

BELIEF IN CONSISTENCY: THE UNDERLYING ESSENCE LINKING ESSENTIALISM,  
IMPLICIT PERSONALITY THEORIES, AND ATTRIBUTION

by

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## ABSTRACT

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Belief in Consistency: The Underlying Essence Linking Essentialism, Implicit Personality  
Theories, and Attribution

Thesis directed by Professor Bernadette Park

Over the last several decades, essentialism, implicit personality theories, and attribution have emerged as three prominent but distinct theories and areas of inquiry in social psychology. While these three bodies of work have unique differences at the lower levels of the specific questions that they investigate, the purpose of this dissertation is to assess them at a broader level and illustrate the similarities that underlie them. I argue that essentialism, entity implicit theories, and attributions are all the result of the same basic process – an assumption that the world is stable and consistent, used in order to make predictions about future events – applied to different targets. Despite the extensive literatures illustrating the negative consequences of these phenomena, there may be a more neutral, basic belief that underlies them and is not inherently problematic. In Study 1, this construct—the Belief in Consistency—was measured with a novel scale. In Study 2, the Belief in Consistency was found to relate to essentialist perceptions of groups, entity theories of attributes, and somewhat surprisingly, a reduction in the fundamental attribution error (weaker person attributions and stronger situation attributions for observed behavior). Furthermore, these phenomena (essentialism, entity theories, and a smaller person-situation attribution difference) were found to correlate with one another. Studies 3a and 3b aimed to find positive as well as negative consequences of two phenomena related to the belief in consistency. In Study 3a, entity theories were related to stronger predictions that someone who had succeeded in the past would continue to succeed in the future, as well as predictions that someone who had previously failed would continue to fail. In Study 3b, essentialism was found to relate to greater importance ascribed to the concerns of social groups and support for having those concerns heard by the public. These findings suggest that efforts to minimize the negative outcomes of essentialism and entity theories should take a more nuanced approach by acknowledging the utility of the belief that underlies them.

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## CHAPTER 1: INTRODUCTION

“If there be any suspicion that the course of nature may change and that the past may be no rule for the future, all experience becomes useless and can give rise to no inference or conclusion.”

--David Hume, *A Treatise of Human Nature*

Over the last half-century or so, the range of distinct topics studied by social psychologists has expanded dramatically. Three areas that have emerged as prominent sub-domains of study are essentialism, implicit personality theories, and attribution theory. At first glance, these three domains seem to have little in common—they focus on different behavioral outcomes in different contexts applied to different targets. However, examining these three phenomena at a broader level reveals the underlying similarities that unite them, and make them in fact more alike than they have been previously characterized as being.

In order to function both successfully and adaptively, human beings must navigate through a complex social environment. We are surrounded by different social groups and interpersonal situations that are key to everyday life. The goal of the social perceiver, then, is to understand and predict this social world (Allport, 1954; James, 1890; Lippman, 1922; Pinker, 1999). The complexity of the social world combines with this goal to create a basic human assumption of stability or consistency that is necessary for our social survival. If we as perceivers do not assume some level of consistency across time and situations in the social targets that we perceive, then we would be constantly adrift in a world where, as Hume puts it, there can be no inferences or conclusions. Of course, inferences and conclusions are a critical part of our navigation through the social world, given the sheer volume of the body of information that we encounter on a daily basis. It would require a tremendous amount of cognitive resources to treat every stimulus we encounter as novel and completely unrelated to anything we may have encountered at other times or in other situations. To abandon inference, to treat experience as



useless, would require a level of processing that would be at best inefficient and at worst maladaptive. Simply put, we must to some degree believe that the social world is a consistent and coherent place—our success as social beings depends on it.

I argue that essentialist perceptions of social categories, entity implicit theories, and internal attributions are all the result of the application of this underlying belief in the consistency of the world, but applied to different targets of social perception. Essentialism occurs when people reason and behave as if categories are defined by essences—deep-level properties that make them what they are (Medin & Ortony, 1989). Entity implicit theories are beliefs that personal characteristics are fixed and unchangeable (Dweck, Chiu, & Hong, 1993). Finally, internal attributions are made when an observed behavior is thought to be caused by a stable disposition in the actor—a personal characteristic that disposes him or her to behave that way in a variety of settings (Jones & Davis, 1965). When the belief in consistency is applied to explaining the existence of categories, different traits, or specific behaviors exhibited by individuals, the consequences are essentialist perceptions, entity implicit theories, and internal attributions, respectively. Although they have tended to be studied specifically in the context of their negative consequences, all three of these psychological phenomena have at their heart a more neutral basis in being able to make predictions about the world. Essentialism asks: if you are a member of a category today, will you be a member of that category tomorrow? Implicit personality theories ask: if you have a certain attribute today, will you have that attribute tomorrow? And attributions ask: if you behave a certain way today, will you behave that way tomorrow?

The goals of the present research were threefold: first, to demonstrate that these three phenomena are all related to individual differences in the strength of the belief in consistency;

second, to show that across individuals, the tendency to engage in one of these ways of conceiving of the social world is related to the tendency to engage in the others; and third, to provide evidence that although the bulk of research to date has emphasized the negative consequences of each of these three ways of thinking, they all have at their heart a more neutral basis in being able to use the information available from the current environment to make predictions about the future state of the world.

### **Essentialism**

Psychological essentialism as a construct emerged from the application of cognitive psychology to a longstanding philosophical question—what defines category membership? Medin and Ortony (1989) provided a critical insight—although philosophers now generally agree that essences do not define category membership, human beings *act* as if they do, in a way that produces meaningful outcomes in behavior. In other words, an essence is a deep-level property that makes something what it is. People generally use observable similarity at a surface level to infer the presence of these underlying essences (Medin & Ortony, 1989). Psychological essentialism, then, in its earliest definition, is simply a property of human reasoning by which we behave as if category members share an underlying essence that makes them what they are.

Although essentialism can apply to a variety of different categories such as dogs or chairs, social psychologists quickly began to apply the idea specifically to social categories, adding complexity to its definition. Rothbart and Taylor (1992) argued that categories can be divided into natural kinds (those extant in nature; for example, fruits or precious metals) and human artifacts (those constructed by human beings; for example, clothing or machines), and that natural kinds are generally perceived as having essences while human artifacts are not. Essentialism, by this definition, is centered on how reasoning about natural kinds differs from

reasoning about human artifacts—natural kinds have inductive potential (category membership provides important and varied information about that member’s other attributes) and are unalterable (it is difficult to gain or lose the category label). Although social categories are constructed by humans and are not in reality natural kinds, we believe and act as if they are (Rothbart & Taylor, 1992).

Other researchers have continued to add components to the definition of psychological essentialism as investigation in this area has grown. For instance, some have posited that essentialism is composed of two factors: belief that the category is a natural kind (which includes beliefs that the category is discrete, natural, immutable, stable, and necessary) and belief in the entitativity of the category (which includes beliefs that the category is uniform, informative, inherent, and exclusive; Haslam, Rothschild, & Ernst, 2000). Studying these factors with respect to perceptions of a variety of social categories has shown that while some categories are higher on one of the two factors, the most essentialized social categories are high on both (Haslam, et al., 2000).

More detailed definitions of essentialism such as Haslam’s often include entitativity as a component, and some have even argued that entitativity alone can be a sufficient placeholder or antecedent for essentialism (Demoulin, Leyens, & Yzerbyt, 2006). These differing opinions have raised the issue of whether essentialism and entitativity can be seen as the same thing, or if entitativity plays a distinct role separate from essentialism. Entitativity, unlike essentialism, has remained quite stable in its definition from its inception in psychological inquiry—it is composed of proximity, similarity, common fate, and good continuation among group members (Campbell, 1958). In other words, entitativity is the “groupiness” of a given group. Groups can vary meaningfully in their level of entitativity, and groups that interact, that are important to

group members, have common goals and outcomes, and have members that are similar to one another are the highest in entitativity (Lickel, Hamilton, Wierzchowska, Lewis, Sherman, & Uhles, 2000). Entitativity (how “groupy” is this group) and essentialism (deep level properties that make a group what it is), then, are defined quite differently and are indeed meaningfully distinct constructs. Equating the two tells an incomplete story of the processes at work when a category is perceived in an essentialist way, but ignoring entitativity completely does not tell the whole story either. There can be groups low in both essentialism and entitativity like people waiting at a bus stop, groups higher in entitativity and lower in essentialism (e.g., Republicans), groups higher in essentialism and lower in entitativity (e.g., Whites; see Haslam, et al., 2000), or groups that are high on both (e.g., the blind; see Haslam, et al., 2000). The most coherent way of reconciling the differences between these two constructs is to acknowledge that essentialism is nested within entitativity—that is, entitativity is a necessary but not sufficient condition for essentialism (Rothbart & Park, 2004). A group must be seen as a group (crossing some threshold of entitativity) before it can be ascribed an underlying essence; but just because a group is an entity does not necessarily mean that it will be essentialized. Entitativity tells us about more observable qualities of groups (such as common goals and similarity across members) that determine their status as a group in the first place. Essentialism, on the other hand, tells us about the subjective meaning that is ascribed to those groups—not just whether it is a group, but whether there is something *important* about the basis and meaning of membership in that group. Support for this nested definition of entitativity and essentialism comes from work by Hamilton and Sherman (1996), who have found that more entitative groups are processed similarly to how individuals are processed—including perceptions of consistency and stability that are often included in definitions of essentialism.

In recent years, calls have been made for clarification in the realm of the construct of psychological essentialism and how it is defined (Hamilton, 2007). Indeed, the lack of a single coherent definition of essentialism across laboratories has muddied the waters of study in this area. Researchers have tried to strike a balance between simple definitions of essentialism such as Medin and Ortony's and highly complex ones such as Haslam's. For instance, Prentice and Miller (2007) defined essentialism such that the category in question is perceived to be discrete with clear boundaries, is seen as natural and has always existed, has membership that is involuntary and unchangeable, and where some of the observable characteristics of the category are caused by the underlying essence. Definitions of essentialism have now also grown to include a belief in the biological or genetic basis of membership in the category<sup>1</sup> (Dar-Nimrod & Heine, 2011). According to these definitions, a gene can be thought of as a modern update on the idea of an essence—it is underlying, invisible to the human eye while still causing observable surface-level features, and is unchangeable. What we have learned about genetics through scientific inquiry allows us to use genes as placeholders for essences in modern usage.

In sum, psychological essentialism is a construct that, while carrying great intuitive meaning, has been difficult for researchers to coherently or consistently define across time. While different laboratories use different specific definitions of the construct, there are general themes across the definitions that reflect the core components of essentialism: a certain baseline level of entitativity (the group must be seen as a group before it can be essentialized), belief in the immutability and stability of membership in the group, inductive potential of group

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<sup>1</sup> Some have argued that essentialism can be driven by “social determinism” in the absence of beliefs about a biological basis (biological determinism) (Rangel & Keller, 2011). However, this argument is currently only posed by Rangel and Keller, and the general consensus in the current literature reflects a belief that there is a biological component to essentialist views.

membership, and a belief in the biological basis or naturalness of group membership. These aspects combine to create the uniquely essentialist notion that category membership is deep-seated, long-lasting, real, and meaningful.

**Negative Consequences of Essentialism.** A great deal of social psychological research has looked into how essentialist perceptions of social categories relate to stereotyping and prejudice toward those social categories. Early theorizing in this area argued that essentialism was the primary cause of stereotyping. According to this view, people use stereotypes to rationalize the current state of the world with respect to social groups, and that rationalization is best served by essentialist perceptions of these groups (Yzerbyt, Rocher, & Schadronek, 1997). Substantial research has supported the idea that essentialism can cause stereotyping, while still finding evidence for meaningful complexity in their relationship.

Bastian and Haslam (2006) found that each of their sub-scales of essentialism—immutability (drawn from Carol Dweck’s implicit person scale), discreteness, informativeness, and biological basis—correlated significantly with stereotype endorsement individually. However, only biological basis showed a significant relationship with stereotyping when all four sub-scales were entered into the same model (Bastian & Haslam, 2006). In a similar vein, those with more essentialist views of race (operationalized via biological conceptions of race) showed prejudicial behavior in that they were also less likely to affiliate or interact with a person of another race (Williams & Eberhardt, 2008). In one study, participants who read an article about the genetic heritage of Europeans (as compared to those who read a control article) showed reduced liking toward the outgroup of Eastern Europeans; this effect was stronger among those who were chronically high in endorsement of genetic determinism (Keller, 2005). In a more applied context, one study found that essentialist views of the institution of marriage (i.e., seeing

marriage itself as natural and unchangeable) predicted opposition toward same-sex marriage, over and above explicit anti-homosexual prejudice (Duncan & Kemmelmeier, 2012). These researchers argue that essentialist perceptions do not need to necessarily be targeted toward human social groups to have problematic consequences for those groups.

There is also evidence for complexity beyond the straightforward association of more essentialism with more stereotyping. While a review by Dar-Nimrod and Heine (2011) does demonstrate that there is evidence that genetic essentialism relates to increased stereotyping and fatalism across a variety of social categories, they also report that essentialism can sometimes be beneficial for members of certain groups. Specifically, greater essentialism has been found to be associated with reduced stigma toward the mentally ill. Essentializing mental illness involves seeing it as immutable and not a result of the mentally ill person's individual agency. In this way, attributions of mental illness to genetic causes are related to increased sympathy and pity toward the mentally ill, as well as increased perceptions of the seriousness of the illness (Dar-Nimrod & Heine, 2011). It is worth noting, however, that other researchers in this area take issue with this perspective, arguing that essentialism fundamentally deepens divisions among human social groups in an inherently insidious way even while it seems to provide a benefit in certain unique contexts like mental illness (Haslam, 2011). In other words, while essentialism may reduce stigma toward groups such as the mentally ill, it can still contribute to differential treatment and misunderstanding of members of those groups. Furthermore, other researchers have found contradictory evidence that essentialism correlates *positively* with stigmatization toward the mentally ill and substance abusers (Howell, Weikum, & Dyck, 2011).

Whether the ultimate outcomes of essentialism are positive or negative, it is clear that the short-term outcomes can vary depending on the category that is the target of the essentialist

thinking as well as the context of the essentialist perceiver. For instance, sexist men endorse essentialism more when they perceive their advantaged social status as being under threat (Morton, Postmes, Haslam, & Hornsey, 2009). In addition, students, parents, and teachers affiliated with a single-sex school endorse gender essentialism more than those associated with mixed-gender schools (Pahlke, Bigler, & Patterson, 2014). These studies illustrate that essentialism can serve the quite different functions of justifying the existing status quo or driving decisions to send one's children to a single-sex school (e.g., boys and girls are different at a deep level and thus their separate education is justified) or of maintaining a sense of consistency even in the face of impending social change (e.g., even if women become socially equal to men, they will still be different in an underlying way).

Essentialism has also been linked to stereotyping in less negative contexts and toward targets other than outgroup members. For instance, greater essentialism is associated with greater self-stereotyping. One study found that women who endorse a biological theory of gender (in line with essentialist views) are also more likely to endorse more stereotypically feminine traits as self-descriptive (Coleman & Hong, 2008). Prentice and Miller (2006) have found that learning that one man and one woman differ on an arbitrary, novel trait (i.e., non-valenced with respect to positivity or negativity) leads people of both genders to make the essentialist inference that all men and all women differ on that trait.

In sum, a variety of research has found evidence connecting essentialist perceptions of social categories to stereotyping and prejudicial behavior. While the exact nature of this relationship can vary depending on the target group or the situational context, the primary argument made by much of this work is that essentialism is a harmful process that causes stereotyping. Stepping outside the narrow focus of social psychological research in the domain of



stereotyping and prejudice, however, reveals evidence that supports a more nuanced understanding of essentialism—one that acknowledges its utility and developmental normativity.

Work in cognitive psychology views essentialism not as an inherently problematic root of stereotypes, but as a normal step in cognitive development that has practical value for understanding the world. Children as young as four years old show evidence of essentialism in the form of making inductive inferences from one category member to another—furthermore, by seven years old children show the distinction outlined by Rothbart and Taylor (1992) wherein they essentialize natural kinds more than human artifacts (Gelman, 1988). However, research has also found that children essentialize even social categories (which are human artifacts) such as race at a young age, independent of socialization (Hirschfeld, 2001). Cross-cultural evidence that people outside the United States also essentialize a variety of categories further supports the idea that essentialism may be a universal process (Medin & Atran, 2004). Some researchers have even argued that essentialism can occur at an implicit level, whereby there exists an implicit bias pairing the concept of genetics with the concept of fate or predestination (Gould & Heine, 2012).

Medin (1989) argued that categorization entails “treating two or more distinct entities as in some way equivalent in the service of accessing knowledge and making predictions.” Essentializing a category allows us to make those predictions—a crucial skill involved in navigating our complex social world. By perceiving a social category as if it has an underlying, unchangeable essence, we are able to infer that category membership will persist into the future and thus make inferences about the future behavior of members of that category. Evidence for the potential utility of essentialism can be seen in work that links it to more basic cognitive processes that have been postulated, such as the inherence heuristic (the notion that patterns exist because of the inherent features of the constituents of the pattern; Salomon & Cimpian, 2014).

A final piece of recent evidence provides further support for a view of essentialism as not inherently malicious. Researchers have found that while both children and adults essentialize gender categories, essentialism is linked to greater gender stereotyping only in adults (Meyer & Gelman, 2016). This suggests that the downstream negative consequences of essentialism in the form of stereotyping and prejudice are not inherently tied to the process of essentialism itself, but that this connection is formed through socialization or development.

**Summary.** There is no doubt that essentialist views of social categories can lead to problematic outcomes such as increased stereotyping and prejudicial behavior toward outgroups. However, this relationship involves more nuance than would be implied by a cursory glance at the literature. Essentialism occurs both at young ages and in a variety of cultural contexts, and is not in and of itself problematic. Indeed, viewing a category as having an underlying essence serves the quite functional purpose of allowing us to make predictions about the world—essentialism allows us to predict that category membership will persist across time and contexts, and subsequently to make inferences about how others will behave in the future based on that category membership. These predictions and inferences, while they may lead us astray with respect to stereotyped categories, can also be quite practical in our navigation of a complex social world. For instance, the concept of an essence may itself be something of a placeholder for the concept of a gene—having a cognitive tool at the ready that allows us to easily understand genetic concepts is useful for dealing with categories that are in fact genetically determined, like species or certain diseases. Many of the most meaningful social categories that we encounter—e.g. race, religion—are fairly stable. Rather than having to re-categorize every stimulus that we encounter every time that we encounter it, essentialism allows for category memberships to remain consistent in our mental representation of the world.

## Implicit Theories

While Medin, Ortony, Rothbart, and others were developing the concept of psychological essentialism, a thematically parallel line of work was developing in social psychology in a completely different domain—implicit theories of human attributes. Implicit theories are laypeople’s beliefs about the malleability of characteristics such as intelligence and personality. In its earliest conceptions, implicit theories were so named as a direct contrast to ‘explicit theories’ developed by scientists and experts in a given field. Consequently, implicit theories were defined broadly as explanatory theories constructed by laypeople, or non-experts, about those same fields, ‘implicit’ in the sense that laypeople did not typically verbalize these explanations openly or directly, but used them to guide their behavior nonetheless<sup>2</sup> (Sternberg, 1985).

The notion that people act as naïve scientists guided by their implicit theories of the world was carried forward substantially by Dweck and colleagues, who argued that there are two fundamental implicit theories: entity theory and incremental theory<sup>3</sup>. Entity theorists believe that personal characteristics are fixed, and as a result they explain the behavior and outcomes that they observe in the world in terms of stable and fixed traits. Incremental theorists, on the other hand, believe that personal characteristics are flexible and malleable, rather than fixed, and so explain the behavior and outcomes that they observe in the world in terms of mediating variables

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<sup>2</sup> While the nomenclature of ‘implicit theories’ has persisted over decades, the recent outpouring of communication about implicit theories in the popular press and media (e.g., Dweck, 2006) raises the question of whether a different name may now be more appropriate. Many laypeople are now quite aware of their implicit theories and use them in a more ‘explicit’ manner.

