Value-based Essentialism:
Essentialist Beliefs About Social Groups with Shared Values

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Abstract

Psychological essentialism has played an important role in social psychology, informing influential theories of stereotyping and prejudice as well as questions about wrongdoers' accountability and their ability to change. In the existing literature, essentialism is often tied to beliefs in shared biology—i.e., the extent to which members of a social group are seen as having the same underlying biological features. Here we investigate the possibility of “value-based essentialism” in which people think of certain social groups in terms of an underlying essence, but that essence is understood as a value. Study 1 explored beliefs about a wide range of social groups and found that both groups with shared biology (e.g., women) and shared values (e.g., hippies) elicited similar general essentialist beliefs relative to more incidental social categories (e.g., English-speakers). In Studies 2-4, participants who read about a group either as being based in biology or in values reported higher general essentialist beliefs compared to a control condition. Because biological essences about social groups have been connected to a number of downstream consequences, we also investigated two test cases concerning value-based essentialism. In Study 3, beliefs about both shared biology and shared values increased inductive generalizations about the social group relative to control, but in Study 4, only the shared biology condition reduced blame for wrongdoing. Together these findings join with recent work to support a broader theoretical framework of essentialism about social groups that can be arrived at through multiple pathways, including, in the present case, shared values.

Keywords: essentialism, social groups, stereotyping, inductive potential, moral psychology

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Over the past several decades, psychological essentialism has been an important topic of study in psychology, philosophy, and linguistics. At the most basic level, essentialism refers to the tendency to represent certain categories in terms of a deeper, unobservable property that determines group membership (e.g., Gelman, 2004). While the notion of essentialism has been used to explain people's beliefs across a wide variety of domains, from scientific concepts (Keil & Richardson, 1999; Mayr, 1982; Sober, 1994) to individual moral character (Heiphetz, 2019; 2020), within social psychology, a number of researchers have been interested in how essentialism influences beliefs about social groups. Research on essentialism and social groups can be traced back to Gordon Allport (1954), who suggested that essentialist beliefs often occur in individuals with prejudiced intergroup attitudes. Since then, a large and growing body of research has connected essentialist beliefs to stereotyping and prejudice as well of a number of other important social consequences including blame for bad behavior (e.g., Bastian & Haslam, 2006; Haslam et al. 2002; Kvaale et al., 2013; Roberts et al., 2017).

To date, much of the work on essentialism and social groups has focused on the tendency to see category members as similar in terms of their underlying *biology* (e.g., Atran, 1998; Boysen, 2011; Dar-Nimrod & Heine, 2011; Haslam et al., 2000; Keller, 2005; Williams & Eberhardt, 2008). Indeed, belief that a social group has shared underlying biology increases characteristic essentialist beliefs and related downstream consequences. For example, biological explanations for gender differences cause people to be more likely to endorse gender stereotypes (Brescoll & LaFrance, 2004).

The purpose of this paper is to investigate whether people also essentialize social groups without appealing to biology, but instead by appealing to shared values among group members (Newman & Knobe, 2019). The present studies first provide factor analytic evidence that shared values can give rise to essentialism, eliciting hallmark essentialist beliefs. Crucially, the present work then manipulates the belief that a social group has underlying values to show experimentally that value-based beliefs can cause essentialism. We then investigate two downstream social consequences that have been previously connected to essentialism: inductive generalizations and reduced blame for wrongdoing. We find that while shared biology and shared values give rise to inductive generalization to a similar degree, only biologically-based essentialism appears to mitigate blame for wrongdoing.

Essentialism

People in a wide variety of cultures appeal to essences to define a range of categories from natural kinds like tigers and gold, to social groups like men and women (Atran et al., 2002; Gil-White, 2001; Haslam et al., 2000; Medin & Ortony, 1989; Waxman et al., 2007). An essence is “an underlying reality or true nature” that cannot be directly observed, but that makes something what it is (Gelman, 2004, p. 404). That is, when thinking about what makes a tiger a tiger or a woman a woman, people infer that an underlying invisible quality, or essence, defines category membership (Gelman, 2003; 2004; Keil, 1989).

The concept of essentialism is rooted in philosophy. John Locke (1689 / 1975) argued that a deep and “generally unknown” essence defines something’s true being even though its superficial features are more salient. Putnam (1975) and Kripke (1980) emphasized that this essence might be mysterious to laypersons who nevertheless believe that scientists can identify it. Thus this and other seminal theories (Medin & Ortony, 1989) emphasized that essentialism

involves *knowledge deference*—even if people do not know what the essence of a category is, they believe that someone, an expert, likely knows or could know. Essentialist thinking also distinguishes between *appearance* and *deep similarity* (Medin & Ortony, 1989). People acknowledge that category members can vary widely in superficial appearance while still believing that category members share underlying similarity, deep down. For instance, in one classic experiment, participants were told to imagine an animal with skunk parents that has the inside features of a skunk, but that looks like a raccoon (Keil, 1989). Despite this animal having the superficial appearance of a raccoon, even children as young as seven tend to say that this animal is still a skunk.

Essentialism shapes how people think about categories in a number of important ways (Gelman, 2003). To list a few, essentialism fosters beliefs in nonobvious properties, stability over transformations (Keil, 1989), category fixedness (Gelman & Rhodes, 2012), intrinsic causes (Gottfried & Gelman, 2005), sharp boundaries among categories (Diesendruck & Gelman, 1999; Estes, 2004), and generics (Brandone & Gelman, 2009; Rhodes et al., 2012, but see Noyes & Keil, 2019). Essentialism also fosters category-based inductive potential (Gelman & Markman, 1986). People learn about categories by generalizing information based on one category member to the category as a whole—inferring that birds fly after learning that robins do (Gelman & Markman, 1986; Heit, 2000; Rips, 1975; Rips, 2001). Essentialism causes people to think that group membership is more diagnostic and thus to rely on it more to make such inductive generalizations, relative to less essentialized groups (Gelman, 2004).

Essentialism also appears to influence how people reason about social categories. Allport (1954) famously claimed that perceptions of an “inherent ‘Jewishness’ in every Jew...[and] ‘soul of the Oriental’ ... represent a belief in essence” about these social groups (p. 174). Thus, just as

people think of raccoons as having an underlying essence that makes raccoons the way that they are, people apply essentialism to social groups like women, Hispanic individuals, and people with mental illness (e.g., Haslam et al., 2000; Lebowitz et al., 2013). Setting aside the metaphysical question of whether categories actually have essences, people at least think they do.

Essentialism about social groups also has important downstream social consequences (e.g., for reviews see, Haslam & Kvaale, 2015; Prentice & Miller, 2007; Tabb et al., 2019). For instance, essentialism promotes inductive generalizations—generalizing from one example to the category as a whole is sometimes called stereotyping when applied to social groups (Paolini & McIntyre, 2019; Sherman, 1996). Essentialism thus influences intergroup relations, promoting group-based stereotyping (Bastian & Haslam, 2006; Prentice & Miller, 2006; Yzerbyt et al., 1997; 2001), extreme pro-ingroup behaviors (e.g., dying for one's group, Swann et al., 2014), intergroup prejudices (Haslam et al., 2002; Keller, 2005), and unfair allocation of resources (Rhodes et al., 2018), as well as accentuating perceived differences among social groups (Chao et al., 2013; Ho et al., 2015; Martin & Parker, 1995; Roberts et al., 2017). Essences also have consequences for how people reason about moral offenders and mental illness. Because people think of essences as being fixed (Gelman, 2004), essentialist beliefs about immoral or abnormal behaviors can reduce blame but also increase pessimism about changing criminality and mental illness (Kraus & Keltner, 2013; Kvaale et al., 2013; Lebowitz et al., 2016; Lebowitz et al., 2013; Reynaert & Gelman, 2007).

To summarize, people think of both non-social categories like raccoons and social categories like Hispanic individuals as having an underlying essence. These essentialist beliefs involve *knowledge deference* and a distinction between *appearance* and *deep similarity* (Medin

& Ortony, 1989). Essentialism shapes how people reason about categories, which when applied to social groups has implications for social functioning. However, not all categories are essentialized to the same degree. While people intuit that raccoons have essences, they tend to think that artifacts like chairs do to a lesser degree or not at all (Gelman, 2004). Thus, people organize categories along an essentialism dimension from more to less essentialized. A key question is what causes certain categories to be essentialized more than others. Although essentialism occurs in several domains, this question is particularly important concerning the social domain because essentialism about social groups has important consequences, for instance, by shaping intergroup relations (e.g., stereotyping) and moral judgments.

Essentialism From Shared Biology

One possibility is that belief in an underlying *shared biology* explains why certain social groups (e.g., racial groups, gender categories) are essentialized more than others. Existing empirical research has explored this hypothesis. This research provides evidence for two main conclusions. First, beliefs in shared biology do indeed lead to essentialism. Second, beliefs in shared biology are not *necessary* for essentialism. That is, there are non-biological aspects of essentialism, and people sometimes appear to essentialize a social group even when they do not believe that group is biological.

For biological natural kinds such as animals, people tend to think category members are deeply similar to each other due to underlying shared biology (Diesendruck & Gelman, 1999; Gelman, 2003; Gelman & Wellman, 1991; Rhodes & Gelman, 2009). The essence of raccoons, for instance, is itself taken to be a biological property (Keil, 1989). Because humans are a type of animal, one possibility is that social groups are also essentialized due to and in terms of underlying biological cause. Theorists of essentialism about social groups have argued that

people think of social groups as natural kind categories (Rothbart & Taylor, 1992; Hirshfeld, 1996) with internal species-like, folk-biological essences (Atran, 1998) or genetic essences (Dar-Nimrod & Heine, 2011). Contemporary definitions of essentialism also tend to emphasize biology (e.g., “essentialism—the notion that some characteristics arise from an internal, immutable essence that is rooted in biology,” Heiphetz, 2019, p. 3).

Providing empirical evidence for this link between biology and essentialism, participants who read about gender as biologically-based (vs. socially constructed) reported higher beliefs in gender immutability and gender stereotyping (Brescoll & LaFrance, 2004). Describing social class as biologically-based caused participant to be less supportive of efforts to rehabilitate a lower class student who cheated on a test (Kraus & Keltner, 2013). And, when a fictitious social group was said to have a shared biology, participants blamed the group less for moral offences, such as public sex acts, but were also less optimistic that the behavior could change (Boysen, 2011). Thus, beliefs about shared biology have been connected to several other characteristics of essentialism including category immutability and fixedness and downstream consequences, like stereotyping and pessimism regarding behavior change.

However, existing research on essentialism and social groups has also found that beliefs in shared biology might not be *necessary* for essentialism. Haslam and colleagues (2000) asked participants to indicate their essentialist thinking about a wide range of social groups. They found that essentialism formed two key dimensions: *naturalness*, summarized as folk-biological beliefs about social groups as natural kinds, but also *entitativity*, capturing beliefs about groups as inductively rich and organized around an underlying core. Consistent with the link between biology and essentialism, several groups with plausible ties to biology emerged as higher in both naturalness and entitativity dimensions—including, women, men, heterosexual individuals,

Black individuals, and Hispanic individuals (Wood & Eagly, 2002; Cravens, 2010; Lieberman et al., 1992; O’Riordan, 2012)—relative to non-biological groups such as English-speakers.¹ Yet notably, other groups (e.g., Catholics) that were somewhat lower in naturalness than biological groups (e.g., women, Hispanic individuals) were rated as high or higher in entitativity. Overall this work indicates that social groups can elicit characteristic essentialist beliefs (e.g., inductively rich) without necessarily being seen as biologically-based.

