The Immoral Assumption Effect: Moralization Drives Negative Trait Attributions

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Abstract
Jumping to negative conclusions about other people’s traits is judged as morally bad by many people. Despite this, across six experiments (total N = 2,151), we find that multiple types of moral evaluations – even evaluations related to open-mindedness, tolerance, and compassion – play a causal role in these potentially pernicious trait assumptions. Our results also indicate that moralization affects negative – but not positive – trait assumptions, and that the effect of morality on negative assumptions cannot be explained merely by people’s general (nonmoral) preferences or other factors that distinguish moral and non-moral traits, such as controllability or desirability. Together, these results suggest that one of the more destructive human tendencies – making negative assumptions about others – can be caused by the better angels of our nature.

Keywords: moral judgment; trait attributions; values; ideology
The Immoral Assumption Effect: Moralization Drives Negative Trait Attributions

Moral concerns appear to undergird mindboggling personal sacrifice, fuel the ambition of some of the world’s most revered figures, and stimulate revolutionary social movements. But even moral concerns may have their dark side, and the primary purpose of the current paper is to explore one of their potentially harmful entailments. Specifically, we test the counterintuitive idea that people’s moral values and concerns—even concerns for tolerance, compassion, and open-mindedness—produce negative (but not positive) assumptions about other people’s traits. In doing so, we attempt to shed light on how the better angels of our nature could paradoxically lead to some of our most morally troubling tendencies.

The human propensity for making negative assumptions about people’s enduring characteristics based on limited information likely contributes to a host of real-world problems, including negative race relations (Sommers & Ellsworth, 2000), unjust court decisions (Bridges & Steen, 1998), and a lack of support for policies designed to alleviate poverty and disease (Appelbaum, 2001). It is no wonder, then, that social scientists have devoted so much effort to understanding the causes of premature negative trait attributions. From research on stereotyping and prejudice to the fundamental attribution error and the actor-observer effect, attempts to uncover the correlates and causes of these negative trait assumptions pervade numerous areas of modern psychology (Bassili, & Smith, 1986; Dovidio, Brigham, Johnson, & Gaertner, 1996; Lieberman, 2007; Reeder, & Brewer, 1979; Skowronsksi, & Carlston, 1989).

Considering that much of the research on trait and attitude attribution naturally pertains to morally relevant content, and how often researchers use morally relevant material to test

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Here by trait assumptions we mean attributions or inferences about whether or not a person possesses a certain trait (e.g., Uleman, 1999). We primarily use the word “assumption” in order to convey the fact that here we are specifically investigating people’s propensity to make trait attributions based on limited information.
hypotheses related to trait attributions, it seems surprising that the effect of moral beliefs on negative trait assumptions has largely gone uninvestigated. For example, behaviors associated with both of the general dimensions of stereotype content – warmth and competence (Fiske, Cuddy, Gick, & Xu, 2002) – are perceived to be morally relevant (e.g., kindness and the protestant work ethic; Smith, Smith, & Christopher, 2007; Walker & Pitts, 1998). Still, the extent to which stereotype formation is influenced (or potentially attenuated) by moral beliefs about behaviors (i.e., how moral and/or how morally relevant a behavior is perceived to be) remains an open question. And though not all traits are morally relevant, those assessed in the behavior and attitude attribution literature often are. Even the earliest classic paradigm designed to assess the correspondence bias – in which participants in America judged actors’ true attitudes towards the anti-American Fidel Castro (Jones & Harris, 1967) – likely activated most participants’ moral concerns about loyalty, patriotism, and fairness. Might the validity of foundational trait attribution principles depend on people’s moral beliefs about the context in which trait attribution occurs?

Here we lay the groundwork to address this question by testing whether there exists an “immoral assumption effect,” whereby the moralization of actions (i.e., the degree to which something is considered morally relevant or morally acceptable) actively changes the perceived negative – but not positive – trait implications of those actions.

**Trait Assumptions and Moral Judgment**

Research indicates that negative warmth-related traits (cold, cruel) require fewer instances to be confirmed than negative competence-related traits (unintelligent, incompetent) (Tausch, Kenworthy, & Hewstone, 2007). Conversely, people are *slower* to make positive

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2 Their third study was not related to attributions of attitudes toward Fidel Castro, but was on attitudes related to another highly morally relevant topic – segregation.
warmth assumptions than competence assumptions, likely because when it comes to deciding whether someone is warm, false negatives are adaptive, but false positives could be deadly (Tausch, Kenworth, & Hewstone, 2007). One aim of the current project is to go beyond the existing evidence that warmth-content is paramount in negative (but not positive) trait attribution and posit that (a) moralization (i.e., how moral and/or how morally relevant a behavior is perceived to be) trumps even warmth content in the formation of negative (but not positive) trait attributions and (b) moralization has a causal influence on negative trait attributions. While previous research has demonstrated that negative moral behaviors are considered more diagnostic than positive moral behaviors (Skowronski & Carlston, 1987; Reeder & Spores, 1983), research has not indicated that moralization is related to – let alone directly influences – trait assumptions.

There are a number of reasons to expect that moral judgments play an important causal role in the formation of negative trait attributions. First, moral judgments of behaviors and people are intimately related to the perceived intentions of actors (Knobe, 2003; Willis & Todorov, 2006). Perhaps most importantly, behaviors that are considered unintentional are less likely to be considered morally relevant (Cushman, 2008). Given the primacy of intention and threat-related information in person perception, the strong relationship between perceived intentions and perceived moral relevance suggests that moral judgments should weigh heavily on trait attributions.

Though the issue of how moralization influences trait assumptions has not been investigated, research on related topics demonstrates that such an effect might exist. For

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3 Researchers have sometimes reported that “moral” content takes precedence over competence information in certain stages of person perception, which could support the immoral assumption effect. However, in this context the term “moral” has traditionally been used as a synonym of “warmth” (e.g., Brycz & Wojciszke, 1992; Trafninow & Trafninow, 1999; Reeder & Covert, 1986). Only very recently have two distinct types of warmth traits been distinguished – those related to sociability (e.g., likeability) and those related to morality (e.g., honesty) (Brambilla, Rasconi, Sacchi, & Cherubini, 2011; Brambilla, Sacchi, Pagliaro, & Ellemers, 2013; Goodwin, 2015; Goodwin, Piazza, & Rozin,
instance, people appear to consider morality more stable and consistent than both warmth and competence (Goodwin, Piazza, & Rozin, 2014; Skowronski & Carlston, 1987). These findings may suggest that the more moral relevance one ascribes to a behavior, the more information they believe the behavior provides about how the actor usually behaves. Furthermore, moral content plays a more important role than warmth content in certain aspects of impression formation. For instance, people’s judgments of moral character seem to be especially predictive of their general impressions of both individuals and groups (Brambilla, Rusconi, Sacchi, & Cherubini, 2011; Brambilla, Sacchi, Rusconi, Cherubini, & Yzerbyt, 2012; Goodwin, Piazza, & Rozin, 2014). However, whether an immoral assumption effect exists – that is, whether moralization actively alters people’s perceptions about other’s specific traits – is a separate, uninvestigated, and – we believe – important question.