<sup>3</sup> In the early stages of research on implicit theories, other types of theories were proposed, such as implicit theories of stability or change (Ross, 1989). However, the entity/incremental view quickly attained dominance in the literature and these other conceptualizations did not persist. It is worth noting, however, the conceptual overlap between even these different researchers’ approaches to implicit theories—an implicit theory of stability could be seen as mapping on to an implicit entity theory, while an implicit theory of change maps on to an implicit incremental theory. This similarity speaks to the centrality of humans’ need to make predictions about the world.

such as effort and motivation (Dweck, Chiu, & Hong, 1995). While the roots of the entity/incremental distinction were in research focusing specifically on the consequences of implicit theories in one domain—intelligence—on children’s goals and performance in school (Dweck, 1986), as the theory developed its authors argued that these implicit theories could apply both simultaneously and differentially to a variety of different domains. For example, one could simultaneously hold an incremental theory of intelligence but an entity theory of morality.

Studies in this domain often measure pre-existing endorsement of entity and incremental theories, divide participants into the two categories of entity and incremental theorists, and test how these theorists behave or respond differently (essentially correlational research). For example, a longitudinal study of middle school students found students classified as entity theorists (i.e., those who scored above the midpoint of the scale on entity theory endorsement) had higher grades than their incremental theorist counterparts (Blackwell, Trzesniewski, & Dweck, 2007). However, experimental manipulations of implicit theories have also been implemented, often in fairly applied contexts. Blackwell and colleagues subsequently found that middle school students who participated in an eight-week workshop in which they learned about the plasticity of the brain and were taught that intelligence is malleable showed better school performance compared to a control group (this effect was only marginally moderated by initial differences in implicit personality theory endorsement, such that the intervention was more effective among students who initially endorsed more fixed theories of intelligence). It is worth noting, however, that manipulations such as these are often characterized as potential large-scale interventions that would target entity theorists in order to turn them into incremental theorists (treating implicit theories as stable individual differences or dispositions). While change is

therefore believed to be possible in this theoretical framework, it is all targeted at increasing incremental theory endorsement and decreasing entity theory endorsement.

**Negative Consequences of Entity Theories.** Paralleling the progression of research on essentialism, a great deal of the research involving implicit theories focuses on their negative downstream consequences. A large body of work details the problematic outcomes resulting specifically from having an entity theory.

Dweck and colleagues have directly theorized that this relationship between entity theories and ill effects transcends domain specificity and occurs generally across all contexts. They argue that an entity theory leads to resistance to change, inflexible and oversimplified thinking, and contempt for others, while an incremental theory leads to mastery-oriented goal pursuit, complex analytical thinking, and empathy toward others (Dweck & Leggett, 1988). Dweck and other researchers have tested this general notion of the perniciousness of entity theories in a variety of specific domains.

For instance, in the domain of behavioral attributions, entity theory is related to an overreliance on dispositional information in judgments of others, greater tendency to make dispositional attributions of others' behavior in the face of limited information, and increased dispositional attributions of one's own behavior in the face of setback or failure (Dweck, Hong, & Chiu, 1993). Entity theory endorsement has also been shown to negatively impact behavioral performance on a variety of tasks. Children who are provided with an entity theory in the form of categorical information about who is good at a certain game perform worse at the game, even if they are a member of the category that is supposed to excel at the task—the researchers posit that this is because the entity theory about the specific game at hand leads to the formation of a more general entity theory about all activities, leading to worse performance (Cimpian, Mu, &

Erickson, 2012). One meta-analysis found that entity theorists use less successful self-regulatory processes, like trying to avoid failure rather than gain mastery, and as a result show significantly less achievement than incremental theorists in both academic and non-academic domains (Burnette, O'Boyle, Van Epps, Pollack, & Finkel, 2013).

It is worth noting that to date one study has found a potential benefit of maintaining an entity theory. Entity theorists outperform incremental theorists when required to switch to a new task after failure on a previous one (Park & Kim, 2015). While incremental theorists are stuck ruminating on how they could improve their performance on the failed task, entity theorists are free to leave that failure in the past, as their implicit theory allows them to reason that their performance couldn't have been any better. However, this one finding hardly outweighs the decades of research on the other side of the scale weighing the benefits of incremental theories and the drawbacks of entity theories. This study raises one issue surrounding the myriad negative effects linked to entity theories—an inherent asymmetry in the way that the two implicit theories are defined. At the broadest level, an incremental theory merely reflects belief in the possibility that an attribute can be *changed*—theoretically this change could be either positive or negative. To use intelligence as an example, an incremental theorist could either hold the belief *I am smart and I could get smarter*, or the belief *I am smart and I could get less smart*. Both beliefs should theoretically be possible for an incremental theorist, but the vast bulk of the literature on implicit theories studies only the former. On the other hand, then, an entity theory should reflect a belief that an attribute is stable and *cannot* be changed—for better or worse. Again using intelligence as an example, an entity theorist could either hold the belief *I am smart and nothing I do will change that*, or the belief *I am not smart and nothing I do will change that*. Both of these beliefs should be possible in an entity theory, but the vast majority of literature on implicit theories

studies only the latter and not the former. In this way, the traditional investigation of entity and incremental theories has really only been looking at one half of each type of theory, leading to potential downsides of incremental theories and potential benefits of entity theories being lost by the wayside. Further investigation such as Park and Kim's would be vital to fully understanding how implicit theories work beyond basic associations of entity theories with only negative outcomes and incremental theories with only positive outcomes.

The negative consequences of entity theories are so widely supported that there is a thriving area of work focusing on the benefits of interventions that reduce entity theory endorsement and increase incremental theory endorsement. These interventions have been shown to increase students' GPA, standardized test scores, and resilience to bullying (Yeager & Dweck, 2012). Indeed, some commentators have made explicit policy recommendations arguing that the prevalence of entity theories should be reduced among the general public (Martinez & Mendoza-Denton, 2011).

Again mirroring the progression of essentialism research, entity theories have been widely studied as a causal antecedent of stereotyping and prejudice. Entity theorists endorse stereotypes more than incremental theorists and make more extreme judgments even about novel social groups for which there is no existing societal stereotype (Levy, Stroessner, & Dweck, 1998). Furthermore, entity theorists see outgroups as being more homogeneous and show not only greater endorsement of stereotypes but also greater prejudice toward outgroups (Levy, Plaks, Hong, Chiu, & Dweck, 2001). In further support of a link between entity theory and prejudice, one study found that entity theorists with more traditional attitudes toward women in authority showed greater bias in evaluating women leaders; they preferred male leaders to female leaders even when the quality of the leaders was identical (Hoyt & Burnette, 2013). Finally,

entity theories of groups generally (i.e., believing that groups have fixed qualities and cannot substantially change) have been found to cause increased stereotyping toward specific target groups (e.g., lawyers and mechanics; Rydell, Hugenberg, Ray, & Mackie, 2007). In light of this evidence, some researchers have argued for a direct causal link from entity theories to stereotyping and prejudice, claiming that biased behavior can be caused not by biased attitudes but by entity theories. In other words, they argue that it is possible for an entity theory about a certain group to cause stereotyping and prejudice toward that group, even in the absence of negative attitudes toward the group (Carr, Rattan, & Dweck, 2012).

Researchers have extended these ideas by studying implicit theories' relation to stereotyping and prejudice in other domains. For instance, Asian-Americans who endorse an entity theory of race perceive less similarity between Whites and Asians and identify less as Americans than incremental theorists (No, Hong, Liao, Lee, Wood, & Chao, 2008). One study also found that people who have entity theories of racial bias (i.e., believing that racial bias is fixed and can't be changed with effort) use less effective strategies, such as avoidance, in difficult interracial interactions (Neel & Shapiro, 2012).

**Summary.** Implicit theories reflect a person's beliefs about the underlying malleability (an incremental theory) or permanence (an entity theory) of an attribute or quality such as intelligence. For essentially the entire time it has been studied, from its inception to current research in recent years, there has been a focus on the problematic downstream consequences of entity theories in particular. A sizeable literature shows links from entity theory endorsement to poor goal attainment, less success in school, greater stereotyping, and increased prejudice toward outgroups.



This decades-long indictment of entity theory raises an obvious question—what is the purpose or benefit of having such a harmful psychological lens on the world? Researchers in the realm of implicit theories have had little to say on this matter. However, it is possible to see entity theories as an extension or application of the general tendency described earlier to believe that there is *consistency* in the world. Whereas for essentialism the target of this tendency was category membership, for an entity theory the target is a personality characteristic or attribute that a person holds. An entity theory allows one to make predictions about the future based on the traits and attributes that are observed in the present—if someone is introverted today, that person will be introverted tomorrow. An incremental theory, on the other hand, makes one less able to make such predictions—if someone is introverted today, and introversion is malleable and can be changed, that person might not be introverted tomorrow. The advantage provided by an entity theory, then, is a more substantial ability to make predictions about people’s personality characteristics. Although no one would genuinely argue that all such characteristics are fixed at birth and impossible to change, there is moderate evidence for consistency of personality across the lifespan (Caspi & Roberts, 2001), making these predictions useful and valuable in at least some circumstances. Furthermore, an entity theory would allow one to more efficiently and effectively allocate cognitive resources as one processes the social world, rather than having to continually re-assess whether a person’s standing on a certain attribute has changed since the last time that person was encountered.

### **Attribution Theory**

The thematic thread underlying essentialism and implicit entity theories has even deeper historical roots in the attribution literature. Years before Medin or Dweck began constructing their own influential theories, researchers such as Jones and Kelley were identifying the ‘causal

calculus' by which perceivers reason about the events and behavior that they witness in the world. At its core, attribution theory holds that perceivers can attribute behavior to one of two primary causes: the person engaging in the behavior or the situation that the person is in (Brown, 1986; Kelley, 1973). In other words, the attribution that is made can either be internal (the behavior reflects the underlying, stable disposition of the actor) or situational (the behavior reflects the environmental constraints imposed by the situation). While an internal attribution inherently makes an inference of consistency about the actor (this actor will behave the same way in another place or time), a situational attribution allows for less stability in terms of predicting the specific actor's future behavior (this actor may behave an entirely different way in another place or time). However, a situational attribution can also allow for stability in terms of predicting the future behavior of a *different* actor (a different actor should behave the same way in this same situation).

While early work in the field of attribution theory focused on identifying the specific path from behavior to attribution for different types of behaviors occurring in various situations, as research progressed it took a less neutral approach. Perhaps unsurprisingly, social psychologists' interests shifted toward studying *errors* in attribution, particularly errors in which the causal power of the situation was not reflected in the subsequent attribution. A number of phenomena were identified in this line of study—the correspondence bias, the fundamental attribution error, the actor-observer effect (Gilbert & Malone, 1995; Jones & Harris, 1967; Jones & Nisbett, 1972). While these have subtle differences underlying them, they all generally reflect a similar basic processing tendency. That is, people generally make dispositional attributions for others' behavior, and they do so even when such an attribution is unwarranted by the evidence (i.e., when a situational attribution would be more accurate). Much of the research in this area follows

a paradigm wherein an extremely strong situational constraint is imposed by the researchers on the observed behavior, but this situational information is underweighted and a dispositional attribution is still made by the observer (e.g., Ross, Amabile, & Steinmetz, 1977). According to some theorists, this tendency to make dispositional attributions is so strong that all attributions start out as dispositional, and are subsequently adjusted to be more situational if necessary depending on the specific characteristics of the context at hand (Gilbert & Malone, 1995). Further evidence for the robustness of this propensity to make more dispositional attributions for others' behavior comes from research showing that this attributional error is exhibited by 85% of people and occurs with respect to 92% of trait adjectives in the entire English language (Goldberg, 1978). While a great deal of the attribution literature treats this tendency as a general bias present across all human beings, there is also some evidence that people and cultures can meaningfully differ from one another in the amount that they make dispositional versus situational attributions. McGee and Snyder (1975) observed people eating in restaurants and asked them to fill out a questionnaire in which they either ascribed traits to themselves or indicated that it depended on the situation. They found that individuals who made more dispositional attributions were also more likely to salt their food before tasting it, while those who made more situational attributions tended to taste their food first before salting. In other words, there may be a certain 'kind of person' who makes more dispositional attributions, and that kind of person also tends to behave in ways that show greater attention to the person than the situation (*I am a person who like salt on my food, so I should salt my food regardless of the situation*). Other researchers have found that more collectivist cultures do not demonstrate the fundamental attribution error (that is, they make greater situational attributions than dispositional attributions) to the same extent that individualistic cultures do (Morris & Peng, 1994).

**Negative Consequences of Internal Attributions.** Setting aside the fact that behaving in an erroneous or biased manner is itself a negative consequence, the emphasis on ‘error’ and ‘bias’ in attribution has led to some work that has a focus—mirroring that of the essentialism and implicit theory literatures—on identifying more specific maladaptive correlates and negative downstream consequences of internal attributions. Even in some of the early foundational work in this area, authors speculated that a bias toward making dispositional attributions may slow social mobility and justify existing system inequality (Ross, Amabile, & Steinmetz, 1977). Funder (1980) found that those who made more dispositional attributions (that is, ascribed more traits to others as opposed to saying that it depends on the situation) also tended to be more anxious and deceitful but less sympathetic and cheerful. Indeed, of all the characteristics that were significantly related to making dispositional attributions—“pushes limits, lack of meaning in life, thin-skinned, deceitful, anxious, fastidious, does not cope well with stress”—all but one (fastidious, which indeed is not necessarily a highly positive trait) were negatively valenced or undesirable. In addition, being instructed to be empathic toward a target caused participants in one study to make more situational attributions and fewer dispositional attributions about the target’s behavior—implying that dispositional attributions are in direct opposition to valuable human qualities such as empathy (Regan & Totten, 1975).

Unlike essentialism and implicit entity theories, only a small body of work to date has tried to directly connect dispositional attributions to problematic outcomes in the domain of stereotyping and prejudice. The primary contribution in this area comes from Pettigrew’s “ultimate attribution error”, describing the attributions that prejudiced individuals make for the observed behavior of an outgroup member. Prejudiced individuals are more likely to make a dispositional attribution for a negative behavior displayed by an outgroup member, and a

situational attribution for a positive behavior performed by an outgroup member (Pettigrew, 1979). In this view, however, the causal arrow is reversed compared to similar investigations of essentialism and implicit theories—dispositional attributions are the consequence of an individual's prejudiced attitudes toward an outgroup, rather than the cause.

In addition, some have argued that a stereotype can be thought of as a dispositional attribution made not about the behavior of an individual, but of a group, and there is some evidence that people still commit the fundamental attribution error when a group is the target rather than an individual (Yzerbyt, Rogier, & Fiske, 1998).

**A Lesson from the Person by Situation Debate.** Another strike against dispositional attributions can be found in the moment of crisis experienced in personality psychology surrounding whether there was any meaningful evidence for dispositions causing behavior in the first place (certainly if dispositions do not in reality cause behavior, then all dispositional attributions would be in error). Despite our intuitive perceptions that people have dispositions which cause them to behave in consistent ways, researchers found that a person's behavior in one situation correlates quite poorly with that same person's behavior in a similar but distinct separate situation (Mischel & Peake, 1982).

These findings were so counterintuitive that they sparked a debate in the field spanning years, with many scientists maintaining that the person still mattered, despite the seemingly overwhelming power of the situation (Epstein, 1983; Funder, 1983; Bem, 1983). The ultimate resolution of the debate involved neither the person nor the situation being the sole determinant of behavior, but instead a synthesis of both. More recent models posit a view of personality that manages to encompass both the person and the situation—while people may differ on a mean level across situations, they also differ in the distinctive pattern of how their behavior changes

across different situations (Mischel, 2004; Mischel & Shoda, 1995). For instance, one person might display high aggression in their workplace, but low aggression at home; another might show the opposite pattern. Thus, the most accurate representation of an individual's personality would not be either a listing of trait attributes or a resigned deference to the situation, but a set of person-by-situation interactions that are consistent within that individual. There is evidence that this approach to personality and behavior is not just a view held by personality psychologists. Laypeople do spontaneously or intuitively attend to and make use of these person-by-situation interactions in their observations of others' behavior and use them to structure their overall stable view of the target individual's personality (Kammrath, Mendoza-Denton, & Mischel, 2005). Overall, personality psychology seems to have accepted that dispositions are real and worth studying despite the caveats raised by Mischel and other researchers (Kenrick & Funder, 1988).

The resolution of the person by situation debate in personality psychology points to a valuable lesson that could be applied to the domains of essentialism and implicit theories. Rather than throwing out the entire concept of dispositions when it was found to be problematic, researchers worked to create a model where dispositions could be integrated with situations, with both providing uniquely valuable and useful information. Perhaps social psychologists could work to similarly integrate entity and incremental implicit theories or essentialist and non-essentialist perceptions of social groups, acknowledging the value and utility of both in people's judgments about human attributes and groups.

**Summary.** A substantial body of research has investigated the human tendency to make internal attributions about others' behavior—that is, to identify a stable, underlying trait as the cause of a person's observed behavior. Although there is a much smaller amount of work connecting dispositional attributions to downstream negative consequences (especially in

comparison to the essentialism and implicit theory literatures, and with respect to outcomes like stereotyping and prejudice), the study of this phenomenon still carries a negative tint. The tendency is described as a ‘bias’ or an ‘error’, carrying negative implications from the start.

Again this negative characterization of what is undoubtedly a widespread human mental process mirrors the characterizations seen in the literatures surrounding essentialism and entity theories. However, internal attributions share the strengths of essentialist perceptions of social categories and entity theories—they allow the perceiver to make predictions about the future based on what is currently known and observed. If a given behavior is caused by an underlying internal disposition, then that behavior is likely to re-occur across time or in different contexts. If the behavior is caused by the external situation, on the other hand, then no further inferences can be made about whether the behavior will occur again. Internal attributions allow for a perception of consistency that is not afforded by situational attributions. In this way, an internal attribution provides the perceiver with another powerful tool for processing and understanding the world. However, it is important to note that internal attributions afford more predictive power to the social perceiver than situational attributions only when the actor in question is the unit of the social perceiver’s analysis. That is, it is also possible to infer consistency from a situational attribution, if the situation in question is the unit of the social perceiver’s analysis. A dispositional attribution allows for consistency in the form of inferring that this *actor* would produce the same behavior in another *situation*; a situational attribution allows for consistency in the form of inferring that this *situation* would produce the same behavior in another *actor*. In both cases, the world remains a predictable and comprehensible place because the same behavior is produced—however the source of this consistency can vary. This additional complexity sets attributions apart from essentialism and entity theories, and may in part explain why attribution

theory has thus far had to incorporate a greater degree of theoretical intricacy (i.e., person by situation interactions) than current theories in either of the other two domains.

Indeed, evidence for the power of dispositional attributions as a product of the belief in consistency can be seen in the backlash and uproar that arose in the field of personality psychology when it was proposed that there was in fact no such thing as a meaningful underlying disposition, and that the situation was the most important determinant of behavior. The intuitive appeal of the existence of dispositions as a cause of behavior was so strong that personality psychologists were unwilling to reject it in the face of countervailing evidence to the contrary. Just as personality psychology eventually came to a resolution that dispositions were meaningful and useful in some sense, essentialism and entity theories could perhaps also come to be seen in a similar light.

### **Similarities and Differences Across the Three Phenomena**

While theories of essentialism, implicit theories, and attribution have all been strikingly influential in their respective sub-domains of psychological science, they have tended to exist in their own separate worlds, with only a few instances of direct connections being made across the three literatures.

Attribution and implicit theories have been linked a handful of times—notably, the earliest work in the realm of implicit theories focused on children's attributions for their own failure, characterizing these attributions as either helpless (an entity theory and a dispositional attribution) or mastery-oriented (an incremental theory and a situational attribution) (Dweck, 1975). Mirroring this work, attribution researchers have found that more dispositional scores on the Attributional Style Questionnaire are associated with the development of depressive symptoms following poor performance on an exam (Peterson, Semmel, Von Baeyer, Abramson,



Metalsky, & Seligman, 1982). Dweck and colleagues made a direct connection between these two areas when they found that entity theorists tend to make more dispositional inferences about others than incremental theorists (Dweck, et al., 1993). Furthermore, entity theorists are more likely to make the fundamental attribution error (Chiu, Hong, & Dweck, 1997).