Although essentialism is often manipulated by appealing to shared biology (e.g., Brescoll & LaFrance, 2004), it can also be instantiated through other routes. For instance, Rhodes and colleagues (2012) show that generic statements about social groups without any mention of biology also increase characteristic essentialist beliefs such as inductive potential. Bastian and Haslam (2006) found that several essentialist beliefs, only one of which was belief in a biological basis, correlated with stereotyping. Finally, Rangel and Keller (2011) theorized that in addition to shared biology, people might form essentialist beliefs about social groups with powerful, shared social origins. Providing correlational evidence, participants who endorsed statements about the importance of the “social origin” and “social environment” in determining individuals’ character and behavior were also more likely to endorse stereotypes and other negative beliefs about outgroups.

Taken together, existing research has shown that while belief in shared biology is an intuitive and potent pathway to essentialist beliefs about social groups, it is not the only pathway. Instead, there appears to be a more general notion of essentialism about social groups that is independent of specific beliefs in shared biology. The present work builds on this idea to

¹ Specific beliefs about any given category can vary based on individual participants—five- and six-year-old White children appear to think that English-speakers are more biological than racial categories (e.g., Kinzler & Dautel, 2012).

investigate another possible pathway to essentialist beliefs about social groups: beliefs about shared values.

Essentialism From Shared Values

In the present studies, we examine the notion that some social groups might be essentialized because of a belief in shared *values*—i.e., the “value-based” pathway to essentialism. Here, the term “values” refers to a set of principles or standards that are thought to be shared among group members. For example, consider a category like scientists. People associate being a scientist with certain superficial features, such as running experiments, analyzing data, writing papers, etc.. However, people do not typically assume that being a scientist is simply a matter of displaying these superficial features. Instead, people tend to see all of these features as ways of realizing a deeper value like *the impartial quest for empirical truth*. Thus, the essence of being a scientist is a unifying value, which is realized in the various activities that are typically performed by scientists. Theorists have proposed that essences in both non-social and social domains can be elaborated as such a value, instead of as a biological cause (Newman & Knobe, 2019).

Providing indirect support for this possibility, recent work shows that for certain social and non-social concepts people think that abstract values are central to category membership. For example, people associate a poem with certain superficial features (rhyme, meter, verses, stanzas). However, studies show that people do not think that a given text is a poem simply if it has these superficial features (Knobe et al., 2013; Liao et al., 2020). Instead, people tend to think that, ultimately, a piece of writing cannot truly count as a poem unless it embodies certain values (e.g., providing insight into the human experience). Thus, even if a piece of writing

clearly has the usual superficial features of poetry, people tend to conclude that it is “not truly poetry” if it fails to embody poetry’s deeper values (Knobe et al., 2013).

A flurry of recent work on concepts like these (sometimes referred to as dual-character concepts) shows that this same basic structure can be found for a variety of other non-social concepts (e.g., theory, a novel) as well as for certain occupations (e.g., scientist, artist) and social relationships (e.g., friend) (Del Pinal & Reuter, 2017; Foster-Hanson & Rhodes, 2019; Knobe et al., 2013; Leslie, 2015; Liao et al., 2020; Reuter, 2018). Thus in non-social and social domains, research has shown that people associate certain concepts with superficial features while also thinking that there is some deeper sense in which category membership is ultimately a matter of embodying key, characteristic values. This previous work has established lists of “value-driven” concepts that show this structure (e.g., poem, scientist, friend) compared to lists of “control” concepts that do to a lesser degree (e.g., chair, optician, second cousin; Knobe et al., 2013). Participants indicated that “values” were more relevant to concepts in the first list compared to the control list. Moreover, these two sets of lists differed when it comes to straightforward linguistic tests. For example, participants said it made more sense to use the word “true” with concepts from the value-driven list (e.g., “true poem,” “true friend”) than with concepts from the control list (e.g., “true chair,” “true optician”; Knobe et al., 2013).

Controversy remains about how to understand these so-called value-driven concepts, but one hypothesis is that they are best understood as a manifestation of people’s more general tendency toward essentialism (Newman & Knobe, 2019). That is, although these studies were not designed to test hypotheses about essentialism, the observed phenomena might reflect participants’ tendency to view certain concepts in terms of value-based essences. On this hypothesis, there is an important similarity between the way people think about value-driven

concepts (e.g., a poem) and the way people think about biological natural kinds (e.g., raccoons). Both types of concepts might have the same characteristics of essentialism: superficial features that are easily recognizable, a deeper property that people themselves believe they don't fully understand, and a sense that, ultimately, it is the deeper property that constitutes the true nature of the category.

Although prior work did not investigate social groups in the canonical sense, shared values were thought to be particularly relevant to certain concepts in the social domain (e.g., scientist vs. optician; Knobe et al., 2013). It is thus plausible that shared values might also be one way that people understand the essence of particular social groups. That is, while some social groups (e.g., Hispanic individuals) might be essentialized because of beliefs in a shared biology (e.g., Haslam et al., 2000), other social groups (e.g., hippies) might be essentialized because of beliefs in shared values.

The Present Studies

The purpose of the present studies is two-fold. First, while previous research has shown that essentialism may extend beyond beliefs in shared biology (e.g., Rangel & Keller, 2011) and, indirectly, that certain “value-based” concepts may show essentialist-like patterns (e.g., Knobe et al., 2013), the causal relationship between shared values and essentialism has, to our knowledge, not been tested. Thus, the first goal of this paper is to test whether beliefs in shared values do indeed increase essentialism. A second goal relates to downstream consequences. As reviewed in the previous section, many of the consequences of essentialism (e.g., inductive generalizations, blame for moral failings) have primarily been investigated for social groups with shared biology (cf., Swann et al., 2014). The possibility of value-based essentialism raises new questions about whether these consequences are due to biology per se or to essentialism more generally and thus

would also be observed for value-based groups. These studies employ multiple converging approaches to address these questions, including: factor analysis at the level of the category (Study 1), experimental manipulations (Studies 2-4), and participant-level individual difference analyses (Studies 3 and 4).

Study 1 explored essentialist beliefs using factor analysis. Participants rated a wide range of social groups along characteristics of essentialism involving *knowledge deference* and a distinction between *appearance* and *deep similarity* (Medin & Ortony, 1989) as well as specific beliefs in a biological essence and a value-based essence. We examined the relationship among these different types of essentialist beliefs. In Study 2, we then manipulated shared biology and shared values to experimentally test both of these potential pathways to essentialist beliefs about a real social group, Jewish people, compared to a control condition.

Biological essences have a number of downstream consequences for social functioning (e.g., Prentice & Miller, 2007). If essentialist beliefs can emerge due to shared values in addition to biology, the question arises for each of these consequences: is it due to belief in specifically a biological essence or might it also be observed for a value-based essence? Studies 3 and 4 manipulated shared biology compared to shared values and a control condition about a made-up (i.e., novel) social group to test consequences for inductive generalizations (related to stereotyping, Study 3) and reduced blame for moral failings (Study 4).

Study 1

As an initial approach, we investigated existing essentialist beliefs about a wide range of social groups using factor analysis. In this first study, participants rated social groups on different hallmarks of general essentialist thinking as well as specific beliefs in a biological essence and a value-based essence. Because we were interested in how these social groups are organized along

these dimensions on average, ratings were factor analyzed at the level of the category (as in Haslam et al., 2000). One possibility was that the general essentialist beliefs and specific biological beliefs would cohere into a single factor, consistent with the hypothesis that when people essentialize a social group they elaborate the essence as biology. But another possibility was that the general essentialist beliefs would form one factor independent of the source of that essence with biological and value-based beliefs forming a second factor (or a second and third factor); this result would be consistent with the hypothesis that people can form essentialist beliefs through other pathways in addition to biology including, in the present case, by appealing to shared values.

Methods

Participants rated a range of 20 social groups on different hallmarks of essentialist thinking, including general beliefs and beliefs about a specific biological or value-based essence. To serve as comparisons, participants also rated additional lists of concepts that have been identified in prior research. Note that for Studies 1-4 we report all exclusions, manipulations, and measures. The materials for Study 1 are available in the Appendices. The materials for Studies 2-4, anonymized data files for Studies 1-4, and analysis scripts for Studies 1-4 are available online (https://osf.io/e26r7/?view_only=30d78f3bcedf47ee9190a80563562e2f). The institutional review board determined Studies 1-4 to be exempt from oversight.

Participants

To provide the category ratings, we sampled 434 participants from Amazon's Mechanical Turk platform ($M_{age} = 30.78$, 36% women, 62% men, 2% unspecified; 98% were currently living in the United States, U.S., and 95% self-identified as native English speakers). The factor analysis was conducted at the level of the category, but 434 participants allowed for 30-32

participants per each rating group (described in detail below), comparable to Haslam and colleagues (2000) who relied on 20 participants per category. No participants were excluded.

Materials and Procedure

Of primary interest, participants rated 20 social groups comprising race and ethnicity (Asian person, Black person, Hispanic person, White person), gender (male, female), sexual orientation (heterosexual person, homosexual person), religious groups (Jew, Christian), groups based on regional identity (Canadian, English-speaker, Southerner, New Yorker), and groups based on cultural identity (golfer, hippie, punk, skater, soccer mom, wealthy person). Ten of these social groups were taken directly from Haslam and colleagues (2000). The remaining ten social groups were added for their possible connection to underlying values.

To serve as anchors, participants also rated additional lists of concepts that have been identified in prior research. Natural kinds can be essentialized in terms of an underlying biological essence; thus, we asked about 20 biological natural kinds (e.g., raccoon) taken from prior work (Keil, 1989; Blok et al., 2005). Prior research has also identified lists of concepts that participants think are more connected to shared values compared to a control list—these included social relationships and occupation (e.g., scientist vs. optician) as well as non-social concepts (e.g., poem vs. chair; Knobe et al., 2013; Newman & Knobe, 2019). We adapted 20 of these value-driven concepts and 20 control concepts to include in the present study. Thus, these three additional types of categories—biological natural kinds, value-driven concepts, and control concepts—were each averaged and included to aid in interpreting the ratings of the social groups. For instance, one possibility was that certain social groups (e.g., Hispanics) would be rated similarly to biological natural kinds (e.g., raccoons, tigers), while other social groups (e.g., hippies) would be rated similarly to value-driven concepts (e.g., friend, poem).

These 80 categories were divided into two lists of 40, which separated pairs of similar categories (e.g., male, female) and contained an equal number of social groups, biological natural kinds, value-driven concepts, and control concepts (Appendix A). Given time and attention limitations, each participant saw only one of these lists of 40 categories, presented in a random order unique for each participant.