That said, there are numerous reasons to question whether moralization is in fact a primary driver of negative trait assumptions. For instance, previous research suggests that people’s personal beliefs and attitudes have at best a weak influence on the strength of trait attributions (Jones, Worchel, Goethals, & Grumet, 1971; Snyder & Jones, 1974; c.f., Alicke, Zerbst, & LoSchiavo, 1996); perhaps moral beliefs and attitudes are no exception. Also, the causal direction of the relationship between trait content and negative attribution strength has not been previously tested, but on the few occasions when researchers have addressed the relationship between moral judgment and trait attribution, they seem to have assumed that trait attributions influence moral judgments rather than the reverse (McGraw, 1985). Perhaps moral judgments are in fact only influenced by attributions, or a third variable influences both.

2014; Leach, Ellemers, & Barreto, 2007). Thus, though some research may appear to suggest that “moral” content is more strongly related to trait inferences than non-moral content, this research provides evidence for a distinction between the relationships between competence and warmth content and trait assumptions, rather than between competence and ethically-relevant content. Thus this work does not indicate that ethical content (the focus of the current paper) takes precedence over other content in trait attribution, let alone that moral content has a causal influence on trait attribution.
judgments and attributions. Contrary to these possibilities, we suspect that moral beliefs are not only related to the formation of negative trait assumptions, but that they play an active causal role in their formation.

Moral Diversity

One way to test the influence of moral beliefs on trait perception is by leveraging socio-demographic differences in people’s moral concerns. If moral beliefs drive negative trait assumptions, group differences in moral concerns should predict group differences in negative trait assumptions. Currently, the strongest and most consistent socio-demographic differences in moral concerns uncovered by research done on Moral Foundations Theory (MFT; Graham et al., 2013; Graham, Haidt, & Nosek, 2009) are between political liberals and conservatives. For instance, compared to conservatives, liberals tend to place slightly more emphasis on care and fairness concerns, whereas conservatives tend to place more emphasis than liberals on loyalty, authority, and purity concerns. If an immoral assumption effect does exist, liberals should make negative trait assumptions more readily for traits that they hold stronger moral beliefs about than conservatives (primarily traits related to care and fairness) and conservatives should make negative trait assumptions more readily for traits for which they hold stronger moral beliefs (primarily traits related to loyalty, authority, and purity).

Overview of Studies

In this paper, we test for the immoral assumption effect in six experiments. Experiment 1 tests whether people make stronger negative trait assumptions for traits that they strongly moralize than for traits they consider highly warmth-relevant but do not strongly moralize. Experiment 1 is also designed to provide a first test of whether people’s moral judgments of traits have a causal impact on the formation of negative trait assumptions. Experiment 2 tests
whether moralization increases the strength of morally bad trait assumptions, but not morally good trait assumptions. Experiments 3 and 4 test one of the implications of this immoral assumption effect – that is, given the ideological differences in moral emphasis outlined above, conservatives should make stronger trait attributions for behaviors they moralize more than liberals, but the opposite should be true for behaviors liberals moralize more than conservatives. Finally, in Experiments 5 and 6 we test whether people’s moral judgments of traits directly impact the strength of their negative trait assumptions, and we also attempt to rule out competing explanations for the immoral assumption effect.

**Experiment 1 – Morality vs. Warmth**

Previous research suggests that people make stronger negative trait assumptions when target behaviors are warmth-related rather than competence-related (Tausch, Kenworthy, & Hewstone, 2007). One purpose of Experiment 1 was to test whether negative trait assumptions are even stronger for moralized behaviors than for warmth-related nonmoralized behaviors. Another purpose of Experiment 1 was to begin to test the causal relationship between moralization and the strength of negative trait assumptions. We predicted that moral content would be more strongly related to negative trait assumptions than warmth content, and that moral content would increase the strength of negative trait assumptions.

**Method**

**Participants.** Two hundred fifteen participants (62% male, mean age 35.06) were recruited via Amazon’s Mechanical Turk (AMT). Each participant received $0.50. For all experiments, we report how we determined our sample size, all data exclusions, all manipulations, and all measures used in the experiment. Our sample size in this and all other
experiments was determined by conducting power analyses based on the results of past research\(^4\) on this topic and/or small pilot tests. For instance, sample size for Experiment 1 was determined by a similar pilot study, and sample size for Experiment 2 was determined by the effect sizes in Experiment 1 and its pilot study. Our sample sizes typically far eclipsed that which we calculated to be necessary for acceptable power (80%), but cutoff points were always determined prior to analyzing data.

**Procedure.** Participants were randomly assigned to a morality or warmth condition and completed two questionnaires (one likelihood questionnaire and one frequency questionnaire) designed to assess the strength of negative trait assumptions in two different ways (for materials for all studies, see online supplement: https://osf.io/enc6p/?view_only=f1ffcee95bc44d92bae93c219b925b9e). In the morality condition, the two questionnaires included questions about the eight types of behaviors that Goodwin et al. (2014) found that people consider very morally relevant (fair, courageous, principled, responsible, just, trustworthy, and loyal). In the warmth condition, the questions involved seven types of behaviors that Goodwin et al. (2014) found that people consider very warmth-relevant but relatively morally-irrelevant (sociable, happy, agreeable, enthusiastic, easy-going, playful, and funny). These trait questions were designed to test whether negative trait assumptions were stronger for moral traits than for similar warmth traits that were relatively morally irrelevant.