A small amount of research has connected implicit theories with essentialism. For instance, entity theories are positively correlated with essentialism as well as with belief in the stability of the brain over time. Some have connected the two to argue that essentialism supersedes implicit theories—endorsement of an entity theory does not significantly predict stereotyping over and above essentialism (Haslam, Bastian, Bain, & Kashima, 2006), and that implicit theories merely reflect the immutability component of essentialism (Haslam, 2017).

Finally, there is a potential theoretical link between attribution theory and essentialism. In his conceptualization of the ultimate attribution error, Pettigrew (1979) proposed that if an outgroup member performs an undesirable behavior consistent with the perceiver's negative view of that outgroup, the perceiver will have a greater tendency to make dispositional attributions of that outgroup member's behavior. Furthermore, he postulated that if the outgroup in question was a racial or ethnic group, these dispositional attributions would gain the additional flavor of "believing the actions to be a result of immutable, genetic characteristics". This idea aligns quite closely with modern conceptualizations of essentialism which often include a biological or genetic component.

Despite the relative lack of empirical connections made across these three theories, there are points of conceptual overlap that can be made uniting them all. Dispositional attributions can be thought of as essentialism applied to a single individual rather than a group—a dispositional attribution asserts that there is something underlying and unchangeable that makes a person

behave the way that they do. Similarly, entity implicit theories are similar to the immutability component of essentialism—the belief that some quality cannot be changed. In essentialism, that quality is category membership, but in an entity theory, that quality is an attribute such as intelligence or morality. In this way, an entity theory amounts to essentializing a trait. Finally, entity theories can be thought of as treating a trait as if it were a disposition—making a dispositional attribution not of an observed behavior, but of an underlying trait (it is worth noting, however, that entity theories often are studied in the context of observed behaviors such as failure at a task, making the similarities to dispositional attributions even more apparent). In other words, entity implicit theories of attributes, essentialist perceptions of groups, and dispositional attributions of behavior share the same underlying essence—an assumption of consistency across time and situation. The primary difference among them is to which target this belief is applied: trait attributes, category membership, and observed behavior, respectively.

A more nuanced approach is required that acknowledges the utility of these phenomena, their similarity, and the extensive nature of the underlying process that unites them. Beginning to implement this nuanced approach requires empirical evidence to support it. At this point, research has yet to fully establish the existence of the belief in consistency as a construct, its relation to essentialism, entity theories, and dispositional attributions, or the circumstances in which the products of the belief in consistency can lead to beneficial outcomes. The present research sought to fill these gaps in the current literature.

In order to begin to fill these gaps, several goals must be achieved. First, the Belief in Consistency must be established as a meaningful and measurable psychological construct that is distinct from existing constructs. To do this, an individual difference measure must be developed that reliably captures the belief that the world is a consistent and predictable place. Second,

correlational links between the Belief in Consistency and each of the three phenomena of interest (essentialism, entity theories, and dispositional attributions) must be established by measuring the Belief in Consistency as well as all three phenomena. Thirdly, if the Belief in Consistency underlies essentialism, entity theories, and dispositional attributions, these phenomena should relate to one another as well as to the Belief in Consistency. Relationships between the three phenomena themselves that are all hypothesized to relate to Belief in Consistency need to be obtained. Finally, if the Belief in Consistency is a broader, fundamentally neutral belief underlying many aspects of human social judgment and perception, its applications should be neither entirely positive nor entirely negative. That is, the phenomena which result from applying a Belief in Consistency to different social contexts (essentialism, entity theories, and attributions) should themselves be able to produce both positive and negative downstream consequences. Given that the extant literature has focused overwhelmingly on the latter, evidence for the former must be established—identifying specific contexts in which essentialism, entity theories, and dispositional attributions relate to beneficial rather than detrimental outcomes.

### **The Present Research**

Four studies were conducted to answer the following research questions:

- 1) Can the belief in consistency be measured as a meaningful psychological construct that is distinct from other related constructs?
- 2) Are essentialist perceptions, entity theories, and dispositional attributions all related to the belief in consistency? That is, are all three of these phenomena related to individual differences in the extent to which one believes that the world is a consistent place?

- 3) Do these three phenomena covary with one another as well as with belief in consistency? That is, do individuals who show a tendency to essentialize social categories also show a tendency to endorse entity theories of attributes and make stronger internal attributions of others' behavior?
- 4) Can these phenomena be reframed or recontextualized to lead to positive rather than negative outcomes?

Study 1 addressed the first research question by constructing and validating a scale to measure the belief in consistency. Study 2 answered the second and third research questions correlationally, by measuring essentialist perceptions, entity theory endorsement, and person and situation attributions as well as the belief in consistency. Studies 3a and 3b tested the fourth research question. If essentialism, entity theories, and dispositional attributions are the result of a fundamental belief that is beneficial to and necessary for human social functioning, then they should operate in a beneficial way much of the time—however, most of the research on these topics has focused on when these processes go awry. To the extent that this is true, it should be possible to construct situations wherein the positive consequences of these phenomena can be observed. Study 3a constructed a context wherein entity theories were hypothesized to have beneficial consequences, and Study 3b did the same for essentialism.

## CHAPTER TWO: Study 1

### Pilot Work

Prior to Study 1, a preliminary pilot study was conducted to provide initial evidence for the feasibility of the present research. In the pilot study, an initial measure of Belief in Consistency was generated by the researchers, containing 21 items (all of which appear below and were used in the development of the scale in Study 1) attempting to capture beliefs about predictability at both a general (beliefs about the entire world) and specific level (beliefs about individuals and groups). Entity theory endorsement, essentialism, and attributions were individually measured across two domains: sexual orientation and cigarette smoking. While there was support for a relationship of the total Belief in Consistency scale with essentialism, entity theory endorsement, and situational attributions for the cigarette-smoking behavior (see Chapter Three for further discussion), there was concern from members of the committee about the overlap between the items in the preliminary scale and the targets of judgment of the three psychological constructs (e.g., the relationship seen between Belief in Consistency and essentialism could have been driven primarily by the items capturing beliefs about the consistency of groups, rather than the more general construct of interest). However, the preliminary scale did not include enough items to adequately measure each target (world, persons, and groups). Based on this feedback, the aim of Study 1 was to refine the Belief in Consistency scale to add more items, such that meaningful subscales for each kind of target (world, person, and group) could be assessed. The goal was to end up with a final Belief in a Consistent World subscale that by itself could be used to test our research questions, as well as two additional subscales of secondary interest (Person and Group).

## Overview

The goal of Study 1 was to develop a measure of the belief in consistency, and to assess its reliability and validity. An initial set of 41 items was generated by the researchers and adapted from previous literature. Using this initial set of items as a starting point, the internal consistency of the scale was assessed, as well as its correlation with other relevant scales of interest. The scale was edited and refined to produce a final Belief in Consistency scale consisting of 24 items and three subscales: a 12-item Belief in a Consistent World subscale, a 6-item Belief in Consistent People subscale, and a 6-item Belief in Consistent Groups subscale. The main theoretical argument was that the Belief in Consistency is a general belief that operates at a broad, domain-general level. Thus, the World subscale was of primary importance. However, the other two domain-specific subscales were created because it would also be useful to test whether within- and between-domain predictability could be established (for instance, if beliefs about the consistency of individuals would also relate to essentialism toward social groups).

## Method

**Participants.** A total of 303 United States-based Amazon Mechanical Turk workers participated in exchange for \$0.50. Ten participants failed 3 or more out of 6 attention check questions (example: “It is important in surveys like this to make sure that people are actually reading the questions. Please mark the strongly agree button for this item”) distributed throughout the survey and were excluded from analysis, leaving a final sample of 293 (154 female, 139 male; ages 18-69,  $M_{\text{age}} = 37.63$ ; 72% White).

**Materials.** After thorough examination of the literature, the researchers were unable to find an existing scale that directly measured individual differences in the belief that the world is stable, consistent, and predictable. Existing scales mainly assess *preferences* for consistency

rather than a belief therein, and as such do not adequately measure the construct of interest. One could simultaneously believe the true state of the world to be inconsistent and unstable but prefer for it to be the opposite, or vice versa. To address this issue, we made a first attempt at constructing a Belief in Consistency Scale (see Table 1), using items primarily of our own generation, to capture this construct of interest. Because of the breadth of the theorized construct, in developing the items we aimed for a similar breadth of topics covered—including general beliefs about the world as well as more specific beliefs about groups and individuals. Furthermore, items were constructed to capture two kinds of predictability: stability as well as predictable change. That is, a belief that the world is a place where present information can be used to inform predictions about the future can include both beliefs about stability—things will continue to be exactly as they are now—and predictable change—a change that is occurring now will continue to occur into the future. For example, the item “Generally, things will continue to be the way that they are now” captures beliefs about consistency derived from stability; the item “A situation that is improving now will continue to improve in the future” captures beliefs about consistency derived from predictable change. We theorized that the Belief in Consistency should primarily reflect consistency with *expectations*—whether those expectations are that the present state of the world will persist exactly as it is now, or whether those expectations are that there will be foreseeable change.

Six of the items in Table 1, marked with an asterisk, were adapted from the Analysis-Holism scale<sup>4</sup> created by Choi, Koo, and Choi (2007), while all of the remaining items were

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<sup>4</sup> The Analysis-Holism scale was intended by Choi and colleagues to capture holistic thinking—the tendency to assume interdependence rather than independence. Some holistic beliefs reflect a sort of causal thinking about how current events are connected to future events, and thus do relate to a general Belief in Consistency (which is why some items from this scale were included). However, in general Choi and colleagues’ scale was predominantly composed of items that did not measure what we were interested in (for example, opposition to extremity and a focus on the whole being greater than the sum of its parts).

generated by the researchers. This initial set of items consisted of 41 questions, all using a 1-7 Strongly Disagree to Strongly Agree Likert scale. Eighteen of these items were written to capture the belief in consistency at the broadest possible level—beliefs that the world as a whole, or life in general, is predictable. Eleven items were intended to assess the belief in consistency as it applies specifically to people and their preferences and behavior. Finally, twelve items were constructed to measure the belief in consistency with respect to groups and social categories.

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World Subscale

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Every phenomenon in the world moves in predictable directions. \*

If life is moving in a certain direction, it will continue to move in that direction. \*

The current situation can change at any time in unexpected ways. (R) \*

Future events typically cannot be predicted based on the present. (R) \*

Although some things may change, the world is overall more stable than unstable.

Knowing the past is the best way to be able to predict the future.

The world is completely unpredictable. (R)

Generally, things will continue to be the way that they are now.

Many things that happen are random or coincidental. (R)

A situation that is improving now will continue to improve in the future.

Most events are caused by small coincidences that are impossible to predict. (R)

Life usually works out in ways that you could never have predicted beforehand. (R)

The fundamental state of the world is chaos. (R)

Although things may change, they do so in a predictable way.

Things that have happened before will tend to happen again.

There are laws that consistently guide how life unfolds.

You can plan for the future but unforeseen events inevitably change things. (R)

Often events seem predictable when in fact they are just random occurrences. (R)

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Person Subscale

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The way that a person has behaved in the past tells you a lot about how they will behave in the future.

People's preferences and opinions change in unpredictable ways. (R)

People tend to be consistent in their beliefs across situations.

It's common for people to arbitrarily change their attitudes over time. (R)

Most people's behavior has a stable, predictable pattern.

It is impossible to know whether a person who is successful right now will be successful in the future. (R) \*



An individual who is currently honest will stay honest in the future. \*

It is very difficult for a person to change even when they want to.

Knowing what someone is like as a teenager tells you almost nothing about what they'll be like as an adult. (R)

You are who you are; your fundamental core remains unchanged.

People are more inconsistent than consistent across time and situations. (R)

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Group Subscale

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The basic values and priorities of different nations have stayed mostly constant over time.

It's impossible to predict the political stance of a given country from one decade to the next. (R)

Many religious groups seem to change their positions on important issues in arbitrary ways. (R)

Political parties generally have consistent platforms.

Countries that are allies today could easily be enemies tomorrow. (R)

Some families will continue to feud long after the original conflict has been forgotten.

It's common for musical groups to change their style completely from one album to the next. (R)

The lines that divide social groups have remained largely constant over time.

Sports fans remain loyal to their favorite team throughout their lifetime.

The focus of social coalitions shifts substantially depending on current issues. (R)

Family dynamics will rarely change.

A group's status within the social hierarchy usually stays the same over time.

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Table 1. Initial Belief in Consistency Scale Items.

*Note:* Items marked with an (R) were reverse scored. Items marked with a \* were adapted from Choi, et al., 2007.

To help validate the newly constructed scale, two other scales were included. A Teleological Scale consisting of four items was included as a measure of participants' general belief in causality—that events have causes—which we hypothesized could be related to but should not be the same as belief in consistency. Two items were adapted from Willard and Norenzayan (2013): “Things in life happen for a reason” and “There is a discernable purpose to the events in life”. The two remaining reverse-scored items were generated by the researchers: “Most things happen for random and arbitrary reasons” and “People who say that everything

happens for a reason are just fooling themselves”. Again these ratings were given on a 1-7 Strongly Disagree to Strongly Agree Likert scale. The final scale was Neuberg and Newsom’s (1993) measure of Need for Structure, also on a 1-7 Strongly Disagree to Strongly Agree Likert scale. This scale was included to capture an important theoretical distinction between belief in consistency and preference for consistency. While the items in the Belief in Consistency scale assess one’s beliefs about the way the world *actually is*, the Need for Structure scale instead measures how one would *like* for the world to be (e.g., “I don’t like situations that are uncertain”). We posit that these constructs are meaningfully different—one can believe that the world is a consistent place, but personally prefer spontaneity; similarly, one could prefer structure and predictability, but believe that the world does not tend to align to this preference.

**Procedure.** All participants responded to the Belief in Consistency scale, the Teleological Scale, and the Need for Structure scale. The order of the three scales was counterbalanced, and items were randomly presented within each scale. As a pilot test that would provide relevant data for Study 2, participants also responded to a single item measure of entitativity: “All groups are collections of people, but collections of people vary in terms of how much they qualify as a group. Some groups seem to be diffuse collections of individuals, while others are true groups. To what extent is this group really a group? [1 = “not at all a group”; 7 = “very much a group”]” for 21 different groups after completing the three scales of interest. These groups were: gay men, orchestra members, Jewish people, people with bipolar disorder, mothers, orthopedic surgeons, comedians, professional athletes, welfare recipients, Muslims, cigarette smokers, people who enjoy classical music, unattractive people, vegetarians, Cross-fit enthusiasts, movie buffs, hikers, pastry chefs, golfers, opioid addicts, and adult onset diabetics.

After providing demographic information (age, race, gender, and political beliefs), participants were thanked and compensated for their participation.

## Results

**Properties of the Total Scale.** See Table 2 for intercorrelations of the total Belief in Consistency Scale, the World, Person, and Group subscales, Need for Structure, and Teleological Beliefs. Initial analyses were conducted using the entire set of 41 Belief in Consistency items. The full Belief in Consistency scale showed strong reliability ( $\alpha = 0.84$ ), and had a mean of 3.9 and a standard deviation of 0.49. The Teleological scale also showed acceptable reliability ( $\alpha = 0.78$ ), and had a mean of 4.2 and a standard deviation of 1.2. Finally, the Need for Structure scale was also highly reliable ( $\alpha = 0.89$ , mean = 4.6, SD = 1.1).

	1.	2.	3.	4.	5.	6.
1. BICTotal	(.84)					
2. BICWorld	0.83***	(.74)				
3. BICPerson	0.84***	0.53***	(.65)			
4. BICGroup	0.76***	0.37***	0.58***	(.63)		
5. Need for Structure	0.11+	-0.02	0.17**	0.18**	(.89)	
6. Teleological Beliefs	0.16**	0.19**	0.07	0.11+	0.06	(.78)

Table 2. Total Revised Scale and Subscale Intercorrelations with Need for Structure and Teleological Beliefs.

*Note:* Diagonal values are Cronbach's coefficient alpha for each scale. Given that the three Belief in Consistency subscales are each included in the Total scale, the intercorrelations of the total scale with each of the three subscales is included primarily for completeness of the correlation matrix, rather than as a focal analysis.

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

The total Belief in Consistency scale correlated significantly with Teleological Beliefs,  $r(291) = 0.16$ ,  $p = .005$ . However, the total Belief in Consistency scale correlated only marginally with Need for Structure,  $r(291) = 0.11$ ,  $p = 0.053$ . These correlations are largely consistent with our theoretical expectation that Belief in Consistency is a distinct construct from existing ones such as Need for Structure that assess preferences for how the world *should* be

rather than beliefs about how the world actually is. It is also theoretically consistent for Belief in Consistency to correlate with teleological beliefs—believing that the world is a predictable place should also make one likely to believe that events have causes and that things happen for a reason (it would be difficult to have prediction without some causal model). However, the magnitude of the correlation indicates that they are not redundant constructs and that the new measure of Belief in Consistency captures something distinct that is not captured by Teleological Beliefs.

**World Subscale.** Initial analyses were again conducted using the entire set of 18 items in the Belief in a Consistent World subscale. This subscale showed adequate internal consistency ( $\alpha = 0.74$ ), and had a mean of 3.8 and a standard deviation of 0.57. While the Belief in a Consistent World subscale correlated significantly positively with Teleological Beliefs,  $r(291) = .19, p = .001$ , it did not significantly correlate with Need for Structure,  $r(291) = -0.02, p = .74$ . The World subscale also correlated significantly with the Person subscale,  $r(291) = 0.53, p < .0001$ , and the Group subscale,  $r(291) = .37, p < .0001$ .

**Person Subscale.** Initial analyses were conducted using the entire set of 11 items in the Person subscale of the Belief in Consistency measure. This subscale showed weaker internal consistency ( $\alpha = 0.65$ ), and had a mean of 4.1 and a standard deviation of 0.64. The Person subscale did not correlate significantly with the Teleological scale,  $r(291) = 0.07, p = .21$ , but did correlate positively with Need for Structure,  $r(291) = .17, p = .004$ . The Person subscale also showed a significant correlation with the Group subscale,  $r(291) = .58, p < .0001$ .

**Group Subscale.** Initial analyses were conducted using all 12 items generated for the Group subscale of the Belief in Consistency measure. This subscale also showed weaker internal consistency compared to the total set of items ( $\alpha = 0.63$ ), and had a mean of 4.0 and a standard

deviation of 0.61. The Group subscale correlated marginally with Teleological Beliefs,  $r(291) = 0.11$ ,  $p = .06$ , and significantly with Need for Structure,  $r(291) = 0.18$ ,  $p = .002$ .

**Properties of the Reduced Total Scale.** The initial analyses described above were conducted on the full set of all 41 items. However, the goal of Study 1 was to create a scale that would be manageable for participants to complete while still retaining reliability and validity. Items where analyses indicated that alpha would improve if they were dropped were removed, as were items with the weakest correlations with the other items in their respective subscale. In this manner, the scale was edited to reduce the total number of items to 24—12 in the World subscale, and 6 each in the Person and Group subscales. The final reduced version of the Belief in Consistency Scale is presented in Table 3.