Each participant rated 40 categories on one of seven aspects of essentialist beliefs. These included three hallmarks of psychological essentialism in general (Medin & Ortony, 1989): knowledge deference, a distinction between superficial appearance and reality, deep similarity among category members (Appendix B). For example, for deep similarity participants indicated whether their agreement that “There is an essential quality or characteristic that makes [category member]s similar in some deep way” from *strongly disagree* (1) to *strongly agree* (9). Two other items captured beliefs that the essence of a category is specifically “something biological” and that a “biological characteristic” causes category membership. The final two items captured beliefs that the essence of a category is specifically “embodying a certain kind of value” and that something can be a “true” category member or not. This last “true” item was adapted from prior work documenting beliefs about value-driven concepts (e.g., poem, Knobe et al., 2013), which some have later interpreted as akin to essentialist-like beliefs but due to shared values (Newman & Knobe, 2019). Thus, 30-32 participants evaluated one list of 40 categories on one of each of these seven dimensions.

Results

Essentialism ratings for the 20 social groups were analyzed at the level of the category (i.e., rather than at the participant-level). Thus, individual participant ratings were averaged to create a single rating on each essentialism item for each social group. Overall averages of the

biological natural kinds, value-driven concepts, and control concepts were also included for comparison. The resulting 23 category scores were submitted to an exploratory factor analysis with a maximum likelihood extraction and using a Varimax rotation. We used parallel analysis to determine the number of factors (Horn, 1965). This approach compares the eigenvalues identified by the factor analysis of our data to eigenvalues generated by a randomly created dataset of the same size using a Monte-Carlo simulation. The parallel analysis indicated that the essentialism ratings formed two reliable factors (KMO = 0.74, Bartlett test of Sphericity, $\chi^2 = 864.53$, $p < .001$). This approach was corroborated by visual inspection of the scree plot, which also suggested two factors, and further only the first two factors had eigenvalues greater than 1.

The items measuring knowledge deference, a distinction between superficial appearance and reality, and deep similarity among category members loaded on one factor (> 0.50 , eigenvalue = 1.89, variance explained = 27%; see Table 1). These items capture general essentialist beliefs that are agnostic as to whether the essence is biological or based on shared values. In short, this factor captured whether participants thought of the category as having an essence at all, regardless of the source of that essence. We refer to this factor as *general essentialism*. In contrast, items related to either a specific biological or specific value-based essence loaded strongly on the other factor (> 0.50 , eigenvalue = 3.08, variance explained = 44%), and this factor thus distinguished between beliefs in a biological or value-based essence. We refer to this second factor as *essence type*. Higher positive scores on the essence type factor correspond to greater belief in a value-based essence and lower negative scores correspond to greater belief in a biological essence. In sum, the factor analysis revealed that essentialist thinking about a wide range of social groups and non-social categories distinguishes between

groups that are relatively high or low in general essentialism and then whether that essence is thought to be something that is specifically biological or value-based.

Table 1

Factor loadings for the essentialism ratings in Study 1

	General Essentialism	Essence Type
Knowledge Deference	0.66	0.00
Appearance vs. Reality	0.76	0.25
Deep Similarity	0.60	−0.26
Biological Essence	0.43	−0.86
Scientific Cause	0.47	−0.82
Value-based Essence	0.24	0.81
“True” Member	0.23	0.94

Plotting the different categories in this two dimensional space reveals a striking pattern. Figure 1 shows the factor score estimates of the 20 social groups for the general essentialism factor and the essence type factor as well as the average factor score estimates for the biological natural kinds, value-based concepts, and control concepts. Consistent with prior work, the biological natural kinds (e.g., raccoon) were rated high in general essentialism and in line with a biological essence type relative to the control categories (e.g., chair). New to this study, value-

driven concepts (e.g., friend, poem) were also rated high in general essentialism but were not rated as having a biological essence type. Instead, these value-driven concepts were rated high in a value-based essence type. Crucial for the purpose of the present study, the social groups showed a similar pattern. Again consistent with prior work, social groups such as women were rated higher in general essentialism and more in line with a biological essence type relative to social groups such as English-speakers (Haslam et al., 2000). But some social groups (e.g., hippies) were also rated high in general essentialism but not in a biological essence type. These groups were instead rated high in a value-based essence type. Thus certain social groups elicited essentialist thinking based on a biological essence but others elicited essentialism based on a value-based essence.

Figure 1

Ratings of Social Groups' on the General Essentialism and Essence Type Dimensions

Note. The averages for the biological natural kind categories, value-driven concepts, and control concepts are depicted for comparison.

Note that for this factor analysis there are a variety of reasonable approaches besides that reported here (i.e., a maximum likelihood extraction with an orthogonal varimax rotation). Principal components analysis is also an alternative analytic strategy. For full transparency and to facilitate comparisons across techniques, we created an online interface that depicts the results of exploratory factor analyses and principal components analyses with a variety of extraction and rotation techniques (<https://jknobe.shinyapps.io/factor/>). Because the lists of value-driven concepts and control concepts also included terms for categories of human beings, it might have been reasonable to conduct the factor analysis including all such concepts in the social domain.

Again for transparency, we report the results from this alternative factor analysis in supplementary online materials. Overall, these different approaches converge on the point that belief in a biological essence does not appear to be necessary to form general essentialist beliefs about social groups and that shared values are an alternative pathway

Discussion

This first study was motivated by two competing hypotheses. One hypothesis was that when people essentialize social groups they do so by elaborating the essence as biological, and thus that general essentialist beliefs and biological beliefs would form a single factor. The alternative hypothesis was that biology and shared values are both pathways to essentialist beliefs about social groups, and in line with this view, we found that general essentialist beliefs formed one factor while the second factor was a combination of biological beliefs and value-based beliefs with opposite loadings. Note that there may also be other pathways to essentialism about social groups not explored here. But the present findings advance recent theorizing by providing empirical support for the claim that people can elaborate the underlying essence of social groups as shared values (Gelman & Rhodes, 2012; Newman & Knobe, 2019).

Haslam and colleagues (2000) investigated different aspects of essentialism and found two key dimensions: *naturalness* and *entitativity*. In the present work, the biological end of the essence type dimension could be thought of as similar to naturalness because both capture folk-biological beliefs about social groups. On this view, some of the groups from Haslam and colleagues (2000) that were rated relatively low in naturalness might be value-based groups. Indeed, this prior work found that Catholics were rated high in entitativity and near average on naturalness, while in the present work Christians were rated high in general essentialism and high in value-based essentialism. But this straightforward comparison between the present

findings and Haslam and colleagues' (2000) dimensions should be approached with caution. Because of differing goals of the research, the present biological items were much more direct than the naturalness items in asking participants whether they elaborated the essence as specifically “biological” or not.

Overall, the present study shows that some social groups were rated similarly high in having an essence but differently in beliefs about the source of that essence. For instance, gender categories (e.g., male) and religious groups (e.g., Christian) were rated similarly in general essentialism but gender categories were rated in line with having a biological essence and religious categories tended to be rated as having a value-based essence. Indeed, no social groups were rated high in a biological essence (i.e., low negative scores on the essence type dimension) or high in a value-based essence (i.e., high positive scores on the essence type dimension) but then rated low in general essentialist beliefs. Although there are of course important differences between conceptualizations of social groups with shared biology and shared values, the results of the present study suggest that there is also an important sense in which people might think about these groups similarly. Study 1 shows correlationally that either underlying biology or shared values can promote general essentialist thinking about social groups. Study 2 tested this possibility experimentally.

Study 2

Study 1 shows that people might elaborate the underlying essence of social groups as either shared biology or shared values. The present study tested this possibility experimentally by having participants read about a real social group either as being based in biology or in shared values compared to a low essence control condition and then asking participants to indicate their general essentialist beliefs. Note that we used this three conditions design—biological, shared

values, and low essence control—because if people perceive that a group has little to no essence to begin with, then that “no essence” cannot be either biological or value-based. Providing empirical confirmation for this conceptual point, the results from Study 1 suggest that social groups low in general essentialist beliefs will not be high in either biological or value-based essence type beliefs.

The present study focused on Jewish people as a proof of concept for two reasons. First, people in the U.S. might have flexible beliefs about Jewish people compared to other religious groups because Jewish people are relatively less prevalent, and because Jewish people can be thought of either as a quasi-biological ethnic group or a non-biological religious group united by shared values (Segev et al., 2012; Sidebar, 2013). Second, in Study 1 Jewish people were rated near the midpoint on both the general essentialism and essence type dimensions. Thus from a psychometric perspective, Study 1 suggests greater potential to manipulate beliefs about Jewish people on both dimensions in either direction compared to some of the other social groups studied that were rated closer to the dimension endpoints. Thus in the present study, we highlighted different aspects of Jewish identity to experimentally test whether belief in either a biological essence or a value-based essence would both promote general essentialist beliefs. We had two competing hypotheses: (a) only biology would increase general essentialist beliefs compared to the other conditions or (b) both biology and shared values would promote general essentialist beliefs compared to the control condition.

Methods

Participants read short articles that highlighted different aspects of Jewish identity designed to temporarily induce beliefs in a biological essence, a value-based essence, or little to no essence. There were thus three between-subjects conditions. We then measured essentialist

beliefs. Manipulations, measures, sample size, and analysis plan were preregistered prior to data collection (https://osf.io/phn3y/?view_only=349e948528d34c558b785b69709f010b).

Participants

Using Amazon's Mechanical Turk platform, 629 respondents completed the online survey in exchange for \$0.40. Of these, 129 were excluded due to the preregistered criteria: specifying that they were two different ages, failing to remember the articles they read about, or indicating that they did not take the survey seriously. This resulted in the preregistered sample size of 500 participants who were all over the age of 18 and U.S. residents ($M_{age} = 36.43$, 49% women, 50% men, and 1% gender non-binary or unspecified, 76% White, 7% Black, 6% Asian, 6% Hispanic/Latino, and $\leq 2\%$ either Native American, Middle Eastern, multi-racial, or unspecified). Sensitivity power analysis revealed that this sample could detect a small effect ($\eta^2 = 0.02$; Cohen, 1992) of essence type condition on essentialism ratings at 80% power, $\alpha = 0.05$, number of groups = 3. Median completion time was 5.8 minutes.

Materials and Procedure

Participants read an introductory blurb and two excerpts from articles that highlighted different aspects of Jewish identity. This manipulation was designed to at least temporarily induce belief in Jewish people as having (a) specifically a biological essence, (b) specifically a value-based essence, or (c) little to no essence. After the manipulation, participants indicated their beliefs in specifically a biological essence and a value-based essence, which allowed us to confirm that the manipulation was successful. Participants then indicated their general essentialist beliefs about Jewish people. At the end of the survey, participants provided their demographic information and were debriefed.

Essence Manipulation. The goal of the manipulation was to at least temporarily induce beliefs about Jewish people either as having a biological essence, a value-based essence, or little to no essence. To this end, participants read articles from a national news outlet and the website My Jewish Learning, which self-describes as being, “all about empowering Jewish discovery for anyone interested in learning more” (About Us, 2019). This description was provided to participants. The news articles were from The Washington Post, but this information was not displayed to participants. None of the information that participants read was fabricated. The articles were shortened for clarity and to be less demanding for participants.

