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Locomotion concerns with moral usefulness: When liberals endorse binding moral foundations

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Abstract

Moral Foundations Theory has provided a framework for understanding the endorsement of different moral beliefs. Our research investigated whether there are other reasons to endorse moral foundations in addition to epistemic concerns; specifically, the perceived social *usefulness* of moral foundations. In Study 1, we demonstrate that those showing stronger locomotion concerns for controlling movement tend toward a higher endorsement of binding foundations, and that this effect is stronger among political liberals who otherwise do not typically endorse these foundations. In Study 2, we show that priming participants with assessment concerns (emphasizing truth) rather than locomotion concerns (emphasizing control) reduces the response variance among liberals and also removes the association between locomotion and the binding foundations. In Study 3, we directly ask participants to focus on moral truth versus moral usefulness, with moral truth replicating the Study 2 effect of assessment priming, and moral usefulness replicating the effect of locomotion priming.

Keywords

morality; politics; motivation; self-regulation

Introduction

“The various forms of worship that prevailed in the Roman world were all considered by the people as equally true, by the philosopher as equally false, and by the magistrate as equally useful” (Gibbon, 2004/1776). This famous passage from Edward Gibbon’s *The Decline and Fall of the Roman Empire* conveys an early modern religious skeptic’s cynical view of the role of religion in ancient society. Gibbon perceived that religious worship, for the Romans, could be evaluated in two modes: one with respect to truth and the other with respect to usefulness. In this paper, we argue that a similar divide exists today with respect to moral beliefs.

One recently proposed way to empirically address issues regarding moral beliefs is Moral Foundations Theory (MFT). MFT posits that moral beliefs are organized around five “foundations” (Haidt & Graham, 2007): “harm/care,” related to our dislike of pain or harm

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of others; “fairness/reciprocity,” to our dislike of inequity; “ingroup/loyalty,” to our feelings of loyalty to groups to which we belong; “authority/respect,” to our feelings that certain individuals deserve our respect and endorsement of hierarchy; and “purity/sanctity,” to feelings of nobility and disgust. While each of these foundations has the effect of restraining selfishness (Haidt & Keseber, 2010), they can be organized into two subgroups. Harm/care and fairness/reciprocity are considered “individualizing” foundations because they emphasize the protection and fair treatment of individuals. Ingroup/loyalty, authority/respect, and purity/sanctity are considered “binding” foundations because they involve the binding of individuals to larger institutions or groups such as a family, nation, or religious organization.

Research has shown that there are individual differences in foundation endorsement, particularly in the binding foundations, and these differences are reflected in differences in political ideology (Graham, Haidt, & Nosek, 2009). Those who have a more liberal political ideology tend to endorse the individualizing foundations, but not the binding foundations, whereas conservatives tend to endorse all five (Haidt & Graham, 2007). These differences are attributed to living in different moral communities, which, in turn, produce different views about the world and the ways we ought to relate to one another (Haidt, 2007). In support of this view, research has shown that political group membership can even override beliefs about particular political policies (Cohen, 2003).

The binding foundations, as the primary point of controversy between these communities, receive endorsement from conservatives and skepticism, and at times opposition, from liberals. What we do not know is whether liberals can be further divided into two subgroups: those whose lack of endorsement reflects an emphasis on the binding foundations’ lack of *truth*, and those whose lack of endorsement reflects an emphasis on their lack of *usefulness*. There are those who believe that morality ought to be endorsed insofar as it brings about good effects in society and the world, irrespective of whether it conforms to some idea of the “truth” (Mill, 2007/1863). For instance, some may be moved to endorse binding foundations because they perceive potentially negative social consequences from a lack of order. That is, even though they don’t themselves hold to these moral beliefs, they may endorse their importance due to their perceived utilitarian consequences—that is, they may find it *useful* to endorse them. In their theorizing about the origins of binding foundation morality, Haidt, Graham, and Nosek (2009) have proposed that these foundations can lead to social norms and institutions that may be socially beneficial. Perhaps there are liberals who are willing to express endorsement of them for this reason.

How are we to distinguish between preferences for moral truth versus usefulness? We propose that these preferences relate to individual motivational differences. Regulatory mode theory posits that human goal pursuit takes place via two distinct motivational modes (Higgins, Kruglanski, & Pierro, 2003; Kruglanski et al, 2000). Locomotion is associated with initiating and sustaining smooth movement from state to state without undue disruption or delay; that is, a high concern for *control* (Higgins, 2012). Assessment is associated with the critical evaluation of objects and states by comparing them to alternatives or reference points; that is, a high concern for *truth* (Higgins, 2012). It is important to note here that regulatory modes do not determine *which* goals (i.e., valued end-states) are pursued, only what is emphasized in the goal pursuit process.

With respect to morality, following the reasoning of Graham and Haidt (2009), one might expect that stronger locomotion emphasis—that is, higher concern for control—would be associated with a greater level of endorsement of the binding foundations, particularly among those with a more liberal political ideology. That is, even if high (vs. low) locomotors believe that the liberal moral foundation pattern is the correct or true one, they

could still appreciate the social control usefulness in the binding foundations. This locomotion effect should be less strong among conservatives because their moral communities already influence them to find the binding foundations morally compelling; in their case, what is *true* and what is *useful* coincide.