World Subscale	<p>Every phenomenon in the world moves in predictable directions. *</p> <p>If life is moving in a certain direction, it will continue to move in that direction. *</p> <p>The current situation can change at any time in unexpected ways. (R) *</p> <p>Although some things may change, the world is overall more stable than unstable.</p> <p>The world is completely unpredictable. (R)</p> <p>Generally, things will continue to be the way that they are now.</p> <p>Most events are caused by small coincidences that are impossible to predict. (R)</p> <p>Life usually works out in ways that you could never have predicted beforehand. (R)</p> <p>Although things may change, they do so in a predictable way.</p> <p>There are laws that consistently guide how life unfolds.</p> <p>You can plan for the future but unforeseen events inevitably change things. (R)</p> <p>Often events seem predictable when in fact they are just random occurrences. (R)</p>
Person Subscale	<p>The way that a person has behaved in the past tells you a lot about how they will behave in the future.</p> <p>People's preferences and opinions change in unpredictable ways. (R)</p> <p>People tend to be consistent in their beliefs across situations.</p> <p>It's common for people to arbitrarily change their attitudes over time. (R)</p> <p>Most people's behavior has a stable, predictable pattern.</p> <p>You are who you are; your fundamental core remains unchanged.</p> <p>People are more inconsistent than consistent across time and situations. (R)</p>
Group Subscale	<p>The basic values and priorities of different nations have stayed mostly constant over time.</p> <p>Political parties generally have consistent platforms.</p> <p>Sports fans remain loyal to their favorite team throughout their lifetime.</p> <p>The focus of social coalitions shifts substantially depending on current issues. (R)</p> <p>Family dynamics will rarely change.</p> <p>A group's status within the social hierarchy usually stays the same over time.</p>

Table 3. Revised Belief in Consistency Scale.

*Note:* Items marked with an (R) were reverse scored.

The reduced Belief in Consistency scale, with all 24 items, again showed good reliability ( $\alpha = 0.8$ ), had a mean of 3.8, and a standard deviation of 0.57. It again had a significant

correlation with Teleological Beliefs,  $r(291) = .14, p = .02$ , but not with Need for Structure,  $r(291) = 0.08, p = .19$ . See Table 4 for intercorrelations of the revised total scale and each of the three revised subscales with Need for Structure and Teleological Beliefs.

	1.	2.	3.	4.	5.	6.
1. BICTotal	(.8)					
2. BICWorld	0.86***	(.72)				
3. BICPerson	0.73***	0.44***	(.61)			
4. BICGroup	0.71***	0.36***	0.41***	(.65)		
5. Need for Structure	0.08	-0.03	0.14*	0.13*	(.89)	
6. Teleological Beliefs	0.14*	0.08	0.13*	0.13*	0.06	(.78)

Table 4. Total Revised Scale and Subscale Intercorrelations with Need for Structure and Teleological Beliefs.

*Note:* Diagonal values are Cronbach's coefficient alpha for each scale. Given that the three Belief in Consistency subscales are each included in the Total scale, the intercorrelations of the total scale with each of the three subscales is included primarily for completeness of the correlation matrix, rather than as a focal analysis.

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

**Properties of the Reduced World Subscale.** The World subscale was reduced from 18 to 12 items. This edited version showed similarly strong reliability ( $\alpha = 0.72$ ) and had a mean of 3.6 and a standard deviation of 0.65. It did not correlate significantly with either Teleological Beliefs,  $r(291) = .08, p = .16$ , or Need for Structure,  $r(291) = -0.03, p = .59$ . The World subscale again correlated significantly with the reduced versions of both the Person subscale,  $r(291) = .44, p < .0001$ , and the Group subscale,  $r(291) = .36, p < .0001$ .

**Properties of the Reduced Person Subscale.** The Person subscale was reduced from 11 items to 6. The reduced version displayed similar internal consistency ( $\alpha = .61$ ), had a mean of 4.2 and a standard deviation of .75. The Person subscale correlated significantly with Teleological Beliefs,  $r(291) = .13, p = .03$ , as well as Need for Structure,  $r(291) = .14, p = .02$ . It also showed a significant correlation with the revised Group subscale,  $r(291) = .41, p < .0001$ .

**Properties of the Reduced Group Subscale.** The Group subscale was reduced from 12 items to 6. The reduced Group subscale showed similar reliability to the previous version ( $\alpha = 0.65$ ) and had a mean of 3.9 and a standard deviation of 0.83. The Group subscale correlated significantly with both Teleological Beliefs,  $r(291) = .13, p = .02$ , and Need for Structure,  $r(291) = .13, p = .02$ .

## **Discussion**

The aim of Study 1 was to create a reliable and valid measure of the Belief in Consistency—the belief that the world is a stable, predictable place where current information can be used to anticipate future events. The scale was designed with the goal of capturing this belief at both a general level (the consistency of the entire world) and a specific level (the consistency of people and groups). Furthermore, the scale included items assessing beliefs in both stability over time (things will continue to be exactly as they are now) as well as predictable change (things may change, but they will do so in a way that is consistent with expectations). The full scale was able to capture all of these elements while maintaining acceptable reliability, demonstrating convergent validity in the form of a positive relationship with Teleological Beliefs (the idea that events have causes, which should align with beliefs that events are predictable), and showing discriminant validity in the form of a nonsignificant correlation with Need for Structure (the *preference* for consistency rather than the belief therein).

The three subscales of the Belief in Consistency scale were less reliable than the scale as a whole (which may in part be due simply to the smaller number of items contained within the subscales), but the primary subscale of interest, the World subscale, was able to maintain an alpha greater than 0.7. Given the broad construal of the main argument of this paper—that a belief in consistency is the fundamental link underlying essentialism, entity theories, and



attribution—the World subscale, being the broadest of the three, was the most relevant scale to carry forward in further analyses in the subsequent studies<sup>5</sup>.

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<sup>5</sup> Additional analyses were conducted substituting each of the other two Belief in Consistency subscales (Person and Group) for the World subscale. Results of these analyses for Study 2 are presented in Appendix C.

## CHAPTER THREE: Study 2

### Pilot Work

In a preliminary pilot study (mentioned at the beginning of Chapter Two), we measured Belief in Consistency (using an early version of the scale), essentialist perceptions, entity theory endorsement, and attributions in two domains: sexual orientation and cigarette smoking. Participants in the pilot study completed only one of the three tasks (essentialism, implicit theories, or attribution) with respect to both domains. Results from this pilot indicated that Belief in Consistency was related to greater essentialism and entity theory endorsement across the two domains. In addition, we found an unexpected relationship between Belief in Consistency and attributions. We had anticipated that Belief in Consistency would correlate with stronger dispositional attributions across two different behaviors (a man kissing another man, and a man smoking a cigarette), because of our hypothesis that dispositional attributions are the product of a belief in consistency applied to the observed behavior of an individual actor. However, we instead found a counterintuitive effect where Belief in Consistency was significantly related to stronger *situational* attributions across the two behaviors, and that this was driven by attributions of the cigarette smoking behavior. At a mean level, the consensus among participants was that this behavior was caused more by the situation than the person. This led us to alter our hypotheses to instead predict a more complicated relationship between Belief in Consistency and attribution: that Belief in Consistency would relate not just to greater dispositional attributions, but stronger attributions of either type depending on the kind of behavior. While initially we had focused only on dispositional attributions, we realized that it is in fact possible for a belief in consistency to produce either kind of attribution. A person attribution places the source of consistency in the actor, saying that this actor will behave the same way in a different future

situation. On the other hand, a situation attribution places the source of consistency in the situation, saying that this situation will produce the same behavior in a different future actor.

In this way, we hypothesized that those with a greater Belief in Consistency would see consistency in both sources (the person *and* the situation). Because of the relationship seen in the preliminary study where a behavior generally attributed to the situation by all participants was *especially* attributed to the situation among those high in Belief in Consistency, our new prediction was that we would see a relationship between Belief in Consistency and attribution strength that depended both on the type of attribution being made and the type of behavior being judged. A behavior seen generally as more person-determined would be seen especially so by those high in Belief in Consistency (resulting in stronger person attributions than situation attributions), while these individuals would also see a behavior generally seen as more situation-determined as especially caused by the situation (resulting in stronger situation attributions than person attributions). That is, our adjusted hypothesis going into Study 2 was that the Belief in Consistency would relate to stronger consensus-based attributions: attributions to the person for more person-dominant behaviors, and attributions to the situation for more situation-dominant behaviors.

### **Overview**

The pilot work found support for relationships of Belief in Consistency with each of the three phenomena when those phenomena were measured individually (that is, the relationships of Belief in Consistency with essentialism, entity theories, and attribution were each found in a different set of participants). Study 2 assessed each of the three phenomena as well as Belief in Consistency simultaneously, to examine their relationships not only with the construct of interest, but with one another. Furthermore, Study 2 expanded on the preliminary pilot by

substantially increasing the number of domains in which the phenomena were measured, allowing domain to be treated as a random factor and providing greater confidence in the generalizability of results.

Study 2 also tested whether domain entitativity could be a moderator of the relationships between Belief in Consistency and each of the three phenomena. The relationships seen in the pilot were stronger in the less entitative domain of cigarette smoking than in the more entitative domain of sexuality. It could be the case that regardless of Belief in Consistency, people will generally display essentialist perceptions, entity theories, and stronger consensus-based attributions of behavior when the groups, attributes, and behaviors in question occur in more entitative, stable domains (e.g., since gay men are a more entitative group than cigarette smokers, judgments in the domain of gay men may tend toward greater essentialism, entity theories, and attributions for all participants—however those who show a greater Belief in Consistency would show this same pattern of judgments for cigarette smokers as well as gay men). For this reason, we hypothesized a potential interaction of domain entitativity with Belief in Consistency in predicting each of the three phenomena—the relationships of Belief in Consistency with essentialism, entity theories, and attributions may be stronger in less entitative domains due to the greater variability of perceptions in these areas. In line with the goal of testing this hypothesis, Study 2 included a variety of different domains in which the judgments of interest were made. That is, rather than assessing essentialism, entity theories, and attributions in just two domains (one high in entitativity and one low in entitativity), we wanted to include several domains that varied in entitativity. Given our argument that the Belief in Consistency is a broad construct that is applied generally to social targets, its relationships with the phenomena of interest should be similarly broad, and occur across a variety of different domains. Using

multiple domains for the judgments in Study 2 allowed us to treat domain as a random factor and provide greater support for the generality of the Belief in Consistency.

If essentialism, entity theories, and attributions are all the result of the underlying Belief in Consistency, then individual tendencies to exhibit one of them should relate to tendencies to exhibit each of the others. The overall aim of Study 2 was to show that the more one believes that the world is a consistent place, the more one essentializes social categories *and* the more one endorses entity theories *and* the more one attributes behaviors to their consensual cause (situational *or* dispositional).

## **Method**

**Participants.** Three hundred United States-based workers were recruited from Amazon's Mechanical Turk and compensated \$1.25 for their participation. Four participants failed 4 or more out of 10 attention check questions distributed throughout the survey and were excluded from analysis, leaving a final sample of 296 (153 female, 143 male; ages 20-72,  $M_{\text{age}} = 36.2$ ; 77% White).

**Materials.** There were three tasks included in Study 2 (essentialism, implicit theories, and attribution). All tasks were completed with respect to a subset of four domains taken from an overall pool of 12. These 12 domains were chosen from the 6 highest and 6 lowest ratings of entitativity ascribed to the 21 groups rated by participants in Study 1. The subsets were constructed by the researchers to include both more and less entitative domains while maintaining variety across domains (e.g., not including two religious groups in the same subset). Including this range in entitativity was important in that it allowed us to test our hypothesis that the relationships of the three phenomena with Belief in Consistency would be moderated by domain entitativity. Subsets of domains were used in order to keep the tasks at a manageable

length for participants, such that the entire study would be able to be completed in about 30 minutes. The first subset of domains was composed of Muslims, Orthopedic Surgeons, Movie Buffs, and Adult Onset Diabetics; the second was composed of Orchestra Members, Gay Men, Hikers, and Cigarette Smokers; the third was composed of Jewish People, Athletes, Classical Music Fans, and Opioid Addicts. Thus, three separate versions of the survey were constructed, each with the tasks specified to be relevant to the domains in one of the three subsets.

***Essentialism Task.*** Park, et al.'s essentialism scale (2015) includes items developed to measure each of the six specific dimensions of essentialism that have been identified in prior research: discreteness, impermeability, inductive potential, naturalness, shared agency, and stability. In the essentialism task, participants completed a version of this scale, modified to have the relevant groups from their four domains as targets. Although Park, et al.'s original scale includes two items to assess each dimension of essentialism, to maintain brevity we only included one item from each dimension. An example set of items is presented in Table 5. A total of 24 items (6 per target group) were intermixed and presented in a random order. Responses were given on a 1-7 Strongly Disagree to Strongly Agree Likert scale.

Dimension	Example Item
Inductive Potential	If I learn that a person is an <i>Orchestra Member</i> , I will know a lot about what their life is like.
Discrete	People who are <i>Orchestra Members</i> are more similar to than different from each other.
Impermeable	Once a person is an <i>Orchestra Member</i> they'll always be an <i>Orchestra Member</i> —it is impossible to leave that behind.
Natural	Some categories are very natural, whereas others are created by society. I think of the category " <i>Orchestra Members</i> " as a natural category.
Shared Agency	The things that are important to people who are <i>Orchestra Members</i> seem to be very similar for all <i>Orchestra Members</i> .
Stable	The defining characteristics of <i>Orchestra Members</i> have stayed pretty much the same over the course of history.

Table 5. Example Items Used in the Essentialism Task.

*Note:* The italicized portion of each item was replaced with the relevant group, with minor edits for grammar and interpretability.

***Implicit Theories Task.*** In the implicit theories task, participants completed a version of Dweck's (1999) "kind of person" implicit theories scale, modified to have attributes related to each domain as the qualities of interest. Each domain and its target attribute are listed in Table 6. Example items for one domain are presented in Table 7.

Domain	Attribute
Muslim	Religious beliefs
Movie Buff	Love of film
Orthopedic Surgeon	Surgical skill
Diabetic	Diabetes
Gay Man	Sexual orientation
Orchestra Member	Musical talent
Hiker	Interest in hiking
Cigarette Smoker	Tendency to smoke
Jewish Person	Religious beliefs
Professional Athlete	Physical ability
Classical Music Fan	Love of classical music
Opioid Addict	Addiction

Table 6. Target Attributes for Each Domain in the Implicit Theories Task.

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*A Professional Athlete's physical ability* is something very basic about them and it can't be changed much.

*A Professional Athlete's physical ability* is an important part of them and can't really be changed.

*A Professional Athlete* can significantly change their *physical ability* if they choose to. (R)

*A Professional Athlete* can't really change their *physical ability*.

If they really want to, a *Professional Athlete* can substantially change their *physical ability*. (R)

For a *Professional Athlete* there is not much that can be done to really change their *physical ability*.

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Table 7. Example Items Used in the Implicit Theories Task.

*Note:* The italicized portions of each item was replaced with the relevant domain and target attribute from Table 6. Items marked with an (R) were reverse scored.

A total of 24 implicit theory items (six in each of the four domains, two reverse-scored within each domain) were intermixed and presented in a random order. Responses were given on a 1-7 Strongly Disagree to Strongly Agree Likert scale, and were scored such that greater numbers indicated greater endorsement of entity theories.

**Attribution Task.** In the attribution task, participants read brief descriptions of men performing behaviors relevant to each of the four domains in their specific version of the survey. There were four behaviors described for each domain: two written by the researchers with the intent of being primarily seen as caused by the person (person-dominant) and two written with the intent of being seen as mainly caused by the situation (situation-dominant). Each behavior was written to describe a specific event (e.g., “Andrew brought a map with him on a recent hike”), and as such did not include information about distinctiveness (e.g., whether Andrew brought a map only on this specific hike or whether he brings maps on every hike) or consistency (e.g., whether Andrew has brought a map on this hike in the past). For this reason, the behaviors varied solely along Kelley’s (1973) dimension of consensus—whether or not the behavior seemed likely to be performed by anyone in that same situation. High consensus behaviors are those that would be performed by almost anyone in that situation (e.g., almost anyone would



bring a map on a hike), and therefore should be seen as more situation-dominant (McArthur, 1972). On the other hand, low consensus behaviors are those that would not be performed by almost anyone in that situation (e.g., very few people would hike the entire Appalachian Trail), and therefore should be seen as more person-dominant. After reading each behavior, participants responded to an open-ended question asking them to say what they thought “the one major cause of this behavior” was, and then two 1-7 Likert Scale items assessing the strength of their attribution to the person (“To what extent is the cause of this behavior something about the person (their stable personality traits and characteristics)?”) and to the situation (“To what extent is the cause of this behavior something about the situation (almost anyone would behave the same way in this situation)?”). Within each of the three versions of the survey, there were 16 behaviors in total, presented in a random order (see Tables 8-10 for all behaviors). After each behavior, the open-ended item appeared first followed by the person and situation attribution judgments presented in a random order.

**Scales.** The final version of the Belief in Consistency scale developed in Study 1 was used, as were the same Need for Structure and Teleological Beliefs scales used in Study 1.

Domain	Intended Behavior Type	Behavior	Mean Person Attribution	Mean Situation Attribution
Muslim	Person-Dominant	Matthew prayed facing Mecca five times in one day.	5.84	3.89
		Christopher did not drink alcohol at a party in accordance with the tenets of Islam.	5.86	3.8
	Situation-Dominant	William's family attended a mosque and he went with them.	5.28	4.64
		During Ramadan, Anthony fasted.	5.53	4.66
Orthopedic Surgeon	Person-Dominant	Alexander invented a new technique for repairing elbow fractures.	5.9	3.68
		Daniel successfully performed a shoulder repair surgery that lasted twelve hours.	5.17	4.71
	Situation-Dominant	After his friend sprained his ankle, Joshua (an orthopedic surgeon) advised him to rest.	5.06	5.16
		Ethan wrote a prescription for pain medication for a patient recovering from hip surgery.	4.18	5.86
Movie Buff	Person-Dominant	Michael had seen every film nominated for this year's Academy Awards in the theater.	6.24	3.06
		Jacob got in a heated argument during a work dinner over a recent movie.	5.95	3.65
	Situation-Dominant	Andrew went with a group of friends to see the new "Star Wars" movie.	5.60	4.81
		When critics panned the latest blockbuster film, Joseph decided against seeing it.	5.11	4.39
Diabetic	Person-Dominant	David (a Diabetic) ate two pieces of cake and his blood sugar spiked.	6.04	3.57
		Ryan (a Diabetic) neglected to eat lunch and became lightheaded and dizzy.	5.14	4.59
	Situation-Dominant	Tyler checked his blood sugar level after dinner.	4.86	5.24
		James refilled his insulin prescription when it ran low.	4.46	5.66

Table 8. Behaviors for Subset 1.

Domain	Intended Behavior Type	Behavior	Mean Person Attribution	Mean Situation Attribution
Orchestra Member	Person-Dominant	Matthew successfully played Mozart's 3 <sup>rd</sup> violin concerto with no errors.	6.21	3.31
		Christopher spent six hours practicing a single piece of music.	6.21	3.67
	Situation-Dominant	William followed the instructions of the orchestra conductor to play his instrument more quietly.	4.69	5.51
		Anthony re-tuned his violin before a performance.	4.41	5.57
Gay Man	Person-Dominant	Alexander kissed his boyfriend while out at dinner.	5.72	4.34
		<i>Daniel filed a complaint accusing his employer of anti-gay discrimination.</i>	4.28	5.38
	Situation-Dominant	Joshua (a gay man) watched a local gay pride parade.	5.68	4.49
		<i>Ethan went out for drinks with his boyfriend.</i>	5.58	4.28
Hiker	Person-Dominant	Michael hiked the entire 2,200 miles of the Appalachian trail.	6.25	3.24
		Jacob summited ten 14,000 foot peaks in one summer.	6.29	2.97
	Situation-Dominant	Andrew brought a map with him on a recent hike.	5.11	5.35
		Joseph took a break to eat trail mix on a hike.	4.03	5.82
Cigarette Smoker	Person-Dominant	<i>David tried to quit smoking but was unsuccessful.</i>	5.38	4.27
		Ryan refused to smoke a cigarette that wasn't his preferred brand.	6.14	3.14
	Situation-Dominant	<i>Tyler smoked a cigarette while out with his friends.</i>	5.47	4.05
		James let a stranger borrow his cigarette lighter.	5.62	5.04

Table 9. Behaviors for Subset 2.