Participants in the biological essence condition first read an introductory blurb about Jewish people that highlighted quasi-biological and ethnic aspects of Jewish identity. For instance, Jewish people were compared to other ethnicities, and participants read that “population genetic studies...show that Jewish populations have tended to share significant ancestry.” Participants then read excerpts from articles entitled “Jewish genetic screening: How to find out if you are a carrier of a Jewish genetic disease” and “Louisiana judge says Jews are a race and protected by anti-racial-discrimination laws.” These excerpts were designed to promote beliefs in a biological essence.

Participants in the value-based essence condition read an introductory blurb that described Jewish people as a religious group and participants read that, “Judaism guides its adherents in both practice and belief, and has been called not only a religion, but also a ‘way of life.’” Participants then read excerpts from articles entitled, “Mitzvah: A commandment: There are 613, not just 10, commandments or mitzvot” and “What the Talmud can teach us about how to argue with each other.” These excerpts were designed to promote belief in a value-based essence.

Participants in the low essence condition read an introductory blurb that highlighted the differences among Jewish people in ethnic identity, biology, religious practices, and cultural values. Participants then read article excerpts entitled, “Sephardic, Ashkenazic, Mizrahi and Ethiopian Jews: The Jewish world is more ethnically and racially diverse than many people realize” and “Israel’s battle between religious and secular Jews escalates with ban on Saturday shopping.” These excerpts were designed to promote the belief that Jewish people do not have a unifying essence based in either biology or shared values.

Essentialist Beliefs. Participants then rated the Jewish social group on the same seven essentialism items measured in Study 1 on the same 1-9 scales. The order of these items was uniquely randomized for each participant. These items included the key outcome of interest, general essentialist beliefs (knowledge deference, appearance/reality distinction, and deep similarity among category members) as well as beliefs about the specific essence type (biological essence, scientific cause, value-based essence, and whether a member can be a “true” member), which allowed us to assess the effectiveness of the manipulation.

Results

In Study 1, the knowledge deference, appearance/reality distinction, and deep similarity among category members items loaded highly on the general essentialism dimension. These items were inter-correlated in the present study, Cronbach’s $\alpha = 0.82$, and averaged into a single general essentialism index as preregistered.

The scientific cause and biological essence items loaded in one direction on the essence type dimension in Study 1 and were correlated in the present study, $r(481) = .67, p < .001$. Conversely, the value-based essence and being a “true” member items loaded strongly in the other direction on the essence type dimension and were correlated, although weakly, in the

present study, $r(492) = .13, p = .005$. As preregistered, we averaged these items into two separate indices representing beliefs in a biological essence and a value-based essence. See Table 2 for descriptive correlations among indices. Note that in exploratory analyses we considered making a single essence type index instead of two separate indices for biological essentialism and value-based essentialism. However, the overall inter-correlation between the two biological items and the two value-based items (reverse scored) was low, Cronbach's $\alpha = 0.16$. Thus, we retained two separate indices as preregistered.

Table 2

Zero-order correlations among essentialist beliefs in Studies 2-4

	Biological Essence			Value-based Essence		
	Study 2	Study 3	Study 4	Study 2	Study 3	Study 4
General Essentialism	0.42***	0.61***	0.62***	0.52***	0.60***	0.54***
Biological Essence	-	-		0.23***	0.38***	0.30***

* $<.05$. ** $<.01$. *** $<.001$.

Biological and Value-based Beliefs

Before testing our primary research question, we first assessed the effectiveness of the essence type condition in creating relative beliefs in a biological essence or value-based essence concerning Jewish people. Biological beliefs were submitted to a one-way analysis of variance (ANOVA) with essence type condition as the sole predictor; pairwise comparisons were

conducted with a Bonferroni correction for the number of tests ($\alpha = .017$). Essence type affected biological beliefs, $F(2, 496) = 70.02, p < .001, \eta^2 = 0.22$. Participants endorsed beliefs that Jewish people have a biological essence more in the biological essence condition ($M = 5.49, SD = 2.06$) compared to the low essence condition ($M = 3.04, SD = 1.98$), $t(1, 353) = 11.42, p < .001, d = 1.21$, and compared to the value-based essence condition ($M = 3.67, SD = 2.00$), $t(1, 308) = 7.99, p < .001, d = 0.90$. Jewish people were also rated higher in biological essence in the value-based essence condition compared to the low essence control condition, $t(1, 303) = 2.80, p = .005, d = 0.31$.

In a separate ANOVA, the essence type manipulation also affected beliefs in a value-based essence, $F(2, 496) = 19.21, p < .001, \eta^2 = 0.07$. Participants endorsed beliefs that Jewish people have a value-based essence more in the value-based essence condition ($M = 5.19, SD = 1.36$) compared to the low essence control condition ($M = 4.12, SD = 1.81$), $t(1, 318) = 6.01, p < .001, d = 1.26$, and compared to the biological-based essence condition ($M = 4.48, SD = 1.38$), $t(1, 306) = 4.60, p < .001, d = 0.17$. After the Bonferroni correction, there was no evidence that value-based essence beliefs differed in the biological essence condition compared to the low essence condition, $t(1, 331) = 2.09, p = .037, d = 0.70$.

These analyses indicate that the essence type manipulation was generally effective. Beliefs in a biological essence were highest in the biological essence condition and beliefs in a value-based essence were highest in the value-based essence condition.

General Essentialist Beliefs

The chief aim of the present study was to experimentally test the competing hypotheses that only biology causes general essentialism about social groups or that both biology and shared

values cause essentialist beliefs compared to a low essence control. We found evidence for the latter.

In a one-way ANOVA, the essence type manipulation affected general essentialist beliefs, $F(2, 496) = 20.49, p < .001, \eta^2 = 0.08$. Participants endorsed general essentialist beliefs about Jewish people more in the biological essence condition ($M = 5.79, SD = 1.66$) compared to the low essence control condition ($M = 4.90, SD = 1.98$), $t(1, 344) = 4.58, p < .001, d = 0.49$. Crucially, participants also endorsed general essentialist beliefs about Jewish people more in the value-based essence condition ($M = 6.10, SD = 1.61$) compared to the low essence condition, $t(1, 319) = 5.98, p < .001, d = 0.66$. And further, there was no evidence that general essentialist beliefs about Jewish people differed between the biological essence and value-based essence conditions, $t(1, 308) = 1.69, p = .093, d = 0.19$ (Figure 2a).

Figure 2

The Effect of Essence Type Condition on General Essentialist Beliefs

Note. Results are depicted for (a) Study 2, (b) Study 3, and (c) Study 4. Error bars represent 95% confidence intervals, and each individual participant's rating is jittered and underlaid.

Discussion

Findings from Study 2 converge with Study 1 in providing evidence that both shared biology and shared values can increase general essentialist thinking about social groups. Participants who read articles about Jewish people that emphasized either shared biology or shared values endorsed general essentialist beliefs about Jewish people more compared to a low essence control condition. Notably, participants likely began the experiment with preconceptions about Jewish people, but nevertheless exposure to brief articles highlighting shared biology or shared values were sufficient to increase general essentialist beliefs.

In the present study, biological essentialist beliefs and value-based essentialist beliefs were correlated ($r = .23$), and participants in the value-based essence condition endorsed *biological* essentialist beliefs more than in the low essence control condition, although still less so than the biological essence condition. These positive relationships between biological and value-based essentialism might be surprising given that in Study 1 these beliefs had opposite loadings on a single factor. But note that the biological essentialism items and the value-based essentialism items both refer to an essence and both corresponding conditions in the present study were designed to increase essentialism compared to the control condition. Furthermore, theoretically, value-based essentialism has been conceptualized as an additional or alternative way that people elaborate an underlying essence, which allows for positive relationships with biological essentialism and indeed does not preclude the possibility of other pathways. That we found opposite loadings in Study 1 could have had more to do with procedural details than with the nature of these beliefs; in Study 1 participants rated multiple different categories on a single belief and may have used their ratings to emphasize differences among categories. Thus, while we posit that shared biology and shared values are two separate ways that people elaborate the

underlying placeholder essence of social groups, these beliefs are not necessarily mutually exclusive, and people may conceptualize certain social groups as having both.

Essentialist beliefs about social groups have important consequences. Because of the prevailing emphasis on biological essentialism, prior work often manipulates biological cause to induce essentialism and investigate consequences (e.g., Kraus & Keltner, 2013). Yet Study 1 and Study 2 demonstrate that people can form essentialist beliefs about social groups due to shared values in addition to biology. This insight is important because it raises questions about whether these social consequences are due to a biological essence in particular or to a more general essentialism heuristic and thus might also be caused by value-based essentialism. Suggestive of this latter possibility, correlational evidence indicates that stereotyping is connected to non-biological forms and aspects of essentialism (e.g., Bastian & Haslam, 2006). Study 3 thus experimentally investigates whether value-based essentialism might increase inductive generalizations, related to stereotyping, as one test case.

Study 3

People learn about social groups by generalizing information about specific examples to other group members and the category as a whole (e.g., Heit, 2000). Biological essentialism about social groups promotes such inductive generalizations (Brescoll & LaFrance, 2004), which are related to stereotyping (Sherman, 1996; Sherman et al., 2009; Yzerbyt et al., 1997). But Studies 1 and 2 indicate that essentialism about social groups can also emerge due to shared values. Thus, the present study examined whether essentialist beliefs about social groups increase inductive generalizations due to biological essence per se or to essentialism more generally and thus will also be observed for value-based essentialism. It is particularly important

to study inductive generalizations as a test case because some consider induction to itself be an indicator of essentialism (e.g., Gelman, 2003; Rhodes et al., 2012).

The present study introduced participants to a novel, made-up social group with either a biological essence, a value-based essence, or little to no essence. Participants then completed a task measuring inductive generalizations. We again had two competing hypotheses. If biological essentialism per se increases inductive generalizations about social groups, then only participants in the biological essence condition will demonstrate higher generalizations compared to the other two conditions. In contrast, if essentialism in general increases inductive generalizations, then both the biological and value-based essence conditions will be higher in group generalizations compared to the control condition.

In addition, participants also indicated their essentialist beliefs about the made-up social group. By both manipulating and measuring essentialist beliefs, we could test that the manipulation was successful. Further, we could attempt to replicate the finding from Study 2 that both the biological and value-based essence conditions increase general essentialist beliefs compared to the control condition. Finally, we could test for a relationship between participants' essentialist beliefs and their inductive generalizations, complementing the condition-level analyses.

Methods

The present study introduced participants to a made-up social category called the Daxes. The Daxes were described as either having a biological essence, a value-based essence, or little to no essence. Thus as in Study 2 there were three between-subjects conditions. We then measured essentialist beliefs and group-based inductive generalizations. Manipulations,

measures, sample size, and analysis plan were preregistered prior to data collection (https://osf.io/cf763/?view_only=bad4a81746714e9797c8f5d94c0c377c).