In the likelihood questionnaire (morality $\alpha = .94$; warmth $\alpha = .89$), participants were asked how likely they thought it would be for a stranger who behaved in a certain way to possess a corresponding trait (“Imagine you witness a stranger act unfairly. How likely is it that they are

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\(^4\) Prior to conducting any studies, rough estimates of expected effect sizes were created by taking into account effect sizes in research in which a) the influence of moral content on person perception is compared to the influence of non-moral content (Goodwin, Piazza, & Rozin, 2014) and b) the difference in the relationships between different types of trait content (warmth and competence content) and trait inferences was documented (Tausch, Kenworthy, & Hewstone, 2007).
an unfair *person*”). In the frequency questionnaire (morality $\alpha = .89$; warmth $\alpha = .91$), participants were asked how frequently they thought people could behave in a certain way and still possess the converse trait (e.g., “How many times could a person act unfairly and still be a fair *person*?”). In this latter type of question, we asked about positive traits rather than negative traits so that the effect of negative behavior on trait attributions could be assessed in a different way than in the previously described questionnaire. The order in which questionnaires and all items within questionnaires were presented to participants was randomized.

To begin testing whether moral content directly influences the strength of negative trait assumptions, we asked participants to assess the trait implications of acting explicitly morally versus immorally, or warm versus cold. In the moral condition, the following questions were included: “Imagine you witness a stranger act immorally. How likely is it that they are an immoral *person*?” (Likelihood questionnaire; 0 = Very Unlikely, 8 = Very Likely) and “How many times could a person act immorally and still be a moral *person*?” (Frequency questionnaire; 0 = Never, 8 = Very often). In the warmth condition, the following questions were included: “Imagine you witness a stranger act coldly in a social situation. How likely is it that they are a socially cold *person*?” (Likelihood questionnaire) and “How many times could a person act coldly in a social situation and still be a socially warm *person*?” (Frequency questionnaire).

After completing the two questionnaires, participants answered two demographic questions (gender and age) and one attention check question (participants were asked to report where they currently lived, and were told to choose a “Mars” option if they were paying attention).
Results and Discussion

Because AMT participants have a monetary incentive to complete studies numerous times, in this and all subsequent AMT experiments, if an IP address was recorded more than once, only the first set of data associated with that IP address was included in analyses. In Experiment 1, four cases were deleted for this reason. Additionally, 60 cases were deleted because participants failed the attention question. Including all participants in analyses did not change the pattern of results.

As predicted, participants considered someone more likely to possess an immoral trait (e.g., unfair) after performing a morally bad behavior (e.g., acting unfairly; $M = 5.20$, $SD = 1.34$) compared to how likely they were to possess a socially cold trait (e.g., unsocial) after performing a socially cold behavior (e.g., acting unsocial; $M = 4.31$, $SD = 1.31$), $t(139) = 4.01$, $d = .68$, CI$_{95}[.45, 1.34]$, $p < .001$ (Figure 1). With only one exception, likelihood scores were higher for every moral trait than for every warmth trait (Cowardly $M = 4.75$; Unsocial $M = 4.77$).

Participants also reported that a person could more frequently behave in socially cold ways (e.g., act unsociably) and still possess warmth traits (e.g., socially warm; $M = 4.43$, $SD = 1.47$) compared to how frequently they could act in morally bad ways (e.g., act unfairly) and still possess moral traits (e.g., fair; $M = 2.76$, $SD = 1.39$), $t(140) = 6.93$, $d = 1.17$, CI$_{95}[1.19, 2.14]$, $p < .001$ (Figure 1). Frequency scores were higher for every warmth trait than for every moral trait.

Also as expected, participants thought someone was more likely to be an immoral person after acting immorally ($M = 5.41$, $SD = 1.56$) compared to how likely they were to be a cold person after acting coldly ($M = 4.69$, $SD = 1.68$), $t(140) = 2.61$, $d = .44$, CI$_{95}[.17, 1.26]$, $p = .009$. Participants also reported that people could more frequently act coldly and still be a warm person
(M = 4.37, SD = 2.13) than they could act immorally and be a moral person (M = 2.85, SD =
1.95), t(140) = 3.25, d = .55, CI_{95} [.42, 1.72], p = .001. Together, these results provide initial
evidence that moral content is more strongly related to negative trait assumptions than warmth
content. These results also indicate that the moral content of traits directly causes people to make
stronger negative trait assumptions; when the perceived moral content of traits is manipulated in
perhaps the most straightforward manner possible (by describing behaviors as “moral” or
“immoral” versus “socially warm” or “socially cold”), the strength of negative trait assumptions
is altered in turn.

**Experiment 2 – Negative vs. Positive**

The purpose of Experiment 2 was to test our hypothesis that – rather than there existing a
general moral assumption effect whereby moral concerns influence negative and positive moral
assumptions – morality produces stronger negative, but not stronger positive, assumptions. This
hypothesis is based on the results of past trait content research indicating that positive (compared
to negative) warmth attributions are relatively slow to arise, as well as the logic that when it
comes to deciding whether someone is warm or moral, false negatives are adaptive, but false
positives could be deadly (Tausch, Kenworth, & Hewstone, 2007).

**Method**

**Participants.** One hundred six participants (54% male, mean age 35.60) were recruited
via AMT. Each participant received $0.25.

**Procedure.** Experiment 2 entailed a 2 (moral vs. warmth content) x 2 (negative vs.
positive assumptions) design. Each participant completed a set of questions that followed the
“likelihood” format used in Experiment 1 (items modeled after the “frequency” items in
Experiment 1 were not included in Experiment 2). Participants in the moral/negative condition (n
were asked the same questions as participants in the moral content condition in Experiment 1 (α = .81) (e.g., “Imagine you witness a stranger act unfairly. How likely is it that they are an unfair person?”), and participants in the warmth/negative condition (n = 24) were asked the same questions as participants in the warmth content condition in Experiment 1 (α = .95). Participants in the moral/positive (n = 29) and warmth/positive conditions (n = 25) were shown the inverse of these questions (e.g., “Imagine you witness a stranger act fairly. How likely is it that they are a fair person?; moral α = .78; warmth α = .83). Participants answered on a scale from 0 (Not very likely) to 8 (Extremely Likely). All participants then reported their age and gender.