Note: Italicized items were coded as the reverse of their intended behavior type.

Domain	Intended Behavior Type	Behavior	Mean Person Attribution	Mean Situation Attribution
Jewish Person	Person-Dominant	Matthew insisted that his son study to become a bar mitzvah.	5.74	4.38
		<i>Christopher ate nothing at a dinner party where he was unsure if the meal was kosher.</i>	5.71	4.55
	Situation-Dominant	William lit a candle in his grandparents' menorah.	4.97	5.13
		<i>Anthony prayed at his local synagogue.</i>	6.02	4.17
Professional Athlete	Person-Dominant	Alexander ran a mile in under six minutes.	6.33	3.32
		Daniel scored 28 points in the first half of a basketball game.	6.1	3.99
	Situation-Dominant	Joshua followed the instructions of his coach to sub in for a teammate.	4.78	5.6
		Ethan passed the ball to a teammate who was open.	5.05	5.63
Classical Music Fan	Person-Dominant	<i>Michael waited in line for three hours to get tickets to the opening night performance of a prominent classical cellist.</i>	6.01	3.97
		Jacob donated \$500 to the local symphony orchestra.	6.27	3.11
	Situation-Dominant	Andrew listened to classical music on his drive to work.	6.18	3.65
		<i>Joseph read an article about Beethoven in a magazine.</i>	6.07	3.28
Opioid Addict	Person-Dominant	David sold the class ring his parents bought him to get money to buy heroin.	5.82	3.9
		Ryan checked himself into rehab to get help quitting opioids.	6.03	4.05
	Situation-Dominant	Tyler used heroin with his friend.	5.66	3.96
		James wore a long-sleeved shirt to cover his track marks from injecting heroin.	5.73	4.43

Table 10. Behaviors for Subset 3.

*Note:* Italicized items were coded as the reverse of their intended behavior type.

**Procedure.** Three versions of the survey were created, one for each subset of domains.

Participants were randomly assigned to one of the three surveys (Version 1 N = 102, 2 removed for failing attention checks; Version 2 N = 96, 1 removed for failing attention checks; Version 3

N = 102, 1 removed for failing attention checks), and randomly assigned to either complete the three tasks first, or the three scales first. After providing their informed consent, participants were provided with a general introduction to the study that read:

“In this study we are going to ask you to tell us your opinions about, and make a variety of judgments of, the social world. You will be asked to tell us your opinions about the nature of different groups, your beliefs about the stability of attributes, and the causes of people's behavior. Each survey participant will be asked about a subset of various different groups, attributes, and types of behaviors to make the task more manageable. Across all the survey participants a wide breadth of groups, attributes, and types of behaviors will be assessed. The groups that you have been randomly assigned to rate are:

*People who are Muslims*

*People who are Orthopedic Surgeons*

*People who are "Movie Buffs"*

*People who have been diagnosed with adult onset diabetes (referred to here as "Diabetics").*

For all judgments, please keep in mind that there are no right or wrong answers. We simply want to know your own personal opinions.”

The italicized section included the specific subset of four groups to which the participant had been randomly assigned.

Within the set of tasks, the three tasks (essentialism, implicit theories, and attribution) were presented in a random order. The essentialism task was introduced with the following instructions:

“We are going to ask you a series of questions about the four groups that you were randomly assigned to rate. The questions will be presented on the following 4 pages. Each question will present a statement and ask you how much you agree or disagree with the statement. Think about each question, and give your initial gut reaction without thinking too hard about any one item.”

After these instructions, participants indicated their agreement with the 24 essentialism items presented in a random order.

The implicit theory task was introduced with a similar set of instructions asking participants to indicate their beliefs about members of social groups. Participants indicated their agreement with the 24 implicit theory items presented in a random order. The attribution task was introduced with the following instructions:

“In this part of the study we are going to ask you to read about different behaviors and answer questions about them. Please try to vividly imagine the behaviors that follow and to think about what caused it. While behavior may have many causes, we want you to think about the one major cause of each behavior. If someone you knew performed this behavior, what would you say was the cause of that behavior? Please write this cause in the space provided after each behavior. Then we want you to answer some questions about possible causes of the behavior. Specifically, these questions will ask the extent to which you think the cause of the behavior was something about the person (their stable personality traits and characteristics), something about the situation (that is, the situation the person found himself in, and almost anyone would behave the same way in this situation), or a combination of the two.”

After these instructions, one of the 16 behaviors was presented, followed by the open-ended item, and the person and situation attribution judgments presented in a random order. This process was repeated for each behavior such that the order of behaviors was also randomized.

The three scales always appeared in a fixed order with the Belief in Consistency scale first, followed by Need for Structure and Teleological Beliefs. Items were randomly presented within scales. Each of the three scales was presented with a specific set of instructions; however, these instructions generally cohered along similar themes and as such are merely summarized here for brevity. Each set of instructions informed participants that we were also interested in their general beliefs and opinions about life and the world, and asked them to indicate their agreement or disagreement with the statements that would appear. The instructions also reminded them that there were no right or wrong answers and that we were simply interested in their opinions. Participants responded to the 24-item Belief in Consistency scale, the 12-item Need for Structure scale, and the 4-item Teleological Beliefs scale in that order. Finally, after providing demographic information (age, race, gender, and political beliefs), participants were thanked and compensated for their participation.

## **Results**

**Analytic Overview.** Given the sampling of domains across participants in different versions of the tasks, analyses were conducted using mixed models to account for dependencies in the data, utilizing the lme4 package in R. In each model a random intercept was estimated for each participant and a random intercept and slope for the critical relationship with Belief in Consistency were estimated for each domain (Snijders & Bosker, 2012). Random effects were allowed to correlate.

For each of the three tasks, a full model was run to test our primary hypothesis—that belief in consistency would relate to greater essentialist perceptions, greater endorsement of entity theories, and stronger person attributions for person-dominant (and stronger situation attributions for situation-dominant) behaviors. For each participant, within each domain (e.g., gay men), the six essentialism items were averaged into an overall essentialism score. Similarly, the six entity theory items were averaged into an entity theory score for each domain for each participant. Thus, there were four scores of the phenomena of interest for each participant for the essentialism task and the implicit theories task. Given that there were both situation and person attribution judgments for each of the 16 behaviors in the attribution task, there were 32 scores of the phenomenon of interest (attribution strength) for the attribution task.

The primary hypothesized effects were main effects of Belief in Consistency relating to each phenomenon of interest (greater essentialism, stronger entity theory endorsement, and stronger attributions of behavior to their consensual cause). Additionally, we hypothesized that these relationships with Belief in Consistency might be moderated by domain entitativity such that Belief in Consistency would relate to greater essentialism, entity theories, and consensus-based attributional strength particularly in domains that were lower in entitativity and where there would be greater variability in perceptions.

To test these hypotheses, a full model was conducted using each phenomenon of interest as the dependent variable. The full models each included participant gender, domain entitativity (taken from the pilot ratings provided for each domain in Study 1), Belief in Consistency, Need for Structure, Teleological Beliefs, and Political Conservatism, as well as the interaction of domain entitativity with each of these four other measures of interest. We chose to control for Political Conservatism given the somewhat political nature of some of the domains such as



sexuality or religion. Interactions with gender were not included. Simple analyses without these additional covariates are presented in Appendix A.

In all models, gender was contrast coded such that women were coded as +1 and men were coded as -1. All continuous predictors were grand mean centered. The Belief in a Consistent World subscale was used as the measure of Belief in Consistency in all models, given the fact that it was of primary theoretical importance and measured the construct of interest at the broadest level. Appendix C presents results from alternative models using the other two subscales of the Belief in Consistency scale (Person and Group).

To test the secondary research question of whether the three phenomena of interest relate not just to the belief in consistency, but to one another, correlational models were also tested using each phenomenon to predict each of the other two. These models controlled for participant gender and as such represent partial correlations between the phenomena.

**Essentialism.** In the full model (see Table 11), the hypothesized relationship between Belief in Consistency and essentialism across target groups was significant; over and above Need for Structure, Teleological Beliefs, and political conservatism, greater Belief in a Consistent World was related to greater essentialism toward social categories ( $B = 0.18, p = .016$ ). The hypothesized interaction between Belief in Consistency and entitativity was not significant ( $B = -0.02, p = .73$ ). Participants higher in Belief in Consistency showed greater essentialism toward groups regardless of the groups' entitativity. Positive relationships with essentialism were also seen for Need for Structure ( $B = 0.10, p = .03$ ) and Teleological Beliefs ( $B = 0.15, p = .003$ ), such that each related independently to greater essentialism. Furthermore, Need for Structure showed a significant interaction with entitativity such that this relationship was stronger for more entitative domains. That is, participants higher in Need for Structure judged groups in more

essentialist terms, and they did this to a greater extent for more entitative groups. We did not have any specific a priori predictions about moderation by entitativity for Need for Structure. This observed pattern runs counter to the moderation that we did hypothesize would occur for the Belief in Consistency relationship (a negative relationship such that the relationship would in fact be stronger for *less* entitative groups). That is, we had thought that all participants would see more entitative groups as more essential, but those high in Belief in Consistency would display essentialism more broadly and apply it to their perceptions of less entitative groups as well. Participants high in Need for Structure, on the other hand, appear to be applying their essentialist beliefs more selectively by perceiving more entitative groups as particularly high in essentialism, and less entitative groups as less so.

Outcome	Parameter	Unstandardized Beta Weight	Standard Error
Essentialism			
	Gender	0.004	0.06
	Entitativity	0.26	0.14
	Belief in a Consistent World	0.18*	0.07
	Need for Structure	0.10*	0.05
	Teleological Beliefs	0.15**	0.05
	Political Conservatism	0.06+	0.03
	Entitativity x BICWorld	-0.02	0.06
	Entitativity x Need for Structure	0.07*	0.03
	Entitativity x Teleological Beliefs	0.04	0.03
	Entitativity x Political Conservatism	-0.02	0.02

Table 11. Unstandardized Regression Coefficients Predicting Essentialism.

Note: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

**Entity Theories.** In the full model (see Table 12), the hypothesized relationship between Belief in Consistency and entity theories of attributes was significant; over and above Need for Structure, Teleological Beliefs, and political conservatism, a stronger Belief in a Consistent World was related to greater endorsement of entity theories across domains ( $B = 0.33, p =$

.0004). The hypothesized interaction between Belief in Consistency and entitativity was not significant ( $B = -0.04, p = .72$ ). There was a main effect of Need for Structure such that greater Need for Structure was related to greater endorsement of entity theories ( $B = 0.11, p = .04$ ).

Outcome	Parameter	Unstandardized Beta Weight	Standard Error
Entity Theories			
	Gender	-0.005	0.06
	Entitativity	0.20	0.37
	Belief in a Consistent World	0.33***	0.09
	Need for Structure	0.11*	0.05
	Teleological Beliefs	-0.03	0.05
	Political Conservatism	0.05	0.03
	Entitativity x BICWorld	-0.04	0.10
	Entitativity x Need for Structure	0.05	0.05
	Entitativity x Teleological Beliefs	0.08	0.05
	Entitativity x Political Conservatism	0.02	0.03

Table 12. Unstandardized Regression Coefficients Predicting Entity Theory Endorsement.

Note: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

**Attribution.** With the previous two tasks, our primary predictions were relatively simple: greater Belief in Consistency leads to greater essentialism and greater endorsement of entity theories across domains. However, with attribution we hypothesized that the outcome related to greater Belief in Consistency would not be one specific kind of attribution, but the strength of attributions made (to either the person or the situation) depending on the kind of behavior (more person-dominant or situation-dominant). As such, we created a contrast code for the attribution models reflecting the type of behavior (person or situation-dominant), based on the actual ratings of each behavior provided by participants in Study 2. In general, out of the four behaviors in each domain, the two with the strongest attributions to the person were coded as person-dominant, and the two with the strongest attributions to the situation were coded as situation-dominant. These codes largely matched our intentions for each behavior (that is, behaviors that

were written to be more person-dominant were generally seen as being more person-dominant by participants). However, there were a few exceptions where we chose to code behaviors that were not the two strongest in their domain as being person or situation-dominant, in order to maintain balance of behavior types within each domain (two person-dominant and two situation-dominant). See Tables 8-10 for mean person and situation attributions for all behaviors. Non-italicized behaviors were coded as their intended behavior type, while behaviors that were coded as the opposite of the intended behavior type are italicized.

The full model was constructed such that the strength of attributions made was the dependent variable. Predictors included contrast codes for type of behavior (+1 for person-dominant, -1 for situation-dominant) and type of attribution judgment (+1 for person attribution, -1 for situation attribution) as well as domain entitativity, Belief in a Consistent World, Need for Structure, Teleological Beliefs, and Political Conservatism. Also included were the interactions of behavior type, attribution type, and entitativity with Belief in a Consistent World, Need for Structure, Teleological Beliefs, and Political Conservatism. Gender was included as a covariate.

Our primary hypothesis was that there would be a relationship between Belief in Consistency and stronger person attributions for person-dominant behaviors, and stronger situation attributions for situation-dominant behaviors. The primary predicted effect, then, was a three-way interaction between behavior type, attribution type, and Belief in Consistency.

We also wanted to test the hypothesis that this relationship of Belief in Consistency to stronger consensus-based attributions would be moderated by the entitativity of a domain. The average consensual attributional strength across the high and low entitativity domains may be the same, but its relationship with Belief in Consistency could be stronger among the low entitativity domains because there is more variability in perceptions of behavior in these areas. The

hypothesized moderation by entitativity was tested by a four-way interaction between entitativity, behavior type, attribution type, and Belief in Consistency.

Given the setup of this model, there were a total of 40 slopes estimated once all interactions were included, many of which were not particularly relevant for our primary research questions. For brevity, the results presented in Table 13 only include slopes of theoretical interest. The full results of the entire model are presented in Appendix B. Additional significant effects related to Need for Structure, Teleological Beliefs, and Political Conservatism that were not of primary interest are reported below in the text.

Outcome	Parameter	Unstandardized Beta Weight	Standard Error
Attribution	Attribution Type	0.60***	0.09
	Belief in a Consistent World	-0.06	0.05
	Need for Structure	0.06+	0.04
	Teleological Beliefs	0.13***	0.04
	Political Conservatism	-0.005	0.02
	Attribution Type x Behavior Type	0.50***	0.09
	Attribution Type x BICWorld	-0.13***	0.03
	Attribution Type x Behavior Type x BICWorld	0.01	0.03
	Entitativity x Attribution Type x Behavior Type x BICWorld	-0.04	0.04

Table 13. Unstandardized Regression Coefficients Predicting Attribution Strength.

Note: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

Looking at overall attribution strength across behaviors and types of attribution judgments, Belief in Consistency did not significantly relate to stronger attributions of all types ( $B = -0.06$ ,  $p = .3$ ). However, there was a significant main effect such that Teleological Beliefs were related to stronger attributions of all types ( $B = 0.13$ ,  $p = .0004$ ).

The predicted effect by which Belief in Consistency would be related to stronger person attributions for person-dominant behaviors and stronger situation attributions for situation-

dominant behaviors (the three-way Attribution Type x Behavior Type x BICWorld interaction) was not significant ( $B = 0.01, p = .62$ ), and the four-way interaction with entitativity was also not significant ( $B = -0.04, p = .4$ ).

Overall, there was a significant main effect of Attribution Type, such that across domains and types of behaviors, participants on average made stronger person attributions than situation attributions ( $B = 0.6, p < .0001$ ). In other words, participants in general demonstrated the fundamental attribution error of ascribing greater importance to the person than to the situation in their explanations of behavior. Of note, this main effect of attribution type was qualified by a significant interaction with Belief in Consistency ( $B = -0.13, p = .0009$ ), such that this person – situation attribution difference was smaller among those higher in Belief in Consistency. In other words, the magnitude of the fundamental attribution error was reduced among those with greater beliefs in a consistent world.

To decompose this interaction, separate models were run, one using person attributions as the dependent variable and one using situation attributions. The slope of Belief in Consistency predicting person attributions was significantly negative ( $B = -0.19, p = .01$ ). Participants higher in Belief in Consistency ascribed less importance to the person in their attributions of behaviors across domains and types of behavior. The slope of Belief in Consistency predicting situation attributions was not significant, although the trend was in the positive direction ( $B = 0.07, p = .4$ ). Directionally, participants higher in Belief in Consistency ascribed greater importance to the situation in their attributions across domains and behavior types. Figure 1 depicts these two slopes, with the x-axis ranging from -1 to +1 standard deviation in the BICWorld subscale. As illustrated in Figure 1, greater Belief in Consistency is related to more equal attributions of behavior to the person and the situation. While on average stronger attributions are made toward

the person than to the situation, the positive slope for person attributions and the negative slope for situation attributions indicate that this tendency diminishes as one increases in Belief in Consistency. As Belief in Consistency increases, the person is taken into account to a lesser extent and the situation is taken into account to a greater extent, and the gap between the two lines becomes smaller.

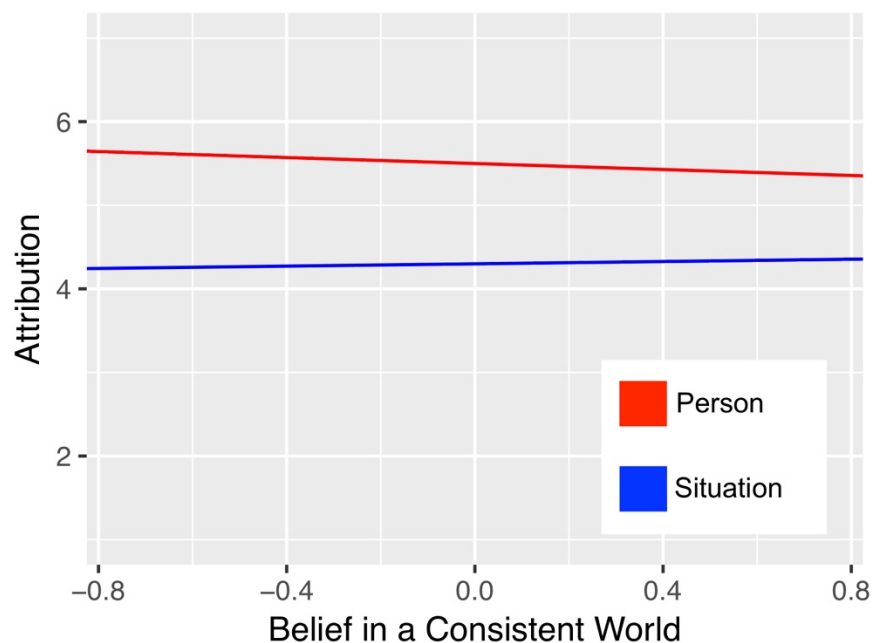


Figure 1. Simple Slopes for the Relationship Between Belief in Consistency and Person and Situation Attributions.

Finally, there were a handful of significant effects involving the other measures that were not of primary theoretical interest and so are not included in Table 10 but are described here. There was a significant two-way interaction such that those higher in political conservatism made stronger person attributions across behaviors and domains ( $B = 0.03, p = .003$ ). There was a significant two-way interaction between attribution type and behavior type ( $B = 0.05, p = .0003$ ) where across participants, attributional strength aligned with the type of behavior that was being judged. Unsurprisingly, person attributions were stronger for person-dominant behaviors

and situation attributions were stronger for situation-dominant behaviors. This relationship was qualified by a significant three-way interaction between attribution type, behavior type, and political conservatism ( $B = -0.03, p = .002$ ) such that this coherence of attribution type with behavior type was weaker among those higher in political conservatism. That is, political conservatism was related to attributions that were less sensitive to the type of behavior that was being judged.