Participants

Using Amazon's Mechanical Turk platform, 330 respondents completed the online survey in exchange for \$0.40. Of these, 30 were excluded due to the preregistered criteria: specifying that they were two different ages or indicating that they did not take the survey seriously. This resulted in the preregistered sample size of 300 participants who were all over the age of 18 and U.S. residents ($M_{age} = 35.91$, 51% women, 47% men, and 1% gender non-binary or unspecified, 77% White, 8% Black, 6% Asian, 5% Hispanic/Latino, and $\leq 2\%$ either Native American, Middle Eastern, multi-racial, or unspecified). Target sample size for the present study was smaller than Study 2 because we expected the essence manipulation to be even stronger concerning a novel social group (i.e., the Daxes) in the absence of pre-existing essentialist beliefs that people likely have about a real social group (i.e., Jewish people). Sensitivity power analysis revealed that this sample could detect a small to medium effect ($\eta^2 = 0.03$; Cohen, 1992) of essence type condition on essentialism ratings at 80% power, $\alpha = 0.05$, number of groups = 3. Median completion time was 5.9 minutes.

Materials and Procedure

Participants read an introductory blurb about a made-up social group, the Daxes. Participants read information designed to cause beliefs in a biological essence, a value-based essence, or little to no essence. Next, participants responded to statements measuring essentialist beliefs and completed an inductive inference task. The order in which participants completed these two final tasks was counterbalanced across participants. At the end of the survey, participants provided their demographic information and were debriefed.

Essence Manipulation. No deception was used, and participants were aware that the Daxes were not a real social group. Within this hypothetical context it was important to establish the legitimacy of the Daxes as a recognizable group. In all three conditions, participants thus read that, “The Daxes are all from the same region, and this information is designated on their official government identification.”

In the biological essence condition participants then read information designed to promote essentialist thinking due to an internal biological cause. For instance, participants read that, “all Daxes share the same unique biological marker” and “there is something fundamentally similar about them, which is found even in their DNA.” In contrast, in the value-based essence condition participants read information designed to promote essentialist thinking due to shared values. Participants read that, “a deeper value [] captures what it means to be a Dax” and “the same deeper ‘Dax values.’” In the low essence condition—which served as a control condition—participants instead read information such as, “scientists have...**not** found evidence that Daxes share a unique biological marker” and “you do **not** notice any deeper values that capture what it means to be a Dax.”

Essentialist Beliefs. Participants then rated the Daxes on the same seven essentialism items measured in Studies 1 and 2 on the same 1-9 scales: knowledge deference, appearance/reality distinction, deep similarity among category members, biological essence, scientific cause, value-based essence, and whether a member can be a “true” member. The order of these items was uniquely randomized for each participant.

Inductive Generalizations. We adapted a measure of inductive generalizations based on group membership from Diesendruck and haLevi (2006; see also Heyman & Gelman, 2000). Participants completed eight trials in a randomized order. For each trial, participants were

introduced to two individuals wearing distinct clothing. One of the individuals was identified as “a Dax” with some made-up (i.e., blank) property (e.g., “listens to a lot of mishinit music”; Appendix C), and the other individual was identified as “not a Dax” with a different made-up property (e.g., “listens to a lot of randit music”). Participants were then shown a third individual who was also “a Dax” but who was dressed similarly to the non-Dax. Participants had to guess whether this third person shared the property with the other Dax (e.g., “listens to a lot of mishinit music”) or with the person who was dressed similarly (e.g., “listens to a lot of randit music”). The measure of inductive generalizations was the number of times participants overrode the visual similarity of the appearance match to instead guess that the two Daxes shared the same property, that is, a social group match (as in Diesendruck & haLevi, 2006). To prevent participants from making inferences based on other social identities besides Dax membership, the three individuals in each trial were all the same gender and the same age group and appeared to be from three different racial or ethnic groups (i.e., the three individuals varied in skin tone, eye color, hair color, and eye shape).

Results

The appearance/reality distinction, deep similarity among category members, and knowledge deference essentialism items were again inter-correlated, Cronbach’s $\alpha = 0.85$, and averaged into a single general essentialism index. Scientific cause and biological essence were correlated, $r(290) = .72, p < .001$, and the value-based essence and “true” member items were correlated, $r(293) = .33, p < .001$. We again considered combining these four items into a single essence type index with the value-based items reverse scored, but the inter-correlation was low as in Study 2, Cronbach’s $\alpha = -0.03$. Thus as preregistered and as in Study 2, we created two

separate biological essence and value-based essence indices (for correlations among indices see Table 2).

Biological and Value-based Beliefs

Before testing our primary question, we first assessed the effectiveness of the essence type condition in creating beliefs in a biological essence or value-based essence concerning the Daxes. In a one-way ANOVA, the essence type manipulation affected beliefs in a biological essence, $F(2, 289) = 65.54, p < .001, \eta^2 = 0.31$. We then tested for differences among conditions using Bonferroni corrected pairwise comparisons ($\alpha = .017$). Participants endorsed the belief that Daxes have a biological essence more in the biological essence condition ($M = 7.08, SD = 1.36$) compared to the low essence condition ($M = 3.89, SD = 2.40$), $t(1, 162) = 11.58, p < .001, d = 1.63$, and compared to the value-based essence condition ($M = 4.99, SD = 2.02$), $t(1, 163) = 8.36, p < .001, d = 1.23$. Daxes were also rated higher in biological essence in the value-based essence condition compared to the low essence condition, $t(1, 192) = 3.47, p < .001, d = 0.50$.

The essence type manipulation also affected beliefs in a value-based essence, $F(2, 292) = 15.14, p < .001, \eta^2 = 0.09$. Participants endorsed beliefs that Daxes have a value-based essence more in the value-based essence ($M = 5.65, SD = 1.60$) compared to the low essence condition ($M = 4.20, SD = 2.14$), $t(1, 187) = 5.38, p < .001, d = 0.77$, although not compared to the biological essence condition after the Bonferonni correction ($M = 5.16, SD = 1.82$), $t(1, 190) = 1.99, p = .048, d = 0.29$. Daxes were also rated higher in value-based essence in the biological essence condition compared to the low essence condition, $t(1, 198) = 3.43, p < .001, d = 0.48$.

Thus as in Study 2, the essence type manipulation was generally effective. Beliefs in a biological essence were highest in the biological essence condition and beliefs in a value-based essence were higher in the value-based essence condition than the low essence control condition.

General Essentialist Beliefs

The present study also allowed us to again test if both biology and shared values promote general essentialist beliefs. Replicating Study 2, the essence type manipulation affected general essentialist beliefs in a one-way ANOVA, $F(2, 290) = 58.95, p < .001, \eta^2 = 0.29$. Participants endorsed general essentialist beliefs about Daxes more in the biological essence condition ($M = 6.74, SD = 1.46$) compared to the low essence condition ($M = 4.42, SD = 2.25$), $t(1, 172) = 8.70, p < .001, d = 1.23$. Crucially, participants also endorsed general essentialist beliefs about Daxes more in the value-based essence condition ($M = 6.72, SD = 1.31$) compared to the low essence condition, $t(1, 164) = 8.79, p < .001, d = 1.25$. There was no evidence that general essentialist beliefs about Daxes differed between the biological essence and value-based essence conditions, $t(1, 190) = 0.09, p = .926, d = 0.01$ (Figure 2b).

Inductive Generalizations

The primary goal of the present study was to test the competing hypotheses that (a) only biological essences causes inductive generalizations about social groups or (b) general essentialism causes inductive generalizations and thus this consequence will be observed in both the biological essence and value-based essence conditions relative to control. We tested these hypotheses in a one-way ANOVA with Bonferroni corrected pairwise comparisons ($\alpha = .017$).

The essence manipulation affected participants inductive generalizations based on group membership, $F(2, 297) = 8.99, p < .001, \eta^2 = 0.06$. Participants were more likely to guess that individuals from the same group shared a property in the biological essence condition ($M = 0.53, SD = 0.39$) compared to the low essence condition ($M = 0.39, SD = 0.39$), $t(1, 202) = 2.48, p = .014, d = 0.35$. Crucially, participants were also more likely to base generalizations on group membership in the value-based essence condition ($M = 0.62, SD = 0.39$) compared to the low

essence condition, $t(1, 196) = 4.22, p < .001, d = 0.60$. There was no evidence that the biological essence and value-based essence conditions differed, $t(1, 194) = 1.75, p = .082, d = 0.25$ (Figure 3). Further, in an exploratory 3 (essence type condition: biological, value-based, low essence) $\times$ 2 (order: induction measure first, induction measure second) ANOVA there was no evidence that the order in which participants completed the measures of induction and essentialism moderated the effect of essence type condition on induction, $F(2, 294) = 0.06, p = .945, \eta_p^2 < 0.01$.

Figure 3

The Effect of Essence Type Condition on Inductive Generalizations

Note. Error bars represent 95% confidence intervals, and each individual participant's proportion of category matches is jittered and overlaid.

Relationship Among Measures

Because we both manipulated and measured essentialism, we also examined the relationship between essentialism and inductive generalizations in correlational analyses. Specifically, we tested whether participants' endorsement of essentialist beliefs about the Daxes predicted their likelihood of relying on Dax membership when group-based inductive generalizations, regardless of condition.

Participants' likelihood of relying on Dax membership to make group-based inductive generalizations was correlated with their general essentialist beliefs about Daxes, $r(291) = .31, p < .001$, beliefs that Daxes have a specifically biological essence, $r(290) = .18, p = .003$, and beliefs that Daxes have a specifically value-based essence, $r(293) = .24, p < .001$. But given the inter-correlations among essentialism indices, it was important for the present purposes to examine the relationships of each when controlling for the others. In a pre-registered multiple linear regression model where each index was entered simultaneously, only general essentialist beliefs remained predictive, $B = 0.06, SE = 0.02, p < .001, \beta = 0.30$ (biological essence beliefs: $B < 0.01, SE = 0.01, p = .711, \beta = -0.03$; value-based essence beliefs: $B = 0.01, SE = 0.01, p = .365, \beta = 0.06$). Further, in a non-preregistered exploratory analysis, this relationship between general essentialist beliefs and inductive generalizations persisted, $B = 0.05, SE = 0.02, p = .005$, over and above biological or value-based beliefs, even when controlling for the essence condition that participants were in. These individual difference correlational analyses thus dovetail with the condition differences to indicate that essentialism promotes group-based inductive generalizations about social groups irrespective of the source of that essence.

Discussion

People use group membership as a basis for making generalizations to learn about the group as a whole. Belief in biological essence promotes such group-based generalizations,

related to stereotyping (Brescoll & LaFrance, 2004; Gelman & Markman, 1986). In Study 3, value-based essence had a similar effect. Both the biological essence and value-based essence conditions increased the likelihood of making group-based inductive generalizations compared to the low essence control condition. Further, individual differences in participants' endorsement of general essentialist beliefs predicted their likelihood of making inductive generalizations. This relationship held even controlling for beliefs in a specifically biological or value-based essence and controlling for condition. These findings suggest that inductive potential based on group membership is a more general outcome tied to general essentialist beliefs, rather than specific belief in a biological essence, and can thus also occur for value-based essentialism.

Biological essentialism about social groups has been connected to a number of other important social consequences besides inductive generalizations. Study 4 examined another test case. Attributing a group's immoral behavior to an underlying biological cause can reduce blame for moral failings (e.g., Kvaale et al., 2013). Study 4 investigated whether reduced blame is due to a biological essence per se or might also be observed for a value-based essence.