Results and Discussion

Three cases were deleted due to repeat IP addresses. Including all 106 participants in the analyses did not change the pattern of results. There was a main effect of valence on assumption strength; positive assumptions were stronger than negative assumptions, $t(101) = 4.84, d = .96, p < .001$. There was also a marginally significant main effect of warmth vs. moral content on assumption strength; assumptions were stronger for moral content than warmth content, $t(101) = 1.88, d = .37, p = .063$. The interaction was significant, $F(1, 102) = 4.02, p = .048$, and an investigation of simple effects revealed that, as expected, participants thought a person was more likely to possess an immoral trait (e.g., unfair) after performing a morally bad behavior (e.g., acting unfairly; Overall negative morality scale: $M = 5.22, SD = 1.61$) compared to how likely they were to possess a socially cold trait (e.g., unsociable) after performing a socially cold behavior (e.g., acting unsocial; Overall negative warmth scale: $M = 4.30, SD = 1.09$), $t(49) = 2.36, d = .66, CI_{95} [.37, 1.46], p = .022$ (Figure 2). Likelihood scores for all immoral traits were higher than for any warmth traits with one exception (scores on the “unsocial” item). Also as expected, people in the moral/positive condition did not make stronger positive assumptions than
people in the warmth/positive condition, \( t(50) = .03, p = .98 \). These results indicate that moral content leads to negative – but not positive – trait assumptions. In other words, moral content – relative to warmth content – leads to stronger negative assumptions, but this is not the case for positive assumptions.

**Experiment 3 - Testing the Immoral Assumption Effect by Manipulating Moral Evaluations**

Together, the results of Experiments 1 and 2 provided evidence for an “immoral assumption effect” whereby moral evaluations influence negative (but not positive) trait assumptions. This effect appears to go beyond the effect of perceived warmth content, which was previously shown to have a powerful influence on negative trait assumptions (Tausch, Kenworthy, & Hewstone, 2007). Experiments 3-6 were intended to replicate and extend the immoral assumption effect revealed in Studies 1 and 2 by manipulating perceived morality rather than by comparing assumptions related to different types of traits. This was done to attempt to rule out alternative explanations for the effect of moral content on assumption strength, such as the relatively high perceived frequency of morally-relevant behaviors. In Study 3, we attempted this by leveraging group differences in moral beliefs. Specifically, we tested whether the strength of liberals’ versus conservatives’ trait assumptions changed as a function of the degree to which they moralized different behaviors.

Some existing research suggests such an effect may exist (e.g., Morgan, Mullen, & Skitka, 2010). For instance, research on the “ideo-attribution effect” shows that liberals are more likely than conservatives to make situational attributions for many behaviors, but the reverse is true when conservatives’ values motivate them to make more situational attributions (e.g., when a negative behavior is performed by valued authority figures; Morgan, Mullen, & Skitka, 2010).
However, for at least two reasons, this research does not yet suffice as support for the existence of an immoral assumption effect. First, though research shows that differences in liberals’ and conservatives’ values are related to political differences in trait attribution (Morgan et al., 2010), it is unclear whether the moral weight of these values mediates these differences in behavior attribution. To more directly test the immoral assumption effect, we examine whether specifically moral evaluations mediate ideological attribution effects.

Second, existing research suggests that relationships between political ideology and trait attribution emerge on account of contextual factors that bias people’s attributions (e.g., the identity of the actors; Morgan et al., 2010; Skitka & Washburn, 2015), but the immoral assumption effect suggests that when these differences are driven by moral evaluations, they should emerge even when only decontextualized descriptions of behaviors are provided (e.g., when the identity of the actors is not revealed). In other words, according to the immoral assumption hypothesis, ideological differences in trait attribution should emerge for morally relevant behaviors simply when there exist cross-ideological differences in the perceived morality of a behavior, even in the absence of contextual factors that would motivate situational attributions.

In Experiment 3, in order to test for the immoral assumption effect, we go beyond this previous work in two ways: we test whether in the case of morally relevant behaviors such effects emerge a) specifically due to people’s moral evaluations and b) void of contextual factors that might stimulate motivated reasoning.

**Method**

**Participants.** Participants were 1206 visitors (53% male, mean age 36.78) to YourMorals.org.
**Procedure.** Each participant completed two questionnaires designed to assess the strength of moral trait assumptions. Moralization of these questionnaires was manipulated in that one questionnaire (10 items) was designed to assess assumptions related to issues, traits and behaviors that liberals moralize more than conservatives (e.g. sympathy, tolerance, open-mindedness) ($\alpha = .88$), and another questionnaire (16 items) was designed to assess assumptions related to issues, traits and behaviors that conservatives moralize more than liberals (e.g., sexual purity, loyalty, obedience) ($\alpha = .80$). The former set of items was intended to correspond with Moral Foundations Theory’s Care and Fairness foundations (which liberals tend to moralize more than conservatives; Graham, Haidt, & Nosek, 2009); the latter set of items was intended to correspond with Moral Foundations Theory’s remaining foundations – Loyalty, Authority, and Purity foundations (which conservatives tend to moralize more than liberals; Graham, Haidt, & Nosek, 2009). The order in which participants completed these two questionnaires was randomized.

The structure of the items in both questionnaires was modeled after the frequency questionnaires used in Experiment 1. For instance, a “sympathetic” item asked, “In order for you to consider someone a sympathetic person, at least what percentage of the time must they be sympathetic when they have the opportunity to be sympathetic or not sympathetic?” Answer options ranged from “Less than 50% of the time” to “About 96-100%” in increments of 5%. Thus, higher scores indicated stronger negative trait assumptions, because the higher people’s responses, the more they assumed actors did not possess positive traits when they did not act in a positive way.

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5 The moral behaviors and corresponding traits used in these items were selected from a pretest in which people’s attitudes about a long list of moral behaviors were assessed.

6 After conducting the study, we noticed that two of the 11 answer options contained typos – 56-60% read 56-90% and 51-55% read 51-85%. When these responses were deleted, the results did not change.
Participants also completed the Moral Foundations Questionnaire (MFQ; Graham et al., 2011), which was used to measure the degree to which participants moralized the relatively “liberal” moral concerns Care and Fairness and the relatively “conservative” moral concerns of Loyalty, Authority, and Purity. From here on, we refer to these two groups of moral concerns as “liberal” and “conservative” moral concerns because previous research indicates that liberals consistently endorse the former more than conservatives, and conservatives consistently endorse the latter more than liberals (Graham, Haidt, & Nosek, 2009; Graham et al., 2011; Graham et al., 2012). Additionally, participants completed a single item measure of political ideology. The first seven response options for this question ranged from “Very Liberal” to “Very Conservative” (including a middle option of “Moderate/Middle-of-the-road”), with additional options of “Don’t know/Not political,” “Libertarian,” and “Other.”