**Correlations Between the Three Phenomena.** After establishing relationships between the Belief in Consistency and essentialism, entity theories, and attributions, the secondary research question addressed by Study 2 was to test whether those three phenomena would also relate to one another (as they should if they are all the result of the underlying Belief in Consistency). However, while we found a significant relationship between Belief in Consistency and an attributional phenomenon, it was not the phenomenon we had anticipated. Rather than showing stronger attributions to their consensual cause (stronger person attributions for person-dominant behaviors and stronger situation attributions for situation-dominant behaviors), we instead found a relationship where the Belief in Consistency was related to a smaller fundamental attribution error across behaviors (weaker attributions to the person and stronger attributions to the situation among those higher in Belief in Consistency). Given this observed relationship, we decided to use this attribution difference—the magnitude of the fundamental attribution error—as the new phenomenon of interest in the realm of attribution.

Correlational models (partialling out participant gender) were run to test our secondary research question: essentialism being predicted by entity theory endorsement, essentialism being predicted by the person-situation attribution difference, and entity theory endorsement being



predicted by the person-situation attribution difference. The critical unstandardized regression coefficients from these models are presented in Table 14.

	1.	2.	3.
1. Essentialism	----		
2. Entity Theories	0.24***	----	
3. Person-Situation Attribution Difference	-0.007+	-0.03***	----

Table 14. Relationships Between Essentialism, Entity Theory Endorsement, and the Person-Situation Attribution Difference.

*Note:* These relationships are controlling for participant gender. \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

Due to the fact that Belief in Consistency was related to greater essentialism, greater entity theory endorsement, and a smaller difference between attributions to the person versus the situation, the hypothesized relationships among the three phenomena were a positive correlation between essentialism and entity theories, a negative correlation between essentialism and the magnitude of the person-situation attribution difference, and a negative correlation between entity theories and the magnitude of the person-situation attribution difference. This pattern of results was largely supported by the data. Essentialism was significantly positively related to entity theory endorsement ( $B = 0.24, p < .0001$ ), and marginally related to a smaller person-situation attribution difference ( $B = -0.007, p = .06$ ). Entity theory endorsement was significantly related to a smaller person-situation attribution difference ( $B = -0.03, p < .0001$ ). In other words, the Belief in Consistency is related to three phenomena: the more one believes that the world is a consistent and predictable place, the more one essentializes social categories and endorses entity theories of human attributes, and the less one displays the fundamental attribution error. Furthermore, these three phenomena relate to one another as well as to the Belief in Consistency. The more one essentializes social categories, the more one endorses entity theories of human attributes, and the less one displays the fundamental attribution error; the more one endorses

entity theories, the more one essentializes social categories, and the less one displays the fundamental attribution error.

## **Discussion**

There were two primary goals of Study 2: to find evidence for relationships between the Belief in Consistency and the three phenomena of interest (essentialism, entity theories, and attributions), and to find relationships of these three phenomena with one another. We predicted that Belief in Consistency would relate to greater essentialist perceptions of social categories, stronger endorsement of entity theories of human attributes, and stronger attributions of behaviors to their consensually determined cause (i.e., stronger attributions to the person for person-dominant behaviors, and stronger attributions to the situation for situation-dominant behaviors). We also hypothesized that these relationships could potentially be moderated by the entitativity of the domain in which the phenomena occurred, such that those high in Belief in Consistency would demonstrate these phenomena to a greater extent for less entitative domains where there would be greater variability of perceptions among participants.

While there was not evidence for moderation by entitativity, the results seen did provide support for the primary hypothesis, in particular with respect to essentialism and entity theories. Those higher in Belief in Consistency displayed greater essentialism in their perceptions of social categories and more endorsement of entity theories of attributes, and did so regardless of the entitativity of the domain in which these judgments were made. The fact that a breadth of domains (twelve in total, incorporating a range of entitativity and allowing domain to be treated as a random factor) was used for the tasks in Study 2 is a strength of its design. These relationships were found to occur generally across a variety of domains, supporting the idea that

the Belief in Consistency is a broad belief that has influence at a general level on a variety of social psychological phenomena.

In addition, support was found for a link between Belief in Consistency and an attributional phenomenon in the form of a smaller difference between person and situation attributions among those higher in Belief in Consistency. In other words, the more one believes that the world is a consistent and predictable place, the less one displays the fundamental attribution error of ascribing greater importance to the person than to the situation.

Study 2 showed evidence that Belief in Consistency is related to three phenomena: increased essentialism, greater entity theory endorsement, and a smaller fundamental attribution error. Furthermore, these phenomena did not just relate to Belief in Consistency, but to one another as well. Essentialism was related to greater entity theory endorsement as well as a smaller magnitude of the fundamental attribution error, and entity theory endorsement was also related to a smaller magnitude of the fundamental attribution error. This finding supports the secondary aim of Study 2 and provides evidence for the idea that these three phenomena are all the result of the same basic belief applied to different contexts and types of judgments.

In sum, then, the results of Study 2 provide promising initial support for the relevance and importance of the Belief in Consistency as an underlying factor in three different social psychological phenomena in the realms of essentialism, entity theories, and attributions. Believing at a highly general level that the world is a consistent, predictable place is related to much more specific judgments about the nature of social categories (seeing them as more essential), individual attributes (seeing them as more fixed), and human behavior (seeing the person as less important and the situation as more important in their contributions to observed behavior).

The relationships between Belief in Consistency, essentialism, and entity theories were very much in line with our initial hypotheses. However, the relationship whereby Belief in Consistency is related to a smaller person-situation difference in attributions across behaviors and domains was not the effect that we had predicted. Despite initial evidence from a preliminary pilot study, we did not find evidence to support the idea that the Belief in Consistency is related to stronger person attributions for person-dominant behaviors and stronger situation attributions for situation-dominant behaviors, as we had anticipated.

On the other hand, although the relationship between Belief in Consistency and the person-situation attribution difference was not what we had expected, it is not inexplicable. The subscale that we used in these analyses captured Belief in Consistency at the broadest possible level—beliefs about “the world” as a whole. The results of Study 2 indicate that these beliefs about the consistency of the world relate to a downplaying of the person and (directionally) an emphasis on the situation with respect to attributions of behavior. In a similar way, believing that the *world* is a predictable place puts greater emphasis on the situation and less emphasis on the person, in terms of sources of stability. An individual person exists on an inherently shorter timescale than the entire world, and so if the world is a consistent place, that consistency subsumes the causal agency of the individual. In this way, it is logical that the more one believes in the consistency of the world, the more importance one ascribes to the world in terms of its impact on human behavior, and the less importance one ascribes to specific individuals. Furthermore, it is not the case that Belief in Consistency relates to stronger attributions generally—the magnitude of overall attributions did not relate to Belief in Consistency, only the relationship between the two kinds of attributions being made. Those high in Belief in

Consistency make attributions to the same extent as those who are not, but do so with a greater focus on the situation and a diminished focus on the person.

It is worth noting that this unexpected finding provides some initial evidence for the idea that the belief in consistency is not maladaptive and can lead to beneficial rather than detrimental outcomes. The fundamental attribution error has a long history of study in social psychology as a problematic aspect of human social judgment. However, in Study 2 we found that a belief that the world is a consistent place is related to a *reduction* in this commonly condemned bias—a distinctly positive outcome. Furthermore, Belief in Consistency was related to greater essentialism and stronger endorsement of entity theories—which themselves are commonly studied as problematic outcomes. The fact that the Belief in Consistency relates to all three of these phenomena (one positive, two negative) supports the idea that it is itself a more neutral belief, and suggests that not all of its applications are harmful. While we have already found support for a beneficial outcome in the realm of attribution, Studies 3a and 3b aimed to find beneficial outcomes in the domains of essentialism and entity theories.

### CHAPTER FOUR: Study 3

As reviewed previously, a sizeable literature consisting both of theory and empirical research has associated essentialism and entity theories with negative consequences, particularly in the form of stereotyping and prejudice. However, if essentialism and entity theories are themselves the result of a more basic belief in consistency that can operate beneficially or at least be neutrally valenced, then we should be able to replicate these previous findings showing when essentialism and entity theories can be harmful and also to show the inverse and illustrate when they can be beneficial. Studies 3a and 3b aimed to change the focus to instead find beneficial outcomes of these processes as well as harmful ones. Study 3a examined a context in which entity theories could be framed as having a positive outcome, and Study 3b examined a similarly positive context for essentialism. We chose to focus on entity theories and essentialism in these two studies given that we had, in a sense, already found a positive attribution-related outcome related to the Belief in Consistency in Study 2 (a smaller fundamental attribution error).

#### Study 3a

**Overview.** One negative outcome that has previously been linked to entity theories of attributes is harsher punishment for failure (Chiu, Dweck, Tong, & Fu, 1997). Individuals with an entity theory of morality described more punishment in open-ended responses to how they would react to a student who had failed to meet expectations (e.g., not cleaning up their desk when the teacher asked them to do so). Study 3a broadened this context to examine whether greater endorsement of entity theories in a domain would not only lead to harsher punishment for failure in that domain, but also greater reward for success in that domain, looking in particular at skill-based domains. Much of the existing research on implicit theories in these domains has focused on reactions to failure, where entity theories relate to expectations of continued failure while incremental theories relate to beliefs that future performance will improve. However, an

incremental theory should theoretically relate to beliefs that future performance could be *either* better or worse than what is currently observed. If someone is performing very poorly, the only possible form of change is improvement, but if someone is performing well, it is possible for their future behavior to change in either direction. Endorsing a more incremental theory of skill, then, might lead one to more conservatively reward successful performance in a skill-based domain, given that future performance could change to become worse. On the other hand, endorsing an entity theory of skill would lead one to both punish poor performance more harshly (future performance should stay just as poor) and reward successful performance more generously (future performance will stay just as successful)—a more efficient allocation of resources, and certainly more beneficial to those who have performed successfully. The context was constructed to include both a zero-sum allocation judgment and a more general judgment of anticipated future performance that was not zero-sum. In the zero-sum judgment, more harshly punishing poor performance would simultaneously relate to more generously rewarding successful performance. This type of judgment mirrors many real-world contexts in which a limited pool of resources must be allocated based on past performance (e.g., grant applications). The second dependent variable of anticipated future performance was not as restrictive and provided an additional, more rigorous test of our hypothesis.

We predicted that entity theory endorsement would be related to greater rewards for successful performance (as well as harsher punishment for unsuccessful performance) and stronger beliefs that successful performance would continue to be successful in the future (as well as stronger beliefs that unsuccessful performance would continue to be unsuccessful in the future).

### **Method.**

**Participants.** One hundred and three United States-based workers were recruited from Amazon’s Mechanical Turk and compensated \$1.00 for their participation. Six participants failed 2 or more out of 4 attention check questions distributed throughout the survey and were excluded from analysis, leaving a final sample of 97 (43 female, 54 male; ages 21-66,  $M_{\text{age}} = 36.4$ ; 75% White).

**Materials.** Participants read brief descriptions of male high school students’ recent performance in six different skill-related domains: robotics, computer programming, violin, theater, baseball, and track. There were twelve behaviors in total—one student demonstrating success and one student demonstrating failure in each domain (see Table 15 for all behaviors).

Domain	Behavior Type	Behavior
Robotics	Success	Jacob built a stair-climbing robot that won first prize in the science fair.
	Failure	Michael built a robot that short-circuited and started a small fire.
Computer Programming	Success	Joshua wrote a computer program that successfully detected abnormal X-ray results to diagnose a rare disease.
	Failure	Matthew made a programming error in his code that caused the entire school’s wireless network to shut down.
Violin	Success	Daniel successfully played Mozart’s 3 <sup>rd</sup> violin concerto without any errors in the school’s last orchestra concert.
	Failure	Christopher missed his cue in the school’s last orchestra concert and started playing during another student’s solo.
Theater	Success	Andrew was cast in the starring role of his school’s latest musical.
	Failure	Ethan auditioned for his school’s latest musical but sang off-key and was not cast in any part.
Baseball	Success	Joseph hit a game-winning grand slam in the ninth inning of the school’s most recent baseball game.
	Failure	William dropped a routine fly ball that allowed the opposing baseball team to score the winning run.
Track	Success	Anthony ran a mile in under 5 minutes and won a gold medal at the latest track meet.
	Failure	David came in last place in the 100-meter race at the latest track meet.

Table 15. Success and Failure Behaviors in Study 3a.



After reading each behavior, participants responded to a single item assessing their beliefs about how each student would perform at the next event (science fair, programming assignment, orchestra concert, musical, baseball game, or track meet) on a 1-7 scale where 1 indicated “much worse”, 4 indicated “about the same”, and 7 indicated “much better”.

The measure of reward or punishment granted to each student was an allocation of scholarship money. The general introduction to the allocation judgment read:

“Now we would like for you to imagine that the school that these children attend has a scholarship fund amounting to \$4500 per year that is distributed across six different extracurricular activities—robotics, computer programming, orchestra, theater, baseball, and track. Each of these activities receives \$750 dollars to allocate to up to two students that would be used to help fund their attendance at a summer camp related to their specific extracurricular activity. How much scholarship money would you allocate to each student?”.

The specific allocation was made in response to an item asking how much of the \$750 should go to each student, with each of the two students from that domain listed below. For example, the robotics allocation item read:

“How much of the \$750 available to fund attendance at a robotics summer camp should go to each student?

Jacob, who built a stair-climbing robot that won first prize in the science fair.

Michael, who built a robot that short-circuited and started a small fire.”

Participants were asked to type their allocation amount next to each individual student’s description. Their responses were required to total to \$750.

Modified three-item versions of Dweck and colleagues' (1999) implicit theory of intelligence scale were constructed for each of the six domains, using the attributes programming skill, aptitude at robotics, ability to play the violin, singing talent, skill at playing baseball, and running ability (e.g., "You have a certain amount of singing talent and you really can't do much to change it"). There were a total of 18 items. All items were scored such that higher numbers indicated stronger endorsement of entity theories.

***Procedure.*** After providing their informed consent, participants were presented with the following general instructions:

"There are many situations where resources are limited and people must decide how it would be best to spend them. This happens for parents, for schools, and for communities in general. We are interested in the processes by which people make these judgments. In this study, we are going to tell you about behaviors performed by children attending the same high school. For each student, we are interested in your judgment of the likelihood that they will behave in a similar versus different manner in the future."

Next, participants read each of the twelve behaviors and responded to the single item assessing their beliefs about future performance; these behaviors were presented in a random order.

Subsequently, participants completed the six judgments in the allocation task with the instructions described in the Materials section above; these judgments were presented in a random order. The order of the listing of the two students' behavior within each domain was also randomized. Finally, participants were presented with the following instructions for the entity theory scale:

"In this section you will read a number of attitude or belief statements concerning several personal attributes that people can have. We are interested in how much you agree or

disagree with each one. There are no right or wrong answers. We are simply interested in your beliefs.”

After completing the entity theory items (presented in a randomized order), the Belief in Consistency scale (presented in a randomized order with the same instructions used in Study 2), and providing demographic information (age, race, gender, and political beliefs), participants were thanked and compensated for their participation.

**Results.** Analyses were conducted using mixed models in the lme4 package in R, treating participant and domain as random factors. For each participant, six entity theory scores were created by computing the average of the three entity theory items for each of the six domains. This allowed entity theory endorsement to vary within both participant and within domain. Random intercepts and slopes for the critical predictor of interest (entity theory endorsement) were estimated for both participant and domain. Random effects were allowed to correlate. All models included participant gender as a covariate, contrast coded such that women were +1 and men were -1, and all continuous predictors were mean centered.

**Allocation Task.** Given the zero-sum nature of the allocation judgment, a difference score between the amount allocated to the successful and unsuccessful student in each domain would be redundant with either of the individual allocations. Because we were interested in finding a positive outcome of entity theory endorsement, we chose to analyze the amount of money allocated to the successful student in each domain as the dependent variable. Counter to our hypothesis that entity theory endorsement would relate to greater rewards for the successful student, there was not a significant relationship between entity theories and the amount allocated to the successful student ( $B = -1.2, p = .88$ ). As an exploratory analysis, separate analyses looking at allocation to the successful student predicted by entity theory endorsement within

each domain were also conducted; however the pattern of relationships between entity theory endorsement and amount allocated to the successful students was inconsistent (see Table 16).

Domain	Unstandardized Beta Weight of Entity Theory Coefficient	Standard Error
Baseball	-14.4	8.8
Orchestra	-15.6+	8.6
Computer Programming	-3.4	8.6
Robotics	64.4+	33.5
Theater	38.1***	6.7
Track	-6.9	8.2

Table 16. Unstandardized Regression Coefficients of Entity Theory Predicting Allocation to the Successful Student within Each Domain.

Note: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

**Judgments of Future Performance.** Analyses were conducted using participants' judgments of the likelihood of improved future performance as the dependent variable. A contrast code for the type of behavior previously exhibited (+1 for successful behavior, -1 for failure behavior) was included as a predictor, along with entity theory endorsement and their interaction. Results from this model are presented in Table 17. Our expectations were that there would be a significant interaction between behavior type and entity theory endorsement, such that greater endorsement of an entity theory would relate to lower expectations for future performance after unsuccessful behavior, and relate to greater expectations for future performance after successful behavior. That is, while there should on average be a significant difference in likelihood of future success where improvement is seen as more likely after failure than after success, we predicted that this difference would be smaller among those with greater entity theory endorsement.

Outcome	Parameter	Unstandardized Beta Weight	Standard Error
Future Improvement	Gender	-0.09*	0.04
	Behavior Type	-0.47***	0.09
	Entity Theory	-0.00002	0.04
	Behavior Type x Entity Theory	0.07*	0.03

Table 17. Unstandardized Regression Coefficients Predicting Likelihood of Improved Future Performance.

Note: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

Overall, there was an expected main effect of behavior type such that students who had previously shown successful behavior were rated as less likely to improve in the future ( $B = -0.47, p = .0001$ ). In other words, while all participants anticipated that future performance would improve in the future (the means being greater than the midpoint for ratings after both kinds of behaviors), participants generally anticipated that there would be more improvement for those who had failed than those who had succeeded. However, this was qualified by a significant interaction with entity theory endorsement such that this anticipation of greater improvement for those who had failed was reduced among those with stronger endorsement of entity theories ( $B = 0.07, p = .02$ ).

To decompose this interaction, separate models were run testing the simple slopes of entity theory endorsement with ratings of future performance after success and after failure (see Figure 2). The relationship between entity theories and the likelihood of improved future performance after successful behaviors was significant ( $B = 0.11, p = .01$ ); the relationship between entity theories and the likelihood of improved future performance after unsuccessful behaviors was also significant and in the opposite direction ( $B = -0.09, p = .04$ ). In other words, stronger entity theory endorsement was related to perceptions that both kinds of behavior would generally remain similar in the future—greater estimates that a successful person would continue

to succeed and improve their performance, and greater estimates that an unsuccessful performer would continue to be unsuccessful and would be less likely to improve in the future.

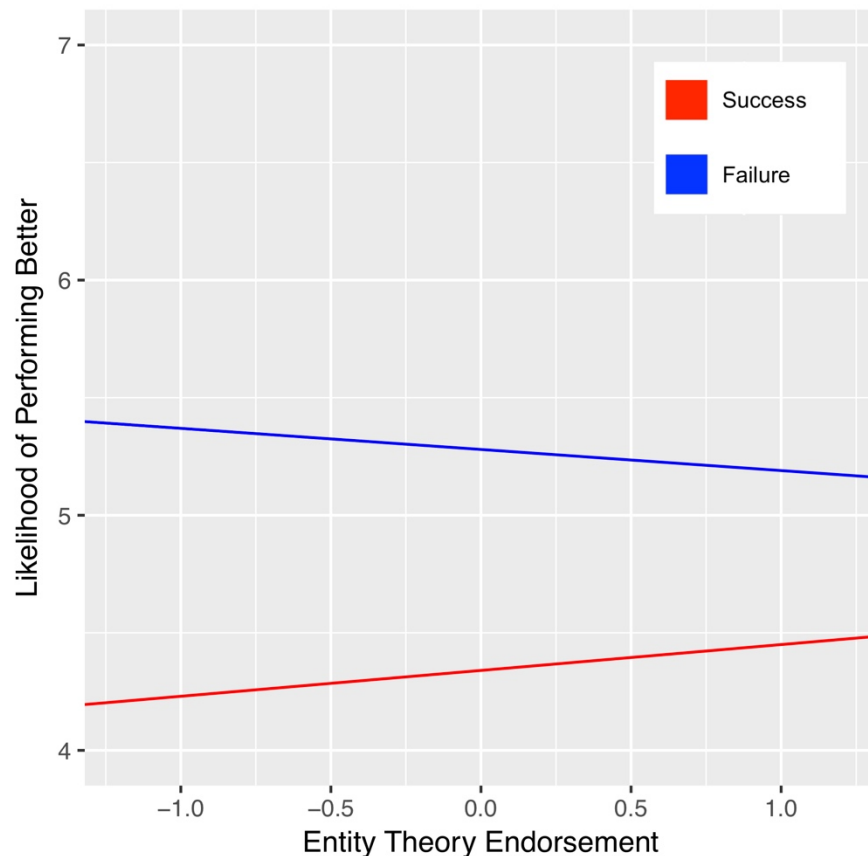


Figure 2. Simple Slopes Relating Entity Theory Endorsement to the Likelihood of Future Improvement.