Study 4

Essentialism has a number of important downstream consequences for social functioning. The present study examined blame for moral failings. Prior work suggests that biological essentialism might reduce blame for bad behavior—attributing bad behavior like public sex acts to a biological cause often reduces blame (e.g., Boysen, 2011; Haslam & Kvaale, 2015; Kvaale et al., 2013). But as demonstrated in Studies 1-3, people can form essentialist beliefs about non-biological social groups by appealing to underlying, shared values. These findings raise the possibility that reduced blame might be due either to biological essentialism in particular or to essentialism generally and thus also evident for value-based essentialism.

Blame for moral failings is a particularly important test case because of inconsistencies in the literature. Some research indicates that belief in biological cause reduces blame and punishment for bad behavior (e.g., Aspinwall et al., 2012; Boysen, 2011), but on other occasions it has no effect (for a review see, Tabb et al., 2019). For instance, judges give lower sentences to hypothetical individuals with psychopathy who commit crimes when their psychopathy is described as biologically caused (Aspinwall et al., 2012), but subsequent attempts have failed to replicate this finding (Fuss et al., 2015; Scurich & Appelbaum, 2016). Further, to the extent that people view a biological essence as a key to who someone “really” is, then for theoretical reasons belief in a biological essence might actually increase blame (Pizarro et al., 2003). One possibility is that attributing a group’s immoral behavior to biology reduces blame but that essentialism more generally increases blame, and thus that for groups thought to have a biological essence these two influences of biological determinism and essentialism counteract resulting in inconsistent findings (Tabb et al., 2019). On this view, a value-based essence might result in even more blame for bad behavior compared to a biological essence. Another possibility is that essentialism reduces blame generally, either through a biological or value-based path. And yet a further possibility is that belief in an underlying biological cause reduces blame but that essentialism more generally has no effect. Because much of the research on essentialism about social groups focuses only on biological essences these three hypotheses are all possible.

Similar to Studies 2 and 3, the present study manipulated belief in a biological-based essence, value-based essence, or low essence to investigate blame for moral failings. We had three competing predictions. (a) If biological cause decreases blame but essentialism more generally increases blame, then these two factors will counteract in the biological essence condition resulting in little to no difference from control while blame will be higher in the value-

based essence condition. (b) If blame is tied to essentialism generally, then blame should be reduced in both essence conditions compared to the control condition. Finally (c), if blame is tied to biological determinism specifically then blame should be reduced in the biological condition compared to both other conditions.

Like Study 3, the present study both manipulated and measured essentialist beliefs. This approach allowed us to test the success of the manipulation and the effect of the manipulation on general essentialist beliefs (in replication of Studies 2 and 3). This approach also allowed us to test for participant differences in the effect of essentialism on blame, complementing the condition-level analyses.

Methods

The present study again introduced participants to a made-up social category called the Daxes. There were three between-subjects conditions: biological essence, value-based essence, and low essence. Thus, the overall design was similar to Study 3 but with a key difference: rather than the Daxes being described neutrally as all being from the same region, the Daxes were described as engaging in an immoral behavior. There were also two different types of immoral behaviors. We then measured essentialist beliefs and blame for moral failings. Manipulations, measures, sample size, and analysis plan were preregistered prior to data collection (https://osf.io/ad4kn/?view_only=fbab7846dd754c12a9e27da17577e6df).

Participants

Using Amazon's Mechanical Turk platform, 631 respondents completed the online survey in exchange for \$0.30. Of these, 31 were excluded due to the preregistered criteria: specifying that they were two different ages, failing to remember the immoral behavior they read about, or indicating that they did not take the survey seriously. This resulted in the preregistered

sample size of 600 participants who were all over the age of 18 and U.S. residents ($M_{age} = 36.24$, 52% women, 47% men, and 1% gender non-binary or unspecified, 75% White, 8% Asian, 7% Black, 7% Hispanic/Latino, and $\leq 2\%$ either Native American, Middle Eastern, multi-racial, or unspecified). The present study had a larger sample than Study 3 because we included two different types of immoral behavior. Sensitivity power analysis revealed that this sample could detect a small effect ($\eta^2 = 0.02$; Cohen, 1992) of essence type condition on essentialism ratings at 80% power, $\alpha = 0.05$, number of groups = 6, numerator degrees of freedom = 2. Median completion time was 4.2 minutes.

Materials and Procedure

Participants read an introductory blurb about a made-up social category called the Daxes who engage in an immoral behavior. Participants read information designed to cause beliefs in a biological essence, value-based essence, or low essence. Participants then indicated their essentialist beliefs and the extent to which they blamed Daxes for their immoral behavior. All participants completed the essentialism and blame measures in the same order because the order of the measures did not affect the results in Study 3. At the end of the survey, participants provided their demographic information and were debriefed.

Essence Manipulation. No deception was used, and participants were aware that the Daxes were not real. The materials describing the Daxes and their immoral behavior were adapted from Boysen (2011), which found that emphasizing an internal, biological cause reduced blame.

Participants read that the Daxes were “small subsets of men” who had “recently come to the attention of authorities” for engaging either in extreme acts of public eating or extreme acts of public sexual behaviors. The descriptions of the abnormal and immoral behaviors were the

same across essence type conditions. Participants then read the same information about the Daxes from Study 3 designed to promote belief in a biological essence, value-based essence, or low essence. For instance, in the biological essence condition participants read that “all Daxes share the same unique biological marker,” in the value-based essence condition participants read that “the same deeper ‘Dax values,’” and in the low essence condition participants read that “scientists have...not found evidence that Daxes share a unique biological marker” and “you do not notice any deeper values that capture what it means to be a Dax.”

Essentialist Beliefs. Participants rated the Daxes on the same seven essentialism items measured in Studies 1-3 on the same 1-9 scales: knowledge deference, appearance/reality distinction, deep similarity among category members, biological essence, scientific cause, value-based essence, and whether a member can be a “true” member. The order of these items was uniquely randomized for each participant. Note that for this study, the wording of the “true” member item was adjusted to increase readability and because the value-based items displayed weaker correlations in Studies 2 and 3 than the biological items. In Studies 1-3 the wording was, “That [person] is not a *true* [category member]. If you think that [person] is a true [category member] then you don’t really know what it means to be a [category member] at all,” in Study 4 we changed this wording to be, “If a [person] does not embody the right kind of values, than there is a sense in which they are not even a true [category member].”

Blame. We created three items to measure blame adapted from prior work (Boysen, 2011; Lebowitz et al., 2016). Participants were asked to indicate their agreement from *disagree* (1) to *agree* (9) to the following statements: “Daxing is the fault of the person who engages in the behavior,” “Daxes should be reprimanded and punished,” and “Daxing is NOT the fault of the person who engages in the behavior” (reverse scored).

Results

As in previous studies, the knowledge deference, appearance/reality distinction, deep similarity items were inter-correlated, Cronbach's $\alpha = 0.79$, and averaged into a single general essentialism index as preregistered. The scientific cause and biological essence items were correlated, $r(586) = .60, p < .001$, and the value-based essence and "true" member items were correlated $r(581) = .46, p < .001$. These items were averaged into a separate biological essence index and value-based essence index as preregistered and as in prior studies (for correlations among indices see Table 2). The three items measuring blame were also inter-correlated and averaged into a single blame index as preregistered, Cronbach's $\alpha = 0.78$.

Biological and Value-based Beliefs

Before testing our primary question, we first assessed the effectiveness of the essence type condition in creating biological or value-based beliefs about Daxes. Each index was submitted to a separate 3 (essence type condition: biological, value, neither) x 2 (immoral behavior: over-eating, sexual) ANOVA and pairwise comparisons were conducted with a Bonferroni correction for the number of tests ($\alpha = .017$).

The essence type condition affected biological essence beliefs, $F(2, 582) = 97.99, p < .001, \eta_p^2 = 0.25$. Participants rated Daxes higher in biological beliefs in the biological essence condition ($M = 6.22, SD = 1.85$) compared to the low essence condition ($M = 3.48, SD = 2.06$), $t(1, 388) = 13.82, p < .001, d = 1.39$, and compared to the value-based essence condition ($M = 4.78, SD = 1.94$), $t(1, 387) = 7.46, p < .001, d = 0.76$. The value-based condition was also rated higher in biological beliefs than the low essence condition, $t(1, 392) = 6.44, p < .001, d = 0.65$. Overall participants endorsed biological beliefs more if they read about Daxing as extreme over-eating ($M = 5.08, SD = 2.31$) compared to an extreme sex act ($M = 4.56, SD = 2.16$), $F(1, 582) =$

11.39, $p < .001$, $\eta_p^2 = 0.02$, but there was no evidence that the type of immoral behavior moderated the effect of the essence type manipulation on biological beliefs, $F(2, 582) = 1.61$, $p = .201$, $\eta_p^2 < 0.01$.

The essence type condition also affected value-based essence beliefs, $F(2, 577) = 38.70$, $p < .001$, $\eta_p^2 = 0.12$. Participants rated Daxes higher in value beliefs in the value-based essence condition ($M = 4.94$, $SD = 1.75$) compared to the low essence condition ($M = 4.28$, $SD = 1.84$), $t(1, 383) = 3.58$, $p < .001$, $d = 0.88$, and compared to the biological essence condition ($M = 4.78$, $SD = 1.94$), $t(1, 387) = 7.46$, $p < .001$, $d = 0.36$. The biological essence condition was also rated higher in value beliefs than the low essence condition, $t(1, 388) = 5.03$, $p < .001$, $d = 0.51$. There was no evidence for an overall effect of the type of immoral behavior, $F(1, 577) = 3.43$, $p = .065$, $\eta_p^2 = 0.01$, or an interaction, $F(2, 577) = 1.69$, $p = .185$, $\eta_p^2 = 0.01$.

The essence type manipulation was thus generally effective, and the type of immoral behavior did not make a meaningful difference. Biological beliefs were highest in the biological essence condition, and value beliefs were highest in the value-based essence condition.

General Essentialist Beliefs

The present study also facilitated a test of the previous finding that either biology or shared values promote general essentialist beliefs. Replicating Studies 2 and 3, essence type affected general essentialist beliefs, $F(2, 584) = 92.28$, $p < .001$, $\eta_p^2 = 0.24$ in a 3 (essence type condition: biological, value, neither) x 2 (immoral behavior: over-eating, sexual) ANOVA. Participants rated Daxes higher in general essentialist beliefs in the biological essence condition ($M = 6.37$, $SD = 1.58$) compared to the low essence control condition ($M = 4.16$, $SD = 2.00$), $t(1, 375) = 12.16$, $p < .001$, $d = 1.22$. Crucially, participants also rated Daxes higher in general essentialist beliefs in the value-based essence condition ($M = 6.02$, $SD = 1.63$) compared to the

low essence condition, $t(1, 378) = 10.06, p < .001, d = 1.01$. Further, here was no evidence that the biological essence and value-based essence conditions differed after the Bonferroni correction, $t(1, 389) = 2.19, p = .029, d = 0.22$ (Figure 2c). Overall, general essentialist beliefs were higher for extreme over-eating ($M = 5.67, SD = 2.04$) than extreme sex acts ($M = 5.37, SD = 1.95$), $F(1, 584) = 6.09, p = .014, \eta_p^2 = 0.01$, but there was no evidence that the type of immoral behavior moderated the effect of essence type on blame, $F(2, 584) = 1.14, p = .321, \eta_p^2 < 0.01$.