Results and Discussion

In this experiment, zero cases were deleted due to the use of repeat IP addresses. The MFQ includes two attention check questions. Two hundred twenty five MFQ responses (19.9%) were excluded using previously determined exclusion criteria (Graham, Haidt, & Nosek, 2009); results did not differ if all cases were included. Average scores on the two questionnaires were not influenced by the order in which they were completed (liberal morality questionnaire: $M = 8.12, SD = 1.36$; conservative morality questionnaire: $M = 7.36, SD = 1.36$), and so all scores were included in subsequent analyses.

In the current experiment, there would be support for an immoral assumption effect if “liberal” moral concerns on the MFQ (i.e., scores on a composite of the MFQ’s Care and Fairness subscales; $\alpha = .80$) were positively related to scores on the “liberal morality”

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7 Participants were asked about how relevant they considered “Whether or not someone was good at math” when deciding that something is right or wrong and they also reported how strongly they agreed with the statement “It is better to do good than to do bad.” Following previous guidelines, cases were not included in analyses if participants selected an option above “slightly relevant” for the former item or below “slightly agree” for the latter item.
assumption questionnaire (and vice versa for “conservative” moral concerns – i.e., if scores on
the “conservative morality” assumption questionnaire were related to a composite of the MFQ’s
Loyalty, Authority, and Purity subscales; α = .89). Such a positive relationship would indicate
that it takes more incidences of positive behavior for people to make positive trait assumptions
when the content of the behaviors and traits is moralized. Put another way, this pattern would
indicate that it takes fewer instances of negative behavior for trait attribution to be affected when
the trait is moralized. As expected, scores on the “liberal morality” assumption questionnaire
positively related to perceived morality of “liberal” moral concerns (i.e., a composite of MFQ
Care and Fairness scores), \(b(878) = .55, d = .46, CI_{95} [.39, .70], p < .001\), but not “conservative”
concerns (i.e., a composite of MFQ Loyalty, Authority, and Purity scores), \(b(878) = .04, p = .53\),
and scores on the “conservative morality” assumption questionnaire positively related to
perceived morality of “conservative” moral concerns, \(b(880) = .37, d = .47, CI_{95} [.26, .47], p <
.001\), but not “liberal” moral concerns, \(b(880) = -.06, p = .36\). A repeated measures mixed-effects
model revealed that this interaction was significant, \(F(1, 1537) = 34.43, p < .001\).

Also as expected, conservatives scored higher than liberals on the “conservative
morality” assumption questionnaire, \(r(926) = .15, d = .30, CI_{95} [.08, .22], p < .001\) and liberals
scored higher than conservatives on the “liberal morality” assumption questionnaire, \(r(928) =
.15, d = .30, CI_{95} [.08, .22], p < .001\).

Also as expected, a mediational analysis following the recommendations of Preacher and
Hayes (2008) revealed that the relationship between political ideology and “conservative
morality” assumption scores was mediated by “conservative” MFQ scores (CI_{95}:[.07, .18]), but
not by “liberal” MFQ scores (CI_{95}:[-.05, .03]). The relationship between political ideology and
“liberal morality” assumption scores was mediated by “liberal” MFQ scores (CI_{95}:[-.16, -.06]), but not by “conservative” MFQ scores (CI_{95}:[-.004, .13]).

Together, these results again suggest that moralization drives negative trait assumptions. Not only is there a positive relationship between perceived morality and negative trait assumptions, but when perceived morality is experimentally manipulated, the strength of negative trait assumptions is altered in turn.

These results also suggest that when a behavior is moralized, reversals of the ideo-attribution effect can occur even when conservatives are not motivated by contextual variables to make situational attributions. When conservatives are simply provided with behavior words (e.g., sympathetic) they moralize more than liberals, they are more likely than liberals to make situational attributions (and vice versa for liberals).

**Experiment 4 – Testing the Immoral Assumption Effect Using Real-World Events**

To further test the generalizability of the immoral assumption effect, in Experiment 4 we tested whether another component of moral beliefs – perceived moral acceptability – influences trait assumptions. Experiment 4 also used judgments of real-world behavior to test the ecological validity of the immoral assumption effect. In addition, Experiment 4 was intended to address a possible limitation of Experiment 3. In Experiment 3, we assumed that having strict criteria for the possession of a positive trait was equivalent to making strong negative trait assumptions. It is possible that judging that a person lacks a positive trait is not the same as judging that they possess a negative trait, and so in Experiment 4, negative trait assumptions were measured more directly.
Method

Participants. Two hundred five participants (41% male, mean age 34.53) were recruited via AMT. Each participant received $0.50.

Procedure. As in Experiment 3, moralization was manipulated across two questionnaires, and the order in which participants completed the two questionnaires was randomized. These questionnaires were designed to assess the strength of negative trait assumptions related to two different types of behaviors – one more likely to be related to the moral concerns of liberals, and one more likely to be related to the moral concerns of conservatives.

In the “liberal morality” trait assumption questionnaire, participants first read a clip from a real news story describing a man who was arrested for shouting homophobic slurs at a homosexual man. In the “conservative morality” trait assumption questionnaire, participants first read a clip from a real news story about a number of young American men who were arrested for burning an American flag hanging from their neighbor’s house. These clips were chosen because it was expected that liberals would consider the homophobic behavior to be more morally wrong than conservatives, and conservatives would consider burning an American flag to be more morally wrong than liberals.

In both questionnaires, participants completed two items designed to test how well participants had retained the information contained in the news clips. Participants were first asked what the suspect(s) were arrested for and were given a list of six answer options to choose from. Participants were then shown a list of five actions and were asked to choose the action that was described in the article.
Regardless of how participants answered these comprehension questions, they then completed three items designed to test the degree to which participants made negative *trait* assumptions about the suspects described in the clips. In the “liberal morality” assumption questionnaire, participants were asked (a) “How likely is it that the arrested man is a homophobic person?”; (b) “How likely is it that the arrested man was just having a bad day or was in a bad mood for some reason and doesn’t usually act rudely towards gay people?” (reverse scored); and (c) “How likely is it that the arrested man hates gay people?” In the “conservative morality” assumption questionnaire, participants were asked (a) “How likely is it that the arrested men are generally unloyal people (i.e., people who often do unloyal things)?”; (b) “How likely is it that the arrested men burned the flag because they are young and were just trying to do something fun and/or rebellious – not because they are unpatriotic people?” (reverse scored); and (c) "How likely is it that the arrested men hate America?” In both questionnaires, these three items were presented in random order.