*Note:* The judgment of future performance was scored such that a 4 indicated identical performance, values above 4 indicated improvement, and values below 4 indicated diminishment. The y axis only presents the top half of this scale (likelihood of improvement). The x-axis is limited to +/-1 standard deviation in entity theory endorsement.

**Discussion.** Although we hypothesized that entity theory endorsement would be related to greater rewards allocated to a student who had previously demonstrated success in a domain, the results of Study 3a did not support this hypothesis. However, we were able to find an additional outcome of entity theory endorsement that can be interpreted in a positive light. The perceived likelihood of future success for someone who had previously succeeded was greater

among those who more strongly endorsed entity theories. That is, participants higher in entity theory endorsement tended to see stability in future behaviors, regardless of the type of behavior. This occurred not only in a problematic way (less perceived likelihood that someone who had failed would improve), but also in a beneficial way—greater perceived likelihood that someone who had succeeded would continue to succeed in the future.

This pattern of relationships captures the range of consequences that an entity theory can have, both positive and negative. An entity theory relates to greater stability in perceptions of future behavior, which can have positive or negative consequences for the target of that perception depending on their current performance. Believing that one's current level of skill or talent is fixed and will remain unchanged is beneficial when that current level is high, but detrimental when the current level is low. The consequences of an incremental theory are similarly context-dependent. The predictions made by a strong incremental theory would be that someone who performs very poorly would have to perform better in the future, and that someone who performed well could see that performance change in either a positive or negative way, and should worsen in the future, which would benefit those who perform poorly but not necessarily those who demonstrate success.

One of our research questions was if we could find support for the overall idea that the Belief in Consistency is a neutral belief underlying many social judgments and behaviors, including entity theories. If so, there should be contexts in which the applications of the Belief in Consistency, including entity theories, are not as detrimental as they have been characterized in prior research. While the primary hypothesis of Study 3a was not supported when looking at the monetary allocation dependent variable, there was still evidence for both positive and negative consequences of entity theory endorsement using expectations of future behavior as the

dependent variable. This evidence showed that the consequences of endorsing an entity theory depend on the contextual framing, supporting our main idea about the neutrality of the Belief in Consistency. Study 3b sought to further support this idea by finding a similar pattern of positive and negative consequences for essentialist perceptions of social categories.

### **Study 3b**

**Overview.** The goal of Study 3b was to find positive and negative consequences of perceiving a social category in essentialist terms. If essentialism reflects the belief that a category is real, meaningful, and important, it should also indicate that one takes that category more seriously. Taking a category more seriously could lead to both positive and negative consequences. We hypothesized that increased essentialism might relate to beliefs that the concerns and issues important to members of a category are serious and worthy of consideration—a positive outcome for members of that category. On the other hand, taking a category more seriously should also relate to a stronger belief that the entire category is responsible for the actions of some of its members, which could be a negative outcome when a subset of members exhibits bad behavior.

#### **Method.**

**Participants.** One hundred and three United States-based workers were recruited from Amazon's Mechanical Turk and compensated \$1.00 for their participation. Four participants failed 2 or more out of 4 attention check questions distributed throughout the survey and were excluded from analysis, leaving a final sample of 99 (54 female, 45 male; ages 19-76,  $M_{\text{age}} = 37.$ ; 84% White).

**Materials.** Based on average essentialism ratings given to the groups used in Study 2, six groups were chosen to assess in Study 3b (three higher in essentialism and 3 lower): Jewish



people, diabetics, gay men, hikers, movie buffs, and orchestra members. In order to adapt these general groups to a more specific context in which the judgments of interest could take place, we selected six organizations that would contain members of those six groups: the American Jewish Committee, the American Diabetes Association, the Gay and Lesbian Alliance Against Defamation (GLAAD), the American Hiking Society, the Academy of Motion Picture Arts and Sciences, and the League of American Orchestras. All groups were real lobbying organizations and nonprofits based in the United States.

In the positive judgment task, participants read the following general introduction:

“Each year a certain amount of TV air time is set aside to air announcements on behalf of non-profit groups concerning issues of potential interest to the public. However, because there is only a limited amount of time available, it is necessary to prioritize the announcements of some groups over others. We are going to ask you to think about several different groups, and indicate the extent to which you think their concerns or issues should be prioritized”.

Then they were presented with a brief description of each organization (e.g., “The American Hiking Society is a non-profit organization dedicated to protecting hiking trails and advocating for their maintenance and expansion across the country”, see Table 18). After each description, one item assessed the importance of that group being granted air time (e.g., “How important is it that the American Hiking Society be granted air time to present their concerns?”) on a 1-7 Likert scale ranging from not at all important to extremely important. A second item assessed the importance of the concerns of the group (e.g., “How important are the concerns and issues that would likely be presented by the American Hiking Society?”) on the same 1-7 scale.

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The American Jewish Committee is a Jewish ethnic advocacy group that promotes civil and religious rights for Jewish people internationally.

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The American Hiking Society is a non-profit organization dedicated to protecting hiking trails and advocating for their maintenance and expansion across the country.

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The Gay and Lesbian Alliance Against Defamation (GLAAD) is an advocacy group devoted to countering discrimination against lesbian, gay, bisexual, and transgender individuals in the media.

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The Academy of Motion Picture Arts and Sciences is a professional organization of those in the film industry that works to promote and advance the art of cinema.

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The American Diabetes Association is a non-profit organization working to prevent and cure diabetes, as well as to help those currently affected by diabetes.

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The League of American Orchestras is an association of orchestra members that is devoted to increasing the awareness of and access to orchestral music in the United States.

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Table 18. Descriptions of Groups Used in Study 3b.

In the negative judgment task, participants read the same descriptions of the six groups in Table 18, followed by a description of bad behavior displayed by a subset of members of that group, e.g. “The American Jewish Committee is a Jewish ethnic advocacy group that promotes civil and religious rights for Jewish people internationally. Recently, several members of their New York chapter were arrested for drawing anti-Palestinian graffiti.” See Table 19 for a listing of all bad behaviors used. One item measured the perceived responsibility of the entire group (e.g., “To what extent is the American Jewish Committee responsible for the actions of these members?”) on a 1-7 Likert scale where 1 indicated Not at all responsible and 7 indicated Entirely responsible. One item measured the belief that the entire group should be punished for the actions of the subset (e.g., “Authorities are considering sanctioning the American Jewish Committee by leveling fines against them. Do you agree or disagree that the American Jewish Committee should be sanctioned for the actions of these members?”), on a 1-7 Strongly Disagree to Strongly Agree Likert scale. One item assessed overall positivity or negativity toward the group (e.g., “To what extent do you feel positively or negatively about the American Jewish Committee on a 1-7 Likert scale ranging from very negatively to very positively.

Group	Behavior
American Jewish Committee	Recently, several members of their New York chapter were arrested for drawing anti-Palestinian graffiti.
American Hiking Society	Recently, six members of the society were arrested for trespassing on the protected town watershed area while trying to climb a coveted peak.
GLAAD	Recently, ten members of their Atlanta chapter started a violent protest at a lecture given by an anti-gay politician.
Academy of Motion Picture Arts and Sciences	Recently, several prominent members of the Academy admitted to blacklisting films from foreign countries in order to ensure the success of their own films.
American Diabetes Association	Recently, a group of members of the association were caught attempting to suppress research results regarding a controversial new gene therapy for diabetes.
League of American Orchestras	Recently, two symphony orchestras affiliated with the organization were found to have been playing pre-recorded audio at their concerts.

Table 19. Bad Behaviors Used in Study 3b.

The six-item reduced version of Park et al.'s essentialism scale used in Study 2 was used in Study 3b, using the target groups Film Makers, Diabetics, Orchestra Members, Gay Men, Hikers, and Jewish People.

**Procedure.** All participants completed both the positive and negative judgment tasks, in a counterbalanced order. Within each task, ratings were randomized at the group level and at the item level within each group. That is, in the positive judgment task, participants read the description of one group, and provided ratings of the importance of their concerns and the importance of their being granted airtime. These two ratings were randomized. The overall order of groups that participants made judgments of was also randomized. The negative judgment task proceeded in a similar way.

After both judgment tasks were complete, participants rated their essentialism toward all six target groups. The essentialism items were presented in a random order. Finally, they completed the Belief in Consistency scale, whose items were also randomized. After providing

demographic information (age, race, gender, and political orientation), participants were thanked and compensated for their participation.

**Results.** Analyses were conducted using mixed models in the lme4 package in R, treating participant and domain as random factors. Six essentialism scores, one for each domain, were computed for each participant by taking the average of their responses to the six essentialism items for each group. This allowed essentialism to vary both within participant and within domain. Random intercepts and slopes for the critical predictor of interest (essentialism) were estimated for both participant and domain. Random effects were allowed to correlate. All models included participant gender as a covariate, contrast coded such that women were +1 and men were -1, and all continuous predictors were mean centered.

**Positive Outcomes.** The two positive outcome judgments (importance of concerns and importance of being granted airtime) were analyzed as separate dependent variables. Results from these models are presented in Table 20. We predicted that essentialism would be positively related to both of the positive outcome judgments—more essentialism towards a category would relate to greater beliefs both that the group’s concerns are important and that it is important for the group to have those concerns heard by the general public.

Outcome	Parameter	Unstandardized Beta Weight	Standard Error
<b>Importance of Group Being Granted Airtime</b>			
	Gender	0.03	0.10
	Essentialism	0.42**	0.10
<b>Importance of Group’s Concerns</b>			
	Gender	-0.02	0.10
	Essentialism	0.31**	0.09

Table 20. Unstandardized Regression Coefficients Predicting Each Positive Outcome.

Note: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

Essentialism showed significant positive relationships with both the importance of a group being granted airtime ( $B = 0.42, p = .002$ ) and the importance of a group's specific concerns ( $B = 0.31, p = .003$ ). The more that participants essentialized a group, the more that they saw its concerns as important and worthy of consideration by the general public.

**Negative Outcomes.** The three negative outcome judgments (responsibility of the group for the actions of a subset, agreement that the group should be sanctioned, and positivity toward the group after reading about the bad behavior of a subset) were analyzed as separate dependent variables. Results from these models are presented in Table 21. We predicted that essentialism would be positively related to the group's responsibility and agreement that the group should be sanctioned, and negatively related to feelings of positivity toward the entire group. That is, more essentialism towards a group would relate to ascribing more responsibility to the group for the actions of a subset, more agreement that the group should be punished for those actions, and more negative feelings about the group as a whole in response to those actions.

Outcome	Parameter	Unstandardized Beta Weight	Standard Error
Responsibility for Actions of a Subset			
	Gender	-0.01	0.14
	Essentialism	0.13	0.11
Agreement that Group Should Be Sanctioned			
	Gender	0.12	0.14
	Essentialism	0.12	0.11
Positivity Toward Group			
	Gender	0.06	0.10
	Essentialism	0.14+	0.08

Table 21. Unstandardized Regression Coefficients Predicting Each Negative Outcome.

Note: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

Overall, our hypothesis that essentialism would lead to negative outcome judgments in the form of greater perceived responsibility of the group for the bad behavior of a subset, greater

agreement that the group should be sanctioned, and less positivity toward the group as a whole was not supported. While directionally consistent with our hypothesis, essentialism was not significantly related to greater perceptions of responsibility ( $B = 0.13, p = .26$ ) or more agreement that the group should be punished ( $B = 0.12, p = .29$ ). Furthermore, there was a surprising marginal effect such that essentialism was related to more positive feelings toward the group after reading about the bad behavior of a subset ( $B = 0.14, p = .09$ ).

**Discussion.** The results of Study 3b provide support for positive consequences of perceiving a social category in essentialist terms—greater belief that the concerns of the members of that category are important, and more support for those concerns being heard by the general public. If a category is seen as being stable, immutable, having inductive potential, and being a real and meaningful group, it is taken more seriously by the perceiver in ways that can be beneficial for its members.

However, in contrast to our expectations, the predicted relationships between essentialism and the three negative outcomes—greater perceived responsibility of the entire group for the bad behavior of a subset, increased support for sanctioning the entire group, and more negative feelings toward the entire group—were not supported by the data (although the relationships were directionally consistent with our hypotheses). In fact, there was one marginal and counterintuitive effect whereby essentialism was related to more positive feelings toward the group as a whole after reading about the bad behavior of a subset. While not in line with our hypotheses, it could be argued that this relationship can be interpreted as a problematic outcome of essentialism (generally, feeling more positively toward a group whose members have harmed others or displayed other bad behavior is not a prosocial or desirable outcome).

Study 3b aimed to find both positive and negative consequences related to essentialism, and succeeded more in the first aim than in the second. However, as previously reviewed, there is an extensive literature covering the latter, and much less evidence to support the former. In this way, Study 3b supports our overall hypothesis that the Belief in Consistency is a basic and neutral belief that underlies behaviors which, while traditionally seen as negative, can have both positive and negative outcomes when examined in the appropriate context.

## CHAPTER FIVE: General Discussion

The goal of the present research was to answer four research questions:

- 1) Can the belief in consistency be measured as a meaningful psychological construct that is distinct from other related constructs?
- 2) Are essentialist perceptions, entity theories, and consensus-based attributions all related to the belief in consistency? That is, all three of these phenomena related to individual differences in the extent to which one believes that the world is a consistent place?
- 3) Do these three phenomena covary with one another as well as with belief in consistency? That is, do individuals who show a tendency to essentialize social categories also show a tendency to endorse entity theories of attributes and make stronger consensus-based attributions of others' behavior?
- 4) Can these phenomena be reframed or recontextualized to lead to positive rather than negative outcomes?

The results of Study 1 showed that a novel scale could reliably measure the Belief in Consistency, and separate it into three subscales reflecting beliefs about the world, about persons, and about groups. The results of the preliminary pilot study provided support for greater Belief in Consistency being related to greater essentialist perceptions and greater entity theory endorsement, when those two phenomena were measured in separate samples of participants. Study 2 showed that the Belief in Consistency is related to greater essentialism, greater endorsement of entity theories, and a *smaller* fundamental attribution error—and furthermore, that these phenomena are all correlated with one another as well as with the Belief in Consistency. Of note, the relationships seen between Belief in Consistency and each of the three phenomena were observed over and above other potentially relevant constructs such as Need for Structure (which reflects a *preference* for consistency rather than a belief that consistency is the



true state of the world) and Teleological Beliefs (which reflect more general beliefs about the causality of all events).

Given the existing state of the three literatures and the connections between them (i.e., that essentialism and implicit theories have been connected more frequently than either has been connected to attribution), our hypothesis about the relationship between Belief in Consistency and attribution was the most exploratory. Initially, we thought that Belief in Consistency would relate to stronger dispositional attributions—seeing stability in the person, rather than the situation. However, based on the findings from a preliminary pilot study, this hypothesis was adjusted slightly going into Study 2. We realized that both kinds of attribution can be thought of as reflecting a more basic belief in consistency. Each merely draws consistency from a different source—a dispositional attribution says that this individual will behave the same way in a different circumstance, while a situational attribution says that this situation will produce the same behavior among different individuals. Dispositional attributions use the person as the source of consistency, whereas situational attributions use the situation, but both can be thought of as applications of a more general belief in predictability. Data from the pilot work caused us to adjust our hypothesis for Study 2 to be more along these lines (relating consistency to either type of attribution rather than just one). The pilot study indicated that Belief in Consistency was significantly related to stronger situational attributions for a behavior that was seen by consensus among participants as more situationally than dispositionally driven (smoking a cigarette). This led us to posit that Belief in Consistency would be related to stronger dispositional *or* situational attributions, depending on the type of behavior being judged (person-dominant or situation-dominant). If a behavior is generally thought to be caused more by the person than by the situation, those with a greater Belief in Consistency would perceive consistency in the person

and make stronger person attributions. If a behavior is generally thought to be caused more by the situation than the person, those with a greater Belief in Consistency would perceive consistency in the situation and make stronger situation attributions. However, this revised hypothesis was not supported by the data in Study 2. Instead, we found an interesting effect wherein Belief in Consistency was significantly related to a smaller difference between person and situation attributions across behaviors. In other words, all participants on average demonstrated the fundamental attribution error—making stronger attributions to the person than to the situation across all behaviors. Those with a greater Belief in Consistency, however, demonstrated a smaller fundamental attribution error by making weaker person attributions and (directionally) stronger situation attributions. While this was not in line with what we had anticipated, it can be interpreted as a reflection of the breadth of the Belief in a Consistent World (which was the subscale used as the predictor of interest in these analyses). It is logical for the belief in a consistent world to relate to attributions that downplay the person and emphasize the situation—although the world encompasses both persons and situations, in the long-term view reflected by a belief in a consistent world, the situation will eventually win out (as an individual person will only be present for about a century, while a situation could persist for much longer). As such, the person would be de-emphasized and the situation would be more emphasized in the attributions of someone who particularly believes in the stability and consistency of the entire world. Importantly, Belief in Consistency was not significantly related to total attributions across types, only the difference between them, indicating that those greater in Belief in Consistency do not differ from others in the overall magnitude of their attributions for observed behavior, but only in the relationship between the kinds of attributions that they make. A smaller difference

between person and situation attributions reflects a tendency to see the person and situation as more equal in terms of their contribution to producing an observed behavior.

Despite its contradiction of our initial hypotheses, the finding that Belief in Consistency relates to a smaller fundamental attribution error provides support for one of the primary ideas driving this research—that the Belief in Consistency is a neutral belief, and its applications to different aspects of the social world can therefore be either positive or negative. A reduction in the fundamental attribution error could certainly be thought of as a positive outcome, and in this way Study 2 illustrated how the Belief in Consistency can relate to positive consequences in addition to ones traditionally thought of as negative (essentialism and entity theories).

Finally, Studies 3a and 3b indicated that essentialism and entity theories, both posited to be applications of the neutral Belief in Consistency, are not always related to negative outcomes, and can instead be positive in the right context. While in general participants in Study 3a expected that a student who had failed would improve more than a student who had succeeded when asked to predict their future performance, this difference was moderated by entity theory endorsement. Those who more strongly endorsed an entity theory rated future improvement as less likely for a student who had previously failed, but *more* likely for a student who had previously succeeded. In other words, an entity theory was related to greater beliefs that future behavior is constrained by present behavior—a negative outcome for the students who were unsuccessful, who were judged as less likely to improve in the future, but a positive outcome for the students who were successful, who were judged as more likely to maintain their high performance and continue succeeding in the future.

In Study 3b, greater essentialism in perceptions of social categories was related to stronger beliefs that the concerns of the members of those categories were important and

deserved to be heard by the general public. In other words, essentialism was related to taking a group (and its concerns) more seriously, which would benefit members of that group.

### **Contributions**

As reviewed previously, the three social psychological literatures investigating essentialism, entity theories, and attribution have shown only infrequent points of contact. Much of the work that has found connections between them has generally looked at only two of these at a time—for instance, arguing that entity theories and essentialism are related because entity theories are one sub-component of essentialism (Haslam, 2017). However, this kind of analysis ignores the possibility that the phenomena are related because of a third, more general belief that underlies them both. The studies presented here are the first to study all three phenomena simultaneously, and to attempt to connect them at a broader level.