Blame

For our primary question, we had three competing hypotheses (a) biological determinism decreases blame but essentialism increases it—these forces will thus counteract in the biological essence condition resulting in little changes in blame relative to the control condition and increased blame in the value-based condition—(b) essentialism decreases blame regardless of the essence being biological or value-based—resulting in reduced blame in both the biological and value-based essence conditions, or (c) only biological determinism decreases blame and essentialism has no effect—resulting in reduced blame in the biological essence condition but not the value-based essence condition. The present study tested these competing hypotheses in 3 (essence type condition: biological, value, neither) $\times$ 2 (immoral behavior: over-eating, sexual) ANOVA with Bonferroni corrected pairwise comparisons ($\alpha = .017$).

The essence type manipulation affected blame, $F(2, 590) = 9.84, p < .001, \eta_p^2 = 0.03$. Consistent with prior work, participants blamed the Daxes less for their immoral behavior in the biological essence condition ($M = 5.93, SD = 2.26$) compared to the low essence condition ($M = 6.59, SD = 2.08$), $t(1, 394) = 3.06, p = .002, d = 0.31$. Crucially, there was no evidence for decreased or increased blame among participants in the value-based essence condition ($M = 6.51$,

$SD = 2.10$) compared to the low essence condition, $t(1, 395) = 0.36, p = .719, d = 0.04$. Further, participants blamed the Daxes less in the biological condition compared to the value-based condition, $t(1, 391) = 2.67, p = .007, d = 0.257$ (Figure 4). Overall blame was higher for extreme sex acts ($M = 7.67, SD = 1.55$) than extreme over-eating ($M = 4.98, SD = 1.84$), $F(1, 590) = 385.91, p < .001, \eta_p^2 = 0.39$, but there was no evidence that the type of immoral behavior moderated the effect of essence type on blame, $F(2, 590) = 1.19, p = .306, \eta_p^2 < 0.01$. Thus, the pattern of results was most consistent with the third hypothesis: biological essentialism decreased blame, but general essentialism appeared to have no effect.

Figure 4

The Effect of the Essence Type Condition on Blame.

Note. Error bars represent 95% confidence intervals, and each individual participant's rating is jittered and underlaid.

Relationship Among Measures

The present study both manipulated and measured essentialism. Thus in addition to testing condition differences, we assessed the relationships among participants' essentialist beliefs and their likelihood of blaming the Daxes in a preregistered multiple regression analyses.

Reduced blame for moral failings was correlated with participants' general essentialist beliefs about Daxes, $r(584) = -.20, p < .001$, beliefs in a biological essence, $r(583) = -.32, p < .001$, and beliefs in a value-based essence, $r(578) = -.13, p = .002$. However, when all three measures of essentialist thinking were entered into a multiple linear regression model simultaneously, only biological essence beliefs remained predictive, $B = -0.28, SE = 0.05, p < .001, \beta = -0.29$ (general essentialist beliefs: $B = 0.01, SE = 0.06, p = .868, \beta < 0.01$; value-based essence beliefs: $B = -0.07, SE = 0.05, p = .181, \beta = -0.06$). Further, in a non-preregistered exploratory analysis, this relationship between biological essence beliefs and blame persisted, $B = -0.29, SE = 0.05, p < .001$, over and above general essentialist beliefs or value-based beliefs, even when controlling for the essence condition that participants were in. These individual difference correlational analyses dovetail with the conclusion from the condition differences: only biological essentialism reduces blame for moral failings.

Discussion

Essentialism shapes how people reason about social groups with important downstream consequences for social functioning. Yet much of the research on social consequences focuses on biological essences, often manipulating biology as a proxy for manipulating essentialism (e.g., Williams & Eberhardt, 2008). Studies 1-3 indicate that people can form essentialist beliefs about social groups without a connection to biology but instead due to shared values. This insight entails that social consequences that have been connected to biological essentialism might have

more to do with biological determinism per se than to essentialism more generally. Study 4 focused on one consequence as a test case: reduced blame for bad behavior. Study 4 replicated prior work and found that belief in biological essence reduces blame (Boysen, 2011). However, this effect appeared to be about biology in particular and not essentialism more generally. Although participants in the value-based essence condition also held essentialist beliefs about the Daxes, they did not blame the Daxes any more or less compared to the control condition. Further, only individual differences in participants' belief in specifically a biological essence statistically predicted reduced blame; general essentialist beliefs had no effect once controlling for biology.

General Discussion

The present research finds that, like biology, shared values can also be a basis of essentialist beliefs about social groups (Newman & Knobe, 2019). Study 1 found factor analytic evidence that social groups rooted in biology (e.g., women) and those grounded in underlying shared values (e.g., Christians) both show characteristic features of essentialism to a similar degree. Both types of social groups elicited relatively high beliefs in knowledge deference, a distinction between appearance and reality, and deep similarity—all central indicators of psychological essentialism (Medin & Ortony, 1989). Study 2 then confirmed experimentally that information regarding shared values increased these general essentialist beliefs.

Biological essentialism about social groups has been connected to a range of downstream consequences. Here, we investigated whether value-based essentialism would elicit similar consequences. Studies 3 and 4 investigated inductive generalizations and moral blame as two test cases. Study 3 found that information regarding both shared biology as well as shared values increased inductive generalizations based on social group membership. In contrast, Study 4

found that only biological essentialism reduced blame for immoral behavior; value-based essentialism had no effect compared to control.

Note that biology appears to be a common, intuitive way that people elaborate the essence of social groups (e.g., Dar-Nimrod & Heine, 2011; Haslam et al., 2000; Keller, 2005), and the present work does not refute this important role of biology. Indeed, we found correlational and experimental evidence that biological beliefs about real (Studies 1 and 2) and made-up (Studies 3 and 4) social groups increased essentialist beliefs. But prior research also shows that people can essentialize non-biological social groups (e.g., Rangel & Keller, 2011) and essentialism can be manipulated without appealing to biology (Rhodes et al., 2012). The present findings regarding value-based essentialism add further evidence that although biology may be a common way people elaborate the underlying essence of social groups, it is not the only pathway.

Four studies demonstrate factor-analytic, correlational, and experimental evidence that either underlying biology or shared values can promote general essentialist beliefs about social groups. These beliefs are not mutually exclusive—indeed, some groups were thought of as having deep similarities that were somewhat biological and also somewhat value-based (e.g., both types of beliefs were correlated in Studies 2-4). Additionally, the present findings do not preclude the possibility of other ways of elaborating the underlying essence of social groups (e.g., telos, Rose & Nichols, 2019). But together, the present work supports a broader framework for essentialism about social groups that incorporates value-based essences (Gelman & Rhodes, 2012; Newman & Knobe, 2018). Our studies also caution that some downstream social outcomes thought to be connected to essentialism (e.g., blame) might have more to do specifically with belief in a biological cause than with general essentialist beliefs.

One limitation of the present research on value-based essentialism is that all of the samples came from a U.S. cultural context, limiting generalizability (e.g., Henrich et al., 2010). But the U.S. context might have also been a particularly strict test for a non-biological, value-based pathway to essentialism. People in the U.S. have relatively high science training compared with much of the world (Organisation for Economic Co-operation and Development, 2018). Thus, a U.S. sample might be particularly inclined to think of essences as biological or genetic due to their working scientific understanding of humans and animals as biological. That we found evidence for value-based essentialism in a U.S. sample might thus be particularly striking.

Related Constructs to General Essentialism

Our manipulations and measures were designed to induce and capture general essentialism and specific beliefs about the nature of that essence as biological or value-based. What we call general essentialism may be similar to but also importantly different from other related constructs in the literature.

To consider this possibility, we first contrast our measure of general essentialism with a related measure of *entitativity*. In their seminal paper, Haslam and colleagues (2000) identified entitativity as a dimension of essentialist beliefs about social groups. The entitativity factor included an item measuring belief in an “underlying reality,” and thus this specific conceptualization of entitativity shares some overlap with the present general essentialism and our “deep similarity” item. But notably the entitativity factor also included other beliefs in, for instance, group uniformity, which reflects the broader theoretical conception of entitativity. Entitativity is classically defined as, “that property of a group, resting on clear boundaries, internal homogeneity, social interaction, clear internal structure, common goals, and common fate, which makes a group ‘groupy’” (Campbell, 1958; Hamilton & Sherman, 1996; Hogg et al.,

2007, p. 136). Thus, some highly entitative groups (e.g., a sports team) may be low in what we have called “general essentialism” because although they have a common goal that makes them superficially uniform, they do not share a deeper reality. The present general essentialism items were not designed to capture this broader construct of entitativity. Instead, the present items more narrowly focus on belief in underlying, deep similarity versus superficial appearance and did not reference related but broader entitativity beliefs in group cohesiveness or shared goals.

Another important contrast is the concept of *kindhood*. For instance, Noyes and colleagues recently separated essentialism from kindhood and argued that people think of social groups either as mere categories or as kinds, where kinds are regarded as cohesive, informative, inductively rich, and stable (Noyes & Keil, 2019; Noyes & Dunham, 2019). Kindhood and essentialism generally have a cluster of somewhat similar hallmarks, including inductive generalizations. Thus, in Study 3 one could argue that we found that shared values increased inductive generalizations because of belief kindhood, not essentialism. However, key aspects of the present studies suggest that our measure of general essentialism is not simply getting at the same thing that has already been explored within existing work on kindhood. We found that the value-based condition caused participants to endorse items specific to essentialism such as, “There is an *essential* quality or characteristic that makes [category member]s similar in some deep way” (emphasis added). Second, these general essentialist beliefs *in particular* predicted inductive generalizations in the individual difference correlational analyses in Study 3—that is, even after controlling for biological beliefs, value-based beliefs, and essence condition.

People organize social groups along a number of key dimensions including more or less entitative and kinds versus mere categories. There is some overlap between these concepts and essentialism. Entitativity as measured in Haslam and colleagues (2000) included an item

capturing an “underlying reality” and was identified as a key dimension of essentialism; and all three constructs appear to increase inductive generalizations. Nevertheless, essentialism specifically refers to belief in a deep, underlying reality that determines group membership (Gelman, 2004). The general essentialism items in the present work were designed to more narrowly capture this belief in an underlying essence; and participants endorsed general essentialism for both biological and value-based social groups.

Social Consequences of Essentialism

Essentialism about social groups has been connected to a number of beliefs and downstream social behaviors, including: generic statements, dehumanization, inductive generalizations and stereotyping, social prejudices, unfair allocation of resources, desire to affiliate with different group members, perceived differences between groups, blame for wrongdoing, and efforts to rehabilitate moral offenders (e.g., Bastian & Haslam, 2006; Boysen, 2011; Brescoll & LaFrance, 2004; Haslam et al., 2002; Ho et al., 2015; Leyens et al., 2001; Prentice & Miller, 2006; Rhodes et al., 2012; Rhodes et al., 2018; Roberts et al., 2017; Williams & Eberhardt, 2008). Many of these consequences have been investigated only with biologically-based social groups (e.g., Brescoll & LaFrance, 2004; Williams & Eberhardt, 2008). The present work raises the question of whether these consequences are due to biological essentialism per se or to essentialism more generally and might also be observed for value-based essentialism. We tested inductive generalizations and blame as two test cases.