After these items, both questionnaires included a single item designed to assess how morally unacceptable or acceptable participants considered the behavior described in the questionnaire, from -4 (Extremely Morally Unacceptable) to 4 (Extremely Morally Acceptable). Importantly, the midpoint on this scale was labeled “Neither Morally Unacceptable nor Acceptable.” We intended this midpoint to be the psychological equivalent of “morally neutral,” and thus when analyzing perceived morality, these responses were coded with a “0.”

Finally, participants reported their political ideology, gender, and age. Political ideology was assessed using the same measure described in Experiment 3.
Results and Discussion

One case was deleted due to a repeat IP address. Additionally, on the “conservative morality” (flag burning) questionnaire, data from 13 people were deleted because participants answered at least one comprehension question incorrectly, and on the “liberal morality” (homophobic) questionnaire, data from three people were deleted for the same reason. The order in which participants completed the questionnaires did not significantly affect scores on either the “liberal morality” questionnaire ($M = 3.12, SD = 1.20$) or the “conservative morality” questionnaire ($M = 2.36, SD = 1.55$). Therefore, all scores were collapsed and included in the analyses that follow.

As a manipulation check, we first tested and found that conservatives considered the flag-burning behavior described in the “conservative morality” questionnaire worse than liberals, $r(167) = .191, d = .39, CI_{95} [.04, .33], p = .006$, and liberals considered the anti-gay behavior described in the “liberal morality” questionnaire worse than conservatives, $r(174) = -.323, d = .68, CI_{95} [.18, .45], p < .001$.

Next, we tested for the immoral assumption effect by assessing whether moral evaluations predicted trait assumption scores. This was the case for both the “conservative morality” questionnaire, $b(190) = .199, d = .42, CI_{95} [.06, .34], p = .004$, and the “liberal morality” questionnaire, $b(199) = .307, d = .84, CI_{95} [.20, .41], p < .001$. A repeated measures mixed-effects model revealed that the type of questionnaire (i.e., liberal vs. conservative morality questionnaire) moderated the relationship between moral evaluations and trait assumptions, $F(1, 330) = 28.67, p < .001$.

We continued to test for the immoral assumption effect by testing whether manipulating perceived morality altered the relationship between political ideology and negative trait
assumptions. As expected, conservatives made stronger negative trait assumptions in the “conservative morality” questionnaire, $r(167) = .274, d = .57, CI_{95} [.13, .41], p < .001$, and liberals made stronger negative trait assumptions in the “liberal morality” questionnaire, $r(174) = -.282, d = .59, CI_{95} [.14, .41], p < .001$.

Also, as expected, perceived morality mediated the relationship between political ideology and negative trait assumptions on the “liberal morality” questionnaire ($CI_{95} [-.11, -.03]$) as well as on the “conservative morality” questionnaire ($CI_{95} [.004, .08]$). Together, these results again suggest that perceived morality drives negative trait attributions. Manipulating perceived morality so that conservatives are presented with behaviors they moralize more than liberals causes conservatives to make stronger negative trait assumptions than liberals, but when liberals moralize behaviors more than do conservatives, liberals make stronger negative trait assumptions than conservatives. This is even the case when the moralized behavior is associated with values that might be expected to buffer people from being judgmental or making assumptions about people (here specifically, tolerance).

**Experiment 5 – Manipulating Moralization**

In Experiment 5, we continued to investigate the causal role of moralization on negative trait assumptions, this time by experimentally altering the perceived morality of the *same* behavior for each participant.

As a strict test of our hypothesis that moralization of a behavior drives the strength of negative trait assumptions, we instructed participants to make trait attributions pertaining to the same action they themselves were performing – forming a trait attribution – after manipulating the perceived immorality of forming trait attributions (i.e., open-mindedness). We expected that, somewhat paradoxically, even when people are encouraged to believe that it is morally bad to
form negative trait attributions, they themselves will make stronger negative trait attributions about a person described to be forming negative trait attributions.

**Method**

**Participants.** Two hundred fifteen participants (62% male, mean age 30.08) were recruited via AMT. Each participant received $0.50.

**Procedure.** All participants first read a description of the act of making trait attributions. Participants were randomly assigned to a high immoral or low immoral condition. We attempted to alter the perceived immorality of the same action – making trait attributions – using euphemistic and dysphemistic language. Research suggests that euphemistic and dysphemistic labeling is a powerful means of manipulating moralization (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996).

The exact wording was as follows [high immoral vs. low immoral wording in brackets]:

**Making [Assumptions/Educated Guesses]**

In the social sciences, when someone makes a "trait-related [assumption/educated guess]" they are making a judgment about another person's personality traits based on a behavior they witnessed. For instance, if a person witnessed a stranger do something foolish, a person might [assume/make an educated guess] that this person is a foolish person in general.

In what follows, we want to know what you think about trait-related [assumptions/educated guesses]. Please note that we expect some of the questions will seem odd. Just answer them to the best of your ability.

Thus the same action was described in both conditions – it was simply labeled differently.

Participants then completed one item designed to assess the degree to which they considered the described act to be wrong (i.e., perceived immorality) (0 = Not wrong at all, 7 = Very wrong), three filler questions (how fluffy, funny, and exotic they considered the described act to be), and a one-item trait attribution assessment, in which they were asked to imagine witnessing a stranger make a trait attribution and were asked to decide how likely it is that this
stranger tends to make trait attributions (0 = Not Likely, 8 = Very Likely). Finally, participants reported their gender and age and completed the attention check question used in Experiment 1.

We expected that 1) participants in the high immoral (assumer) condition would consider making trait attributions to be more wrong than participants in the low immoral (educated guesser) condition, and that 2) as a result they would make relatively strong negative trait assumptions. Given that the description of the behavior was exactly the same in both conditions, these results would suggest that the strength of negative trait assumptions is in fact directly affected by people’s moral judgments.

Results and Discussion

All but five participants completed both the perceived immorality item and the trait attribution assessment. Ten cases were deleted due repeated IP addresses. Additionally, data from 20 participants were deleted because they failed the attention question. Including all participants in the analyses described below did not change the pattern of results.