In addition, these studies provide a contribution to the literature in terms of a novel scale to measure an important psychological construct—the Belief in Consistency. Despite a thorough search of the literature, we could not identify a previously existing measure of the belief that the world is a stable, predictable place where currently available information can be used to anticipate the future state of affairs. The Belief in Consistency scale that we have created captures this construct reliably, and is distinct from scales that assess preferences for how stable one would *like* for the world to be, in that it captures beliefs about how the world actually is.

The present research also contributes preliminary evidence for beneficial outcomes of the phenomena that are linked to the Belief in Consistency, particularly with respect to essentialist perceptions of social categories and entity theories of human attributes. Both of these phenomena have been almost universally characterized in the social psychological literature as problematic in and of themselves (e.g., Yzerbyt, et al., 1997; Dweck & Leggett, 1988). Studies 3a and 3b

identified contexts in which both phenomena were related to positive outcomes (relating entity theories to a greater belief that successful performance would be maintained in the future, and relating essentialism to greater perceived importance that a group's concerns be heard by the general public). These findings provide initial support for the idea that essentialism and entity theories are simply applications of a more general, neutrally valenced belief about the world, and can lead to either positive or negative outcomes in the appropriate context. In addition, the relationship seen between Belief in Consistency and a reduced fundamental attribution error in Study 2 shows that this belief itself can produce outcomes that would be traditionally thought of as beneficial in social psychological terms.

### **Limitations**

Although the present research provides several unique contributions, the studies are not without their limitations. All of the studies were correlational in nature, meaning that at this stage we cannot make any causal claims about the relationship between Belief in Consistency and essentialism, entity theories, or a reduced fundamental attribution error. While we argue that the Belief in Consistency underlies and may presage all three, there is not yet data to support a direct causal link.

Furthermore, Study 3a is limited in that it did not show evidence for positive or negative outcomes of entity theory endorsement on one of its two dependent variables (the allocation task), and Study 3b is limited in that it only achieved one part of its intended goal. The goal of both Studies 3a and 3b was to find both positive and negative outcomes related to the phenomena of interest. However, Study 3b found only a positive outcome and failed to find a negative consequence of essentialism, despite the substantial body of work that has previously done so. These shortcomings may be due to the specific tasks chosen for the judgmental contexts of the

two studies. While existing research has shown a connection between entity theory endorsement and harsher punishment of failure (Chiu, et al., 1997), it was not in the context of resource allocation. We chose to examine the consequences of an entity theory in a zero-sum type of monetary allocation situation because of its similarity to real-world scenarios in which resources are distributed, and because linking the two allocations to be zero-sum could allow the potential benefit of an entity theory to come through. However, given the nonsignificant results for the allocation task in Study 3a, it is likely that this kind of task was not the appropriate judgment with which to highlight a potential positive outcome of entity theory endorsement. The behaviors themselves, written to be fairly extreme in terms of success and failure, may have been strong enough stimuli that they overrode any effect of entity theory endorsement on the amount of money allocated to a successful versus unsuccessful student (overall, participants overwhelmingly allocated more money to the successful student;  $M_{\text{success}} = \$535.77$ ,  $M_{\text{failure}} = \$214.23$ ).

Additionally, the negative outcome judgment used in Study 3b may not have been an appropriate tool for its intended purpose. Although previous research has found a relationship between the perceived entitativity of a group and the perceived responsibility of that group for negative events (Lickel, Schmader, & Hamilton, 2003), our attempt to extend that relationship to include essentialism was not successful. As reviewed previously, while entitativity is a necessary condition for essentialism, the two constructs are meaningfully distinct. A different measure that perhaps assessed a concept more closely tied to essentialism, such as shared agency, could have provided a better test of showing that essentialism can lead to negative consequences (e.g., asking participants whether they felt that other members of the group would display similarly bad behavior in the future based on the current bad behavior of a few).

## **Future Directions and Implications**

There are several interesting avenues for potential future research based on the results seen here. Manipulating the Belief in Consistency to establish a causal relationship between Belief in Consistency, essentialism, entity theories, and a reduced fundamental attribution error is a critical next step in understanding the correlational relationships observed in Study 2. Furthermore, there is still a great deal of possible work to be done investigating the consequences (both positive and negative) of the Belief in Consistency. While these studies provide preliminary evidence that the phenomena associated with the Belief in Consistency (and in the case of attribution, the Belief in Consistency itself) can themselves be associated with positive outcomes, further investigation is necessary to fully establish the range of outcomes related to Belief in Consistency, and the contexts in which its application is positive or negative. One aspect shared by the types of social judgments used here (beliefs about the nature of social categories, human attributes, and the causes of observed behavior) is that they are difficult to verify as true or false. It may be the case that things like veridicality play a role in determining when an application of the Belief in Consistency produces harmful or beneficial outcomes.

The results of the present research make several important implications. The existence of the Belief in Consistency as a meaningful psychological construct that can be tied to several distinct psychological phenomena suggests that there may be other behaviors related to this same underlying belief. In addition, the fact that the phenomena seen here to relate to the Belief in Consistency can be themselves related to positive rather than negative outcomes (greater belief that successful performance indicates future success for entity theories; greater importance ascribed to social groups having their concerns heard by the general public for essentialism; a smaller fundamental attribution error for attribution) indicates that prior examination of these

phenomena has been too limited in scope. While many have argued and found evidence for the negative consequences of these phenomena, fully understanding them requires a framework that incorporates their benefits as well as their detriments. The Belief in Consistency is in some sense necessary for humans to navigate their social world successfully and efficiently. If essentialism, entity theories, and their negative consequences are the result of the application of this neutral belief, then attempts to diminish these negative consequences will need to take into account the utility of the belief that underlies them.

The three divergent paths that the three literatures of essentialism, entity theories, and attributions have respectively taken has provided many opportunities for distinctions among them to arise. While all three have empirically demonstrated the negative downstream consequences that can result from essentialism, entity theories, and dispositional attributions, the specific types of ill outcomes differ. Essentialism and implicit theory research has focused much more narrowly on stereotyping and prejudice outcomes, while the attribution literature has instead focused somewhat more broadly on errors and biases (and when attribution has been linked to stereotyping and prejudice, it has been as a consequence rather than a cause). Even so, some essentialism researchers do not study essentialism in terms of being a precursor to problematic outcomes, but instead as a normal and desirable step in cognitive development. This nuance is not seen in the other two domains.

The argument that essentialism, entity theories, and dispositional attributions arise from an underlying process that can be beneficial or adaptive for human beings does not and should not negate the problematic consequences that have been observed for each of these constructs. These negative consequences should indeed be studied and acknowledged—but they should not lead to universal condemnation of the constructs, nor should they be ignored in the name of



successful adaptation to a complex social world. Some years ago the social cognition literature concluded that categorization itself, while important and indeed necessary for prejudice to occur, was not in and of itself the cause of prejudice, and that to attempt to eliminate categorization in order to eliminate prejudice was at best futile and at worst at odds with basic human cognitive functioning (Park & Judd, 2005). It is possible that a similar conclusion could be drawn across the literatures at hand here—while belief in consistency can and does lead to negative outcomes through essentialism and entity theories, it is not in and of itself the sole cause of these outcomes, and a more nuanced perspective is necessary.

In addition, the specificity of analysis varies across these three domains. Implicit theory research treats the endorsement of these theories as underlying dispositions, seeking to categorize human beings into entity theorists or incremental theorists. Here the unit of analysis is the individual holding the implicit theory in question. On the other hand, essentialism research looks at essentialism in a continuous fashion—arguing that everyone essentializes social categories, but that they do so to varying degrees depending both on the category and the individual. Here the unit of analysis can be either the group that is the target of essentialist perceptions, or the individual holding the essentialist perceptions. Attribution research has tended to look even more broadly, seeking to investigate biases found generally across all individuals. Here the unit of analysis is the behavior common across all individuals (e.g., The Fundamental Attribution Error, Ross, 1977). However, some attribution research has also looked at individual differences in attributional styles, treating it continuously and acknowledging that individuals can vary meaningfully and have general tendencies in the types of attributions that they make. In a similar way, the three theories are also distinct in their beliefs about the domain specificity or generality of their targets. Implicit theory research argues that these theories are

entirely domain-specific—one could, for instance, hold an entity theory of intelligence but simultaneously hold an incremental theory of extraversion. Essentialism research makes a similar argument, but distinguishes itself by its continuous treatment of the construct at hand—all groups or categories are essentialized to some extent, but that extent varies depending on the group in question. Attribution research, in contrast, tends to argue for domain generality—the tendency to make dispositional rather than situational attributions itself should exist across specific traits and situations (although some researchers have argued for complexity in this regard; see Reeder & Brewer, 1979).

The three literatures reviewed here have tended to have little to say to one another through the years, causing them to grow seemingly more disparate as research in these areas has progressed and become more complex over time. Despite their surface-level differences, however, implicit theories, essentialism, and attribution share at their core an underlying essence—the Belief in Consistency. Splicing this underlying commonality into three distinct concepts may have created more complication than necessary. Allowing all of these phenomena to exist underneath the same umbrella would provide valuable parsimony and clarity to all three fields of study. By understanding and acknowledging the prominence of this underlying belief in our mental toolbox, a more nuanced understanding is possible that could lead to more effective interventions aimed at reducing the problematic outcomes that have been found in all three literatures. The underlying process that connects all three is so pervasive—and fundamental to our success and survival as human beings—that simply attempting to avoid it or eliminate it entirely would be neither possible nor beneficial. Cognitive neuroscientists and philosophers have argued in recent years that the human brain is a “prediction machine”, where processes such as perception and motor function are the result of the brain’s constant attempts to match sensory

input with top-down predictions (Clark, 2013; Clark, 2015). It may be the case that the belief in consistency, and consequently essentialism, entity theories, and attributions, are all the result of a more deliberate kind of application of this prediction machine to the social world. The solution to stereotyping is not to stop people from ever perceiving groups in an essentialist way, or having entitative implicit theories. To do so would require us to discard a powerful tool in our social cognitive toolbox—our belief that the world is a consistent place where we are able to use the information available to us in the present to make predictions about the future.

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### APPENDIX A: Study 2 Simple Models

This appendix presents results of simple versions of the models from Study 2, testing each predictor (Belief in Consistency, Need for Structure, and Teleological Beliefs) on its own, controlling for participant gender.

Outcome	Parameter	Unstandardized Beta Weight	Standard Error
Essentialism			
	Belief in a Consistent World	0.27***	0.07
	Need for Structure	0.15**	0.05
	Teleological Beliefs	0.24***	0.04

Table A1. Unstandardized Regression Coefficients Predicting Essentialism, Simple Models.

Note: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

Outcome	Parameter	Unstandardized Beta Weight	Standard Error
Entity Theories			
	Belief in a Consistent World	0.33***	0.08
	Need for Structure	0.10*	0.05
	Teleological Beliefs	0.09+	0.05

Table A2. Unstandardized Regression Coefficients Predicting Entity Theory Endorsement, Simple Models.

Note: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

Outcome	Parameter	Unstandardized Beta Weight	Standard Error
Attribution			
	Attribution Type	0.59***	0.1
	Behavior Type	-0.10***	0.02
	Belief in a Consistent World	0.003	0.05
	Attribution Type x Behavior Type	0.49***	0.02
	Attribution Type x BICWorld	-0.12**	0.03
	Behavior Type x BICWorld	-0.01	0.02
	Attribution Type x Behavior Type x BICWorld	0.01	0.02

Table A3. Unstandardized Regression Coefficients Predicting Attribution, Simple Model for BICWorld.

Note: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

Outcome	Parameter	Unstandardized Beta Weight	Standard Error
Attribution			
	Attribution Type	0.59***	0.02
	Behavior Type	-0.10***	0.02
	Need for Structure	0.10**	0.04
	Attribution Type x Behavior Type	0.49***	0.02
	Attribution Type x Need for Structure	0.03	0.02
	Behavior Type x Need for Structure	-0.005	0.02
	Attribution Type x Behavior Type x Need for Structure	0.01	0.02

Table A4. Unstandardized Regression Coefficients Predicting Attribution, Simple Model for Need for Structure.

Note: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

Outcome	Parameter	Unstandardized Beta Weight	Standard Error
Attribution			
	Attribution Type	0.59***	0.02
	Behavior Type	-0.10***	0.02
	Teleological Beliefs	0.13***	0.03
	Attribution Type x Behavior Type	0.49***	0.02
	Attribution Type x Teleological Beliefs	0.02	0.01
	Behavior Type x Teleological Beliefs	-0.02	0.01
	Attribution Type x Behavior Type x Teleological Beliefs	-0.0005	0.01

Table A5. Unstandardized Regression Coefficients Predicting Attribution, Simple Model for Teleological Beliefs.

Note: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

### APPENDIX B: Study 2 Full Attribution Model

This appendix presents the full results of all parameters from the primary attribution model in Study 2.

Outcome	Parameter	Unstandardized Beta Weight	Standard Error
Attribution			
	Gender	0.007	0.04
	Entitativity	0.09*	0.04
	Attribution Type	0.60***	0.02
	BICWorld	-0.06	0.05
	Need for Structure	0.06+	0.04
	Teleological Beliefs	0.13***	0.04
	Political Conservatism	-0.005	0.02
	Entitativity x Attribution Type	-0.21	0.15
	Entitativity x Behavior Type	0.04	0.04
	Attribution Type x Behavior Type	0.50***	0.09
	Entitativity x BICWorld	-0.06	0.04
	Entitativity x Need for Structure	-0.01	0.03
	Entitativity x Teleological Beliefs	0.002	0.02
	Entitativity x Political Conservatism	0.004	0.02
	Attribution Type x BICWorld	-0.13***	0.03
	Attribution Type x Need for Structure	0.01	0.02
	Attribution Type x Teleological Beliefs	0.01	0.01
	Attribution Type x Political Conservatism	0.03**	0.01
	Behavior Type x BICWorld	-0.002	0.02
	Behavior Type x Need for Structure	0.0007	0.02
	Behavior Type x Teleological Beliefs	-0.02	0.02
	Behavior Type x Political Conservatism	-0.008	0.01
	Entitativity x Attribution Type x Behavior Type	0.07	0.15
	Entitativity x Attribution Type x BICWorld	0.001	0.05
	Entitativity x Attribution Type x Need for Structure	-0.05+	0.03
	Entitativity x Attribution Type x Teleological Beliefs	0.0003	0.02
	Entitativity x Attribution Type x Political Conservatism	-0.007	0.02
	Entitativity x Behavior Type x BICWorld	-0.02	0.04
	Entitativity x Behavior Type x Need for Structure	0.003	0.03
	Entitativity x Behavior Type x Teleological Beliefs	0.02	0.02
	Entitativity x Behavior Type x Political Conservatism	-0.007	0.02
	Attribution Type x Behavior Type x BICWorld	0.01	0.03
	Attribution Type x Behavior Type x Need for Structure	0.01	0.02



Attribution Type x Behavior Type x Teleological Beliefs	0.02	0.02
Attribution Type x Behavior Type x Political Conservatism	-0.03**	0.01
Entitativity x Attribution Type x Behavior Type x BICWorld	-0.04	0.04
Entitativity x Attribution Type x Behavior Type x Need for Structure	0.009	0.03
Entitativity x Attribution Type x Behavior Type x Teleological Beliefs	0.05*	0.02
Entitativity x Attribution Type x Behavior Type x Political Conservatism	-0.02	0.02

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Table B1. Unstandardized Regression Coefficients Predicting Attribution Strength.

Note: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

### APPENDIX C: Study 2 Alternative Subscale Models

This appendix presents results of models from Study 2 substituting each of the other two Belief in Consistency subscales (Person and Group) for the World subscale.

Outcome	Parameter	Unstandardized Beta Weight	Standard Error
Essentialism			
	Gender	-0.01	0.06
	Entitativity	0.26	0.14
	BICPerson	0.04	0.06
	Need for Structure	0.10+	0.05
	Teleological Beliefs	0.18***	0.05
	Political Conservatism	0.06+	0.03
	Entitativity x BICPerson	-0.005	0.04
	Entitativity x Need for Structure	0.07*	0.03
	Entitativity x Teleological Beliefs	0.03	0.03
	Entitativity x Political Conservatism	-0.02	0.02

Table C1. Unstandardized Regression Coefficients Predicting Essentialism Using the Person Subscale of the Belief in Consistency Scale.

Note: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

Outcome	Parameter	Unstandardized Beta Weight	Standard Error
Essentialism			
	Gender	-0.03	0.05
	Entitativity	0.26+	0.14
	BICGroup	0.41***	0.06
	Need for Structure	0.10*	0.05
	Teleological Beliefs	0.13**	0.04
	Political Conservatism	0.05+	0.03
	Entitativity x BICGroup	-0.02	0.04
	Entitativity x Need for Structure	0.07*	0.03
	Entitativity x Teleological Beliefs	0.04	0.03
	Entitativity x Political Conservatism	-0.02	0.02

Table C2. Unstandardized Regression Coefficients Predicting Essentialism Using the Group Subscale of the Belief in Consistency Scale.

Note: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

Outcome	Parameter	Unstandardized Beta Weight	Standard Error
Entity Theories			
	Gender	-0.02	0.06
	Entitativity	0.19	0.37
	BICPerson	0.24***	0.07
	Need for Structure	0.10+	0.05
	Teleological Beliefs	0.01	0.05
	Political Conservatism	0.05	0.03
	Entitativity x BICPerson	0.02	0.07
	Entitativity x Need for Structure	0.03	0.05
	Entitativity x Teleological Beliefs	0.08+	0.05
	Entitativity x Political Conservatism	0.02	0.03

Table C3. Unstandardized Regression Coefficients Predicting Entity Theory Endorsement Using the Person Subscale of the Belief in Consistency Scale.

Note: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

Outcome	Parameter	Unstandardized Beta Weight	Standard Error
Entity Theories			
	Gender	-0.04	0.06
	Entitativity	0.19	0.38
	BICGroup	0.45***	0.07
	Need for Structure	0.10*	0.05
	Teleological Beliefs	-0.03	0.05
	Political Conservatism	0.03	0.3
	Entitativity x BICGroup	0.07	0.09
	Entitativity x Need for Structure	0.05	0.05
	Entitativity x Teleological Beliefs	0.07	0.5
	Entitativity x Political Conservatism	0.02	0.03

Table C4. Unstandardized Regression Coefficients Predicting Entity Theory Endorsement Using the Group Subscale of the Belief in Consistency Scale.

Note: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

Outcome	Parameter	Unstandardized Beta Weight	Standard Error
Attribution			
	Attribution Type	0.60***	0.02
	BICPerson	-0.09*	0.05
	Need for Structure	0.06+	0.04
	Teleological Beliefs	0.13***	0.04
	Political Conservatism	-0.008	0.02
	Attribution Type x Behavior Type	0.49***	0.02
	Attribution Type x BICPerson	0.04*	0.02
	Attribution Type x Behavior Type x BICPerson	0.07***	0.02
	Entitativity x Attribution Type x Behavior Type x BICPerson	0.01	0.03

Table C5. Unstandardized Regression Coefficients Predicting Attribution Strength Using the Person Subscale of the Belief in Consistency Scale.

Note: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$

Outcome	Parameter	Unstandardized Beta Weight	Standard Error
Attribution			
	Attribution Type	0.60***	0.02
	BICGroup	0.03	0.05
	Need for Structure	0.07+	0.04
	Teleological Beliefs	0.15**	0.04
	Political Conservatism	-0.006	0.02
	Attribution Type x Behavior Type	0.49***	0.02
	Attribution Type x BICGroup	-0.09***	0.02
	Attribution Type x Behavior Type x BICGroup	-0.05**	0.02
	Entitativity x Attribution Type x Behavior Type x BICGroup	0.002	0.03

Table C6. Unstandardized Regression Coefficients Predicting Attribution Strength Using the Group Subscale of the Belief in Consistency Scale.

Note: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , +.10  $> p > .05$