(53)=0.53, p=.60, d=0.07$. Again, participants felt more certain about categorizing Black people than about White people, $t(53)=4.02, p<.001, d=0.55$, or Native American people, $t(53)=3.96, p<.001, d=0.54$.

For similarity, there was a significant main effect of condition, $F(1, 137)=11.91, p<.001, \eta^2_p=.080$, and of target group, $F(2, 274)=19.61, p<.001, \eta^2_p=.125$, and a significant interaction, $F(2, 274)=9.53, p<.001, \eta^2_p=.065$. In the biracial condition, Black people were viewed as

significantly more similar to each other than biracial people, $t(84)=4.91$, $p<.001$, $d=0.53$, and White people, $t(84)=4.33$, $p<.001$, $d=0.47$. Although the mean similarity rating was lower for biracial targets than for White targets, they did not differ significantly, $t(84)=1.95$, $p=.054$, $d=0.21$. In the Native American condition, White people were perceived as significantly less similar to each other than both Native American people, $t(53)=3.96$, $p<.001$, $d=0.54$, and Black people, $t(53)=4.36$, $p<.001$, $d=0.59$. Attributed similarity did not differ significantly between Native American and Black people, $t(53)=0.25$, $p=.80$, $d=0.03$.

For genetics, there was no significant main effect of condition, $F(1, 137)=1.50$, $p=.22$, $\eta^2_p=.011$, only a main effect of target group, $F(2, 274)=15.77$, $p<.001$, $\eta^2_p=.103$. In both conditions, the “third group” (biracial or Native American) was viewed as less genetically determined than White people or Black people, $t>2.38$, $p<.020$, $d>.25$. The interaction was not significant, suggesting that the magnitude of the effect in question did not differ significantly between biracial and Native American targets, $F(2, 274)=1.67$, $p=.19$, $\eta^2_p=.012$.

Differences Among Target Groups by White Ingroup Identification

Manuscript Table 5 reports fitted values for ratings of target groups at high and low levels of White participants' identification with their ingroup. Regarding certainty, participants both high and low in identification viewed biracial (but not Native American) status as less certain than both White and Black status, $b>1.18$, $SE<0.27$, $p<.001$, $b^*>0.74$. Regarding similarity, participants high in ingroup identification, $b>0.37$, $SE=0.16$, $p<.025$, $b^*>0.28$, but not those low in ingroup identification, $b<0.13$, $SE=0.15$, $p>0.40$, $b^*<0.10$, viewed biracial people as less similar to one another than both White people and Black people. Regarding genetics, ingroup identification had no significant effects.

Relationships Between Evaluation and Legitimacy-Related Variables

We briefly examined the extent to which the evaluation of each target group was associated with social realness, stability, certainty, similarity, and genetics. We fit linear mixed models with random intercepts by participant in order to test whether target group and condition significantly moderated the extent to which each of the five constructs predicted evaluation.

Table S2 summarizes the simple slopes from these models. The key interactive effects pertained to Black targets rather than biracial targets. For social realness, Black targets were significantly different from the others in that social realness predicted less positive evaluation.

Table S2

Extent to which social realness and related constructs predict evaluation for each target group (Study 6)

Predictor	White	Biracial (Black/White)	Native American	Black
Social realness	0.16, $p=.018$	0.03, $p=.68$	0.09, $p=.49$	-0.22, $p=.008$
Stability	0.19, $p=.008$	0.25, $p=.001$	0.20, $p=.083$	0.05, $p=.52$
Certainty	0.16, $p=.012$	0.10, $p=.33$	0.17, $p=.083$	-0.09, $p=.19$
Similarity	0.03, $p=.65$	-0.21, $p=.035$	-0.09, $p=.43$	-0.45, $p<.001$
Genetics	-0.04, $p=.63$	0.05, $p=.51$	0.08, $p=.33$	-0.05, $p=.49$

Note. Reported effect sizes are standardized slopes from linear mixed models predicting evaluation on the basis of target group, condition, the construct in question (e.g., social realness), and all interactions among them, with a random intercept by participant. Effects for White and Black targets were computed by contrast coding condition and dummy coding target to make the group in question the comparison. Effects for biracial and Native American targets were computed by dummy coding both condition and target to make the group in question the comparison. P -values are from likelihood ratio chi-squared tests.

Most notably, social realness did not predict positive evaluation of biracial targets, but stability did. Indeed, stability appeared to be the strongest predictor of positive evaluation of biracial people. In an additional supplementary analysis, we fit a linear regression model on the subset of participants in the biracial condition only, predicting evaluation of biracial targets on the basis of all five constructs listed in Table 5, and only stability was significant, $b=6.29$, $SE=1.67$, $p<.001$, $b^*=0.41$.

Section F: Supplementary Results from Study 7

This section contains results from Study 7 not reported in the main body text. The first two subsections below provide additional details about certainty, similarity, and genetics, mirroring some of the results reported in the main body text about social realness and identity stability. The third subsection notes associations between evaluation and social realness, identity stability, certainty, similarity, and genetics. The fourth subsection provides a few additional details about the mediation analysis from Study 7.

Differences Among Target Sexual Orientation Groups

Manuscript Table 6 reports numeric target group differences for all five constructed scales.

For certainty, there was a significant main effect of target group, $F(2, 250)=33.51$, $p<.001$, $\eta^2_p=.211$. The main effect of condition was not significant, $F(1, 125)=2.60$, $p=.11$, $\eta^2_p=.020$, nor did it interact with target, $F(2, 250)=0.60$, $p=.55$, $\eta^2_p=.005$. In both conditions, gay/lesbian group membership was perceived as less certain than heterosexual group membership, $t>2.16$, $p<.04$, $d>0.26$. Both bisexual and asexual targets were rated as lower in certainty than heterosexual targets, $t>4.73$, $p<.001$, $d>0.60$, and gay/lesbian targets, $t>3.03$, $p<.004$, $d>0.38$.