As expected, the act of making trait attributions was considered more wrong in the high immoral (assumer) condition ($M = 3.93, SD = 1.89$) than in the low immoral (educated guesser) condition ($M = 2.53, SD = 1.76$), $t(182) = 5.22$, $d = .77$, $CI_{95} [.87, 1.93]$, $p < .001$. Most importantly, trait assumptions were stronger in the high immoral condition ($M = 5.42, SD = 1.56$) than in the low immoral condition ($M = 4.86, SD = 1.78$), $t(179) = 2.27$, $d = .34$, $CI_{95} [.21, .91]$, $p = .025$. When controlling for perceived immorality, however, the effect of condition on trait assumptions was no longer significant, $t(177) = 1.33$, $d = .20$, $p = .187$.

Finally, the effect of condition on trait assumption strength was significantly mediated by perceived immorality, ($CI_{95} : [.013, .49]$ (Figure 3). In sum, the results of Experiment 5 provide further evidence of the existence of an immoral assumption effect. That is, the perceived
immorality of a trait not only predicts the strength of negative trait assumptions related to that trait, but it has a causal influence on the strength of these assumptions. When the perceived immorality of the same behavior was experimentally increased, the strength of negative trait assumptions increased as well, and this effect was fully mediated by changes in perceived immorality.

Experiment 6 – Manipulating Moral Content

Experiment 6 was designed to address some potential limitations of Experiment 5, to rule out non-moral explanations for the immoral assumption effect, and also to test the generalizability of its results.

In Experiment 5, the effect of the euphemism/dysphemism manipulation on perceived morality was assessed by asking participants how “wrong” they considered these traits to be. However, it is possible that people do not consider “wrong” to be the same as “morally wrong.” For instance, perhaps some or all participants understood “wrong” to mean “bad for one’s self” or “contrary to social convention” or even “factually inaccurate.” In Experiment 6, we specifically tested whether perceived moral wrongness mediated the relationship between experimental condition and trait assumptions.

Further, it is likely that participants in Experiment 5 considered it less desirable to be an “assumer” than an “educated guesser.” This is potentially problematic, because research suggests that people make stronger assumptions for negative traits than for positive traits (Rothbart & Park, 1986; Tausch, Kenworthy, & Hewstone, 2007). It is therefore possible that our manipulation affected negative trait assumptions in the expected way because it affected the perceived amoral desirability of the trait described, and this perceived trait desirability – rather than the perceived trait morality – drove the differences in assumption strength. To address this
potential confound, in Experiment 6 we experimentally manipulated moral judgments in a way that was designed to hold the overall desirability of the traits constant across conditions. We also tested whether our manipulation had the expected effect even when controlling for overall desirability.

**Method**

**Participants.** Two hundred eight participants (51% male, mean age 35.09) were recruited via AMT. Each participant received $0.50.

**Procedure.** The trait described to all participants in Experiment 6 was acting like a caitiff (an archaic English word meaning coward). Participants randomly assigned to a high immoral condition read that "'Caitiff' is a rarely used English noun that tends to refer to a person who refuses to help people in need because they are afraid to do so” (emphasis added); participants randomly assigned to a low immoral condition read that "'Caitiff' is a rarely used English noun that tends to refer to a person who refuses to do anything fun because they are afraid to do so” (emphasis added). The term caitiff was used because it seemed unlikely that participants would have any preconceived definitions of what it is to act like or be a caitiff, and therefore the description provided was likely to shape their understanding of the word. At the same time, if our online participants chose to look up an official definition of the word, they would find something that strongly resembled the definition we had provided.

On the next page, all participants saw five possible definitions of a caitiff and were asked to choose the definition provided on the previous page. Regardless of whether they correctly answered this question, participants then completed a filler item (“How funny do you think it is to be a caitiff?”), an item designed to assess the degree to which they considered the described act to be undesirable (“How undesirable do you think it is to be a caitiff?”), another filler item
(“How fluffy do you think it is to be a caitiff?”), one moral wrongness item (“How morally wrong do you think it is to be a caitiff?”) and one item in which they were asked to imagine witnessing a stranger act like a caitiff and decide how likely it is that this stranger is a caitiff. Participants also answered a controllability item (“To what extent is being a caitiff controllable?”). Controllability was assessed because past research suggests that it is related to both perceived morality (Van Lange & Sedikides, 1998) and trait attributions (Reeder, 1993; Tausch, Kenworthy, & Hewstone, 2007), and therefore we wanted to rule out the possibility that our manipulation had the intended effect only because it influenced perceived controllability rather than morality. This item was included before the second filler item and after the undesirability item. Finally, participants reported their gender and age, and completed the attention check question used in Experiments 1 and 5.

We expected that participants in the high immoral condition would consider being a caitiff to be more morally wrong than participants in the low immoral condition, and that they would also make relatively strong negative trait assumptions. We also expected that the relationship between condition and trait assumptions would hold when controlling for the perceived desirability and controllability of being a caitiff. Given that the label of the behavior was the same in both conditions and the description was nearly identical across conditions (with the important exception designed to manipulate perceived morality), these results would suggest that strength of negative trait assumptions is in fact directly affected by perceived morality.

**Results and Discussion**

All but two participants completed the perceived moral wrongness item, the desirability and controllability items, and the trait attribution assessment. Thirteen cases were deleted due to
repeat IP addresses. Additionally, data from 25 participants were deleted because they failed the attention question. Including all participants in the analyses did not change the pattern of results.

As expected, participants considered being a caitiff to be more morally wrong in the high immoral condition ($M = 5.28, SD = 1.96$) than in the low immoral condition ($M = 1.93, SD = 1.57$), $t(168) = 12.31, d = 1.90, CI_{95}[2.97, 3.73], p < .001$. Importantly, trait assumptions were stronger in the high immoral condition ($M = 6.34, SD = 1.74$) than in the low immoral condition ($M = 5.53, SD = 2.06$), $t(167) = 2.76, d = .43, CI_{95}[.40, 1.22], p = .006$). Neither perceived controllability, $t(167) = .23, p = .819$, nor undesirability, $t(168) = -.38, p = .701$, differed across conditions. Also as expected, when controlling for perceived controllability and undesirability, the effect of condition on trait assumptions remained significant, $t(166) = 2.87, d = .45, p = .005$; in contrast, when moral wrongness was controlled for, the effect was no longer significant, $t(167) = -.76, p = .448$.