Inductive generalizations are tightly linked with essentialism. Sometimes inductive potential is considered not only a consequence but also itself a core aspect of essentialism (Gelman, 2004; Rhodes et al., 2012). The process of over-generalizing information from an example to other group members has sometimes been called stereotyping when involving social

groups (Paolini & McIntyre, 2019; Sherman, 1996), and inducing biological beliefs increases such generalizations about social groups (Brescoll & LaFrance, 2004). Study 3 found that belief in underlying values had the same effect. Both the biological essence and value-based essence conditions increased inductive generalizations compared to the low essence control condition. Further, correlational analyses indicated that general essentialist beliefs related to inductive potential, even after controlling for biological beliefs per se (as well as value-based beliefs and condition). One implication of Study 3 is thus that, similar to biologically-based groups, social groups rooted in shared values also elicit increased inductive generalizations.

While the link between essentialism and induction is well established, the link between essentialism and reduced blame for immoral behavior is more tenuous. Much of the research on blame focuses only on biological cause and discusses essentialism as potentially relevant (e.g., Kvaale et al., 2013). Further, while some investigations find that biological cause reduces blame and punishment (Aspinwall et al., 2012; Kvaale et al., 2013), others indicate that it has no relationship (Scurich & Appelbaum, 2015; Tabb et al., 2019). In Study 4, we found that only biological cause and biological essentialist beliefs reduced blame for moral failings in the experimental and correlational individual difference analyses. These findings caution that some of the social consequences connected to biological essentialism could have more to do with belief in biological determinism and biological cause per se than with essentialism more generally.

The present studies examined inductive generalizations and blame as two test cases. Biological essentialism has been tied to a number of other consequences. For each of these consequences, future research could investigate whether biology specifically or essentialism generally are responsible. For instance, Swann and colleagues (2014) already present evidence

that belief in either an ingroup's shared biology or shared values promotes extreme pro-ingroup behaviors, such as a willingness to die for one's country. But the question remains open for other important consequences such as outgroup prejudice. Evidence that essentialism increases prejudice about social outgroups is inconsistent and conflicting (Haslam et al., 2002; Keller, 2005; Rhodes et al., 2015). One possibility is that, similar to blame for wrongdoing in Study 4, prejudice has a different relationship with biological cause than with essentialism generally. Thus, adopting a value-based essentialism framework could help shed light on open theoretical questions about why essentialism sometimes but not always increases social prejudices.

Value-based Essentialism

At the core of the present research is the notion of value-based essentialism. This notion is importantly different from that of biological essentialism in certain respects, but in other ways, the two concepts are quite similar.

Perhaps the most salient difference is that value-based essences are presumably not regarded as *immutable*. To the extent that people think that social groups such as gender, race, or sexual orientation groups have a biological essence, they might think that one's membership in these categories can never change. For example, to the extent that people biologically essentialize sexual orientation, they might think that if a person is gay right now, he could not possibly have a different sexual orientation at any other time in his life (Heine et al., 2017). Similarly, Rangel and Keller's (2011) conception of socially constructed essences are also regarded as immutable (e.g., social origins). Value-based categories do not seem to be like this. Take the value-based category of Christians. Membership in this category seems to be relatively stable (a person can't just shift in and out of it from one day to the next), but nonetheless, it does seem to be possible for category membership to change. A person can be an atheist during one

part of her life and a Christian in another. Future work could explore this issue and its implications for broader questions about the nature of psychological essentialism.

Importantly, however, the present studies do suggest that value-based essentialism shows many of the hallmark properties of biological essentialism (e.g., deep and unobservable). Consider once again the category of hippies. People might ordinarily determine whether someone falls within this category by checking for certain superficial features (long hair, folk music, tie-dye, etc.). But, importantly, people do not seem to think that membership in the category is simply a matter of having those superficial features. Instead, they seem to think that category membership is ultimately a matter of embodying some deeper value that would be difficult to fully articulate and which they themselves do not fully understand. This sort of value-based essentialism appears to emerge for a variety of different categories, including hippies, punks and Christians (Study 1), Jewish people (Study 2), and made-up categories (Studies 3 and 4).

The study of value-based essentialism opens up new and potentially important avenues for further research on social groups. For instance, existing intergroup research has often explored questions about gender, race, and sexual orientation, and in these domains, numerous valuable insights have come from looking at the degree to which people see categories as having a biological essence (e.g., for reviews see, Heine et al., 2017; Prentice & Miller, 2007). However, social psychology has also been concerned with other types of groups, such as religious groups, cultural groups, and groups defined by political orientation (e.g., Huber & Halhotra, 2017; Van Bavel & Pereira, 2018). In these other cases, people may sometimes show biological essentialism, but value-based essentialism might play an especially prominent role. To further explore the role of essentialism in these aspects of intergroup psychology, we can use many of

the same methods that have already been employed in the study of race, gender, and sexual orientation, but this time looking not at judgments about deeper biological causes but instead at judgments about deeper characteristic values.

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Appendix A

List of 80 Categories from Study 1

Social Groups		Natural Kind Categories		Value-Driven Concepts		Control Categories	
Black Person	White Person	Tiger	Lion	Friend	Criminal	Baker	Doorman
Male	Female	Zebra	Wolf	Leader	Mentor	Mayor	Firefighter
Hispanic Person	Asian Person	Raccoon	Skunk	Comedian	Minister	Bartender	Waitress
Heterosexual Person	Homosexual Person	Horse	Sheep	Boyfriend	Mother	Tailor	Welder
Christian	Jew	Bat	Cat	Theory	Argument	Caseworker	Cashier
New Yorker	Southerner	Mouse	Dog	Teacher	Artist	Blog	Table Of Contents
Skater	Soccer Mom	Bluebird	Robin	Novel	Poem	Catalog	Obituary
Hippie	Punk	Squirrel	Turtle	Soldier	Scientist	Uncle	Second Cousin
English-Speaker	Canadian	Apple	Banana	Musician	Poet	Chair	Hammer
Wealthy Person	Golfer	Pineapple	Houseplant	Sculpture	Love Song	Mechanic	Optician

Appendix B

Dimensions of Essentialist Beliefs

Knowledge Deference

To what extent do you think it makes sense to say the following: “People have a certain view about what makes someone/something a [category member], but philosophers and scientists have thought a lot about this and concluded that ultimately, there is something much more fundamental which makes someone/something a [category member].”

1=Sounds weird, 9=Sounds Natural

Appearance/Reality Distinction

To what extent do you agree with the following: “Though [category member]s have similarities and differences on the surface, ultimately what it means to be a [category member] is to have a deeper characteristic that all [category member]s possess.”

1=Strongly Disagree, 9=Strongly Agree

Deep Similarity

To what extent do you agree with the following: “There is an essential quality or characteristic that makes [category member]s similar in some deep way.”

1=Strongly Disagree, 9=Strongly Agree

Biological Essence

To what extent do you agree with the following: “The essence of being a [category member] is something biological.”

1=Strongly Disagree, 9=Strongly Agree

Scientific Cause

To what extent do you agree with the following: “It would be possible for scientists to identify the unique biological characteristic that causes [someone, something] to be a [category member].”

1=Strongly Disagree, 9=Strongly Agree

Value-based Essence

To what extent do you agree with the following: “The essence of being a [category member] is embodying a certain kind of value.”

1=Strongly Disagree, 9=Strongly Agree

True Category Member

To what extent do you think it is okay to say the following: “That [person] is not a *true* [category member]. If you think that [person] is a true [category member] then you don’t really know what it means to be a [category member] at all.”

1=Sounds weird, 9=Sounds Natural

Appendix C

List of Blank Properties from Study 3

“listens to a lot of mishinit music”	“listens to a lot of randit music”
“likes to play with Bilan”	“likes to play with Uma”
“likes to do pipo to her friend”	“likes to do zavo to her friend”
“spends a lot of time at the roban”	“spends a lot of time at the kore’an”
“likes to darin with his friend”	“likes to kanken with his friend”
“wants to be a mashitz when he grows up”	“wants to be a narim when he grows up”
“likes to play zaber”	“likes to play zigo”
“likes to pretend to be a palkan”	“likes to pretend to be a talan”

Supplementary Online Material

Study 1 Factor Analysis

We conducted an additional exploratory factor analysis to supplement the one reported in the main text. We used the same procedure but included 48 separate categories. Specifically, we included the 20 social groups, of primary interest, alongside the categories that refer to human beings from the list of the value-driven concepts (i.e., friend, leader, comedian, boyfriend, teacher, soldier, musician, criminal, mentor, minister, mother, artist, scientist, and poet) and the list of control concepts (i.e., baker, mayor, bartender, tailor, caseworker, uncle, mechanic, doorman, firefighter, waitress, welder, cashier, second cousin, and optician).

The parallel analysis again indicated that the essentialism ratings formed two reliable factors (KMO = 0.75, Bartlett test of Sphericity, $\chi^2 = 2033.38$, $p < .001$) as corroborated by visual inspection of the scree plot and that only two factors had eigenvalues greater than 1.

The items measuring a distinction between appearance and reality, deep similarity, and knowledge deference again loaded on one factor (> 0.50 , eigenvalue = 3.08, variance explained = 44%). The two items measuring belief in specifically a value-based essence also loaded strongly onto this factor. Thus, in the present analysis, this first factor captured general essentialist beliefs regardless of the source of that essence along with beliefs specifically in a value-based essence. In contrast, only the biological items loaded onto the second factor ($> .50$, eigenvalue = 2.36, variance explained = 33%). See Table S1 for factor loadings.

The present analysis corroborates the main conclusion reported in the main text, namely, belief in an underlying biological essence is not necessary to form general essentialist beliefs about knowledge deference, deep similarity, and appearance versus reality concerning social groups. However, somewhat surprisingly the items capturing belief in a specific value-based essence also cohered with the general essentialism items. Although one interpretation of this finding is that value-based essences are necessary to form general essentialist beliefs about social groups, another more mundane possibility is likely. Only a small number of the categories were biological social groups (e.g., women). Because of the inclusion of additional social concepts from the value-driven list, most of the categories that were rated high in general essentialism were also rated high in underlying shared values. Thus, the link between general essentialist beliefs and value-based essentialist beliefs in the present supplementary analysis could be an artifact of the disproportionate number of value-driven categories that were included compared to biologically based categories—in contrast to the analysis reported in the main text.

Table S1

Factor loadings for the essentialism ratings in the alternative analysis

	Factor 1	Factor 2
Knowledge Deference	0.71	0.06
Appearance vs. Reality	0.89	0.16
Deep Similarity	0.67	0.48
Biological Essence	-0.05	0.94
Scientific Cause	-0.02	0.95
Value-based Essence	0.87*	-0.37*
“True” Member	0.75*	-0.41*

*The factor loadings for these items differ qualitatively from that reported in the main text.