For similarity, there was a significant main effect of target group, $F(2, 250)=15.72$, $p<.001$, $\eta^2_p=.112$. The main effect of condition was not significant, $F(1, 125)=0.44$, $p=.51$, $\eta^2_p=.004$, nor did it interact with target, $F(2, 250)=1.19$, $p=.31$, $\eta^2_p=.009$. In both conditions, gay/lesbian people were perceived as more internally homogenous than heterosexual people, $t>3.41$, $p<.002$, $d>0.42$. Both bisexual and asexual people fell in between heterosexual people and gay/lesbian people on ratings of similarity. Although collectively these “third groups” were

viewed as significantly different from both heterosexual and gay/lesbian people, $t > 2.48$, $p < .02$, $d > 0.22$, these differences did not reach significance when testing the bisexual and asexual conditions separately.

For genetics, there was a significant main effect of target group, $F(2, 250) = 31.69$, $p < .001$, $\eta^2_p = .202$. The main effect of condition was not significant, $F(1, 125) = 0.54$, $p = .47$, $\eta^2_p = .004$, and condition did not significantly interact with target, $F(2, 250) = 0.38$, $p = .69$, $\eta^2_p = .003$. In both conditions, being gay/lesbian was viewed as less genetically determined than being heterosexual, $t > 2.92$, $p < .005$, $d > 0.37$. Being bisexual and being asexual were viewed as still less genetically determined than being gay/lesbian, $t > 2.30$, $p < .03$, $d > 0.29$.

Differences Among Target Groups by Heterosexual Ingroup Identification

Manuscript Table 7 reports fitted values for ratings of target groups at high and low levels of heterosexual participants' identification with their ingroup. Regarding certainty, both high and low identifiers viewed bisexual status as less certain than heterosexual and gay/lesbian status, $b > 0.74$, $SE < 0.30$, $p < .013$, $b^* > 0.46$, but this discrepancy was larger at high levels of identification. Regarding similarity, only high identifiers viewed gay/lesbian people as more similar to one another than other groups, $b > 0.37$, $SE = 0.14$, $p < .011$, $b^* > 0.30$. Regarding genetics, heterosexual people high in ingroup identification perceived their own group as more defined by genetics than other groups, $b > 1.19$, $SE = 0.27$, $p < .001$, $b^* > 0.70$.

Relationships Between Evaluation and Legitimacy-Related Variables

To mirror Study 6, we briefly examined the extent to which the evaluation of each target group was associated with social realness, stability, certainty, similarity, and genetics. We fit linear mixed models with random intercepts by participant in order to test whether target group and condition significantly moderated the extent to which each of the five constructs predicted

evaluation. Table S3 summarizes the simple slopes from these models. There were no significant interactions involving social realness or stability. Interactions for other variables, such as the fact that similarity was a weaker predictor of evaluation for heterosexual targets than for other targets, did not help clarify views of intermediate social groups. In contrast to the results for biracial targets in Study 2, both social realness and stability predicted evaluations of bisexual targets. In an additional supplementary analysis, we fit a linear regression model on the subset of participants in the bisexual condition only, predicting evaluation of bisexual targets on the basis of all five constructs listed in Table 8. The model explained a significant proportion of variance in evaluation, $R^2=.24$, $F(5, 59)=3.80$, $p=.005$, but none of the predictors were significant individually.

Table S3

Extent to which social realness and related constructs predict evaluation for each target group (Study 7)

Predictor	Heterosexual	Bisexual	Asexual	Gay/lesbian
Social realness	0.26, $p<.001$	0.26, $p=.004$	0.19, $p=.045$	0.09, $p=.24$
Stability	0.39, $p<.001$	0.33, $p<.001$	0.50, $p<.001$	0.48, $p<.001$
Certainty	0.25, $p<.001$	0.04, $p=.65$	0.19, $p=.081$	0.00, $p=.97$
Similarity	-0.04, $p=.62$	-0.20, $p=.040$	-0.33, $p=.006$	-0.37, $p<.001$
Genetics	0.38, $p<.001$	0.35, $p<.001$	0.28, $p=.003$	0.51, $p<.001$

Note. Reported effect sizes are standardized slopes from linear mixed models predicting evaluation on the basis of target group, condition, the construct in question (e.g., social realness), and all interactions among them, with a random intercept by participant. Effects for heterosexual and gay/lesbian targets were computed by contrast coding condition and dummy coding target to make the group in question the comparison. Effects for bisexual and asexual targets were computed by dummy coding both condition and target to make the group in question the comparison. P-values are from likelihood ratio chi-squared tests.

Additional Information about Study 7 Mediation

In the main body text, we identified an association between the extent to which bisexual targets were evaluated more negatively than heterosexual targets and the extent to which bisexual targets were considered less socially real and less stable than heterosexual targets. The fact that these differences were associated is consistent with an indirect relationship between

target group and evaluation via social realness and/or identity stability, with the caveat that our studies provide no direct evidence of a causal association between social realness and evaluation or between identity stability and evaluation.

We repeated the procedure for certainty, similarity, and genetics as well, although these variables are less relevant to the research questions of the current report. Certainty, $r=.38$, 95% CI=[.15, .57], and genetics, $r=.31$, 95% CI=[.07, .52], but not similarity, $r=.05$, 95% CI=[-.20, .29], yielded significant indirect effects for bisexual people.

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