Once again, the effect of condition on trait assumption strength was mediated by perceived moral wrongness ($CI_{95}:[.57, 1.69]$ (Figure 4). These results again suggest that the perceived morality of a trait not only predicts the strength of negative trait assumptions, it has a causal influence on the strength of these assumptions. Manipulating the perceived morality of acting like a caitiff drove the strength of people’s trait assumptions, and our results once again suggest that this effect was fully mediated by changes in perceived moral wrongness.

**General Discussion**

Moral concerns regulate social behavior by placing powerful checks on self-interest (Haidt & Kesebir, 2008; Janoff-Bulman & Carnes, 2013; Rai & Fiske, 2011), and in doing so, people’s moral concerns help grease the wheels of social life. But moral concerns have their dark side, and here we show that when it comes to trait perception, the consequences of people’s
moral concerns could be surprisingly negative. The current findings show that people’s moral concerns – even those associated with open-mindedness (Experiments 3, 4, and 5) and tolerance and compassion (Experiments 3 and 4) – lead them to form negative assumptions about other people’s traits. Even compared to other highly-valued traits, people are quicker to jump to negative conclusions about traits they consider morally relevant or morally wrong and unacceptable, and when people’s moral judgments about behaviors are manipulated, trait assumptions become even more negative. In contrast, when people moralize positive behaviors, people are not quicker to jump to positive conclusions about traits. Thus, when it comes to making assumptions about other people’s traits, moral concerns appear to have a categorically negative effect.

While negative trait assumptions are not always normatively bad, their conceptual similarity and connection to stereotyping and prejudice (Kunda & Thagard, 1996), and the fact that people regard them as morally wrong (see Experiment 5), suggest that they represent an undesirable aspect of human psychology (though surely not as undesirable as making trait assumptions about entire groups or assumptions about individuals based on one’s group). Though the immoral assumption effect could serve some useful personal and social functions, the current results indicate that moralization likely contributes to social problems such as disharmony, prejudice, and discrimination.

What’s more, as opposed to the balanced effect (i.e., both positive and negative) of morality on certain psychological phenomena (most notably, behavior; Fiske & Rai, 2014), when it comes to trait perception, the negative effect of morality does not appear to have a redeeming counterweight. These experiments show that people are more likely to make negative trait assumptions for moralized behaviors, but moralization does not influence people’s positive trait
assumptions. Similarly, we show that more incidences of positive behavior are required for people to make positive trait assumptions when behaviors and traits are moralized. In other words, when people moralize behaviors, negative behaviors are more likely to cause people to form negative – but not positive – trait assumptions. Thus, when it comes to making assumptions about other people’s traits, moral concerns appear to have a categorically negative effect.

Implications

The present research contributes to the broader psychology literature in a number of ways. For instance, the current results lend insight into the roots of important ideological disagreements. Past research has shown that conservatives make more negative trait assumptions than liberals when determining the causes of politicized societal problems like poverty (Pellegrini, Queirolo, Monarrez & Valenzuela, 1997) and crime (Carroll, Perkowitz, Lurigio, & Weaver, 1987), and that motivated reasoning causes reversals of this ideo-attribution effect when making dispositional attributions would go against conservatives’ values (e.g., when an authority figure performs a negative action; Morgan et al., 2010; Skitka & Washburn, 2015). The current results indicate that at least when behaviors are morally relevant, motivated reasoning need not occur in order for conservatives to view behaviors as more situationally determined than liberals. In large part, negative trait assumptions are dictated simply by the perceived moral significance of a behavior – regardless of the context (or lack of context) of the behavior or who is performing the behavior. Thus when conservatives moralize behaviors more than liberals, they make stronger negative trait assumptions, but when liberals moralize behaviors more than conservatives, the opposite is true.

This work also holds important implications for prejudice and stereotyping research. Given the relationship between trait generalization and stereotyping/prejudice (Kunda &
Thagard, 1996), our findings suggest that an important and heretofore unexplored contributor to stereotyping and prejudice might be people’s moral values and concerns. Importantly, any effect of morality on stereotyping and prejudice might be due to the same self-schematic projection process that causes people to stereotype more in regards to qualities they value (Fong & Markus, 1982). However, given that the current results suggest the role of morality in the formation of trait assumptions goes above and beyond the role of other highly valued qualities, the same may be true for morality’s role in stereotyping and prejudice. Further examining moralization’s role in trait assumptions and stereotyping can also help connect the study of moral judgment and decision-making with the study of attitudes and intergroup relations, subfields studying similar processes that too rarely interact.

The current results also have important implications for the wider attribution literature. As mentioned earlier, though not all traits are morally relevant, the traits assessed in the behavior and attitude attribution literature are often highly morally relevant. Therefore, the results of the current research suggest that foundational work in this literature might not generalize to non-moral domains. Perhaps most germane to the current topic is classic work on the correspondence bias. This research suggests that perceivers are quick to attribute to people the attitudes they espouse, even if they do so under researcher-induced duress. The current results suggest this effect will emerge when people consider the target attitude morally reprehensible, but it is considerably less likely to emerge when the target attitude is perceived to be morally neutral or morally positive. Though early research on the correspondence bias suggested that personal attitudes did not have a substantial effect on the correspondence bias (Jones, Worchel, Goethals, & Grumet, 1971; Snyder & Jones, 1974), our findings give researchers warrant to return to the
question of whether people’s personal values – and perhaps especially their moral values –
determine when they exhibit the correspondence bias.

Conclusion

By trusting someone who is untrustworthy, a person may be turning onto a swift path to
disaster. The immoral assumption effect helps people avoid this wrong turn, but the results of the
current studies suggest that its assistance is not free. Six experiments utilizing different sample
sources and a diversity of methods indicate that moral concerns may protect us from
unscrupulous interaction partners, but this security may come with an ethical price tag: even
moral values of tolerance and compassion could lead us to be more assuming about, and less
understanding of, other people.
References


Figure 1. Likelihood scores and frequency scores by condition, Experiment 1. Higher likelihood scores and lower frequency scores indicate stronger trait assumptions. Error bars represent standard error.
Figure 2. Likelihood scores, negative versus positive traits by condition, Experiment 2. Higher likelihood scores indicate stronger trait assumptions. Error bars represent standard error.
Figure 3. Mediation analysis, Experiment 5. ns = not significant; $p < .05 = *$; $p < .01 = **$; $p < .001 = ***$
Figure 4. Mediation analysis, Experiment 6. \( p < .01 = **; p < .001 = *** \)