Consistent with this notion that individuals with high locomotion concerns would be motivated to support ways of living that are in the service of effective control, there is strong and consistent cross-cultural evidence that stronger locomotion is positively correlated with Big-Five conscientiousness, which measures concerns with being responsible and effective (Higgins, 2008). As stated above, locomotion concerns specifically involve the control motivation to initiate and sustain smooth movement from state to state (Higgins et al, 2003; Kruglanski et al, 2000). In many contexts, from the home to the workplace, things only get done when everyone pulls his or her own weight, and roles and rules are clearly delineated. People are only capable of moving on projects when others on whom they depend are keeping up their end of things and not being pulled away by irrelevancies like leisure or pointless distractions. If anyone in these situations failed to meet the responsibilities of his or her station, the entire system would be disrupted. Those with high locomotion concerns, then, should prefer cohesive systems with clear rules and roles that, in that sense, look “conservative” even if the individuals are not themselves politically conservative. Thus, it isn’t that binding moral foundations would be viewed as holding special “truth” value for those high in locomotion, it is that they prefer that these rules be followed for the sake of their concern with controlled movement.

Notably, this explanation also provides a rationale for why we would not expect locomotion effects for the individualizing foundations. If the locomotion effect of increasing binding foundation endorsement derives from perceptions of their usefulness in social control, then questions of respect for others or reciprocity that have more to do with individuals would be relatively irrelevant since they concern valued goals rather than controlling the goal pursuit process. High and low locomotion individuals would both judge harm or unfair treatment as wrong, but it would be high (*vs.* low) locomotion individuals who would seek to have a well-structured and orderly system in which movement can be controlled.

Whereas high locomotion concerns add the additional element of control-usefulness (beyond truth) to change the binding foundation endorsement of liberals especially (i.e., greater endorsement), high assessment concerns add no additional element to what liberals and conservatives already care about regarding the binding foundations—whether they are morally *true*. A truth-epistemic motive inherently underlies moral beliefs as proposed in Moral Foundations Theory (Graham et al, 2009; Graham et al, 2011), with binding foundations being compatible with what is morally true for conservatives but incompatible for liberals. Given that differences between liberals and conservatives for the binding foundations reflect differences in beliefs about the truth, we would not expect to see any significant effects of assessment-truth concerns on binding foundation endorsement.

Study 1

The first study examined whether individuals’ chronic locomotion concerns relate to binding moral foundation endorsement. For the reasons stated above, we predicted that stronger locomotion scores (relating to control concerns) would be associated with greater endorsement of binding moral foundations. It was also hypothesized that this predicted effect would be greater for participants who politically were relatively more liberal than conservative.

Method

Participants—Seventy-seven participants drawn from Columbia's Behavioral Research Lab participated in this study for the sum of five dollars. The participants were 26 males and 51 females. Since males endorsed the ingroup/loyalty foundation (mean score = 3.06) significantly more than females did (mean score = 2.66), all of the following analyses control for sex differences.¹ Descriptive statistics for the sample are available in Table 1.

Procedure—We included the Regulatory Mode Questionnaire (RMQ) to determine chronic regulatory mode (Kruglanski et al, 2000). This questionnaire is designed to evaluate the degree of a participant's locomotion- and assessment-related concerns with respect to his or her manner of pursuing goals. In order to measure chronic locomotion, twelve items on the questionnaire ask about concern for management and control (e.g. "I am a 'doer.'") or lack of concern (e.g. "I am a 'low-energy' person."; reverse-scored). In order to measure chronic assessment, twelve items on the questionnaire ask about concern for critical evaluation and truth (e.g. "I often critique work done by myself and others.") and lack of concern (e.g. "I rarely analyze the conversations I have had with others after they occur."; reverse-scored). Each of the items on the questionnaire is rated from 1 to 6, with 1 indicating strong disagreement, and 6 indicating strong agreement. The high-concern locomotion items and the reverse-scored low-concern locomotion items are combined into a 'locomotion' score, and the high-concern assessment items and the reverse-scored low-concern assessment items are combined into an 'assessment' score.²

We also included the Moral Foundations Questionnaire (MFQ) recommended by Graham et al (2011) for assessment of moral foundation endorsement. This questionnaire contains two sets of items. The first set assesses the perceived relevance of difference information for making moral judgments ranging from 0 indicating "not at all relevant" to 5 indicating "extremely relevant." The second set presents statements about morality and asks participants whether they agree or disagree with them. Responses range from 0 indicating "strongly disagree" to 5 indicating "strongly agree." These two parts are then combined in order to compute scores indicating the perceived moral relevance of the five foundations for making moral judgments.

The individualizing and binding foundations have been treated as single constructs, particularly with respect to political beliefs (e.g. Graham & Haidt, 2009; Van Leeuwen & Park, 2009). Though we report effects for each of the foundations, theoretically we are interested primarily in the binding foundations, and in treating these foundations as a single construct (given that there is sufficient coherence among the them). Finally, since political beliefs are relevant to interpreting differences on the MFQ (Haidt & Graham, 2009), and given the hypothesis regarding moderation from relative political liberalism, participants were also asked to indicate their political beliefs on a seven-point scale from 1 indicating "very liberal" to 9 indicating "very conservative."

Results and Discussion

Replicating previous research, we found substantial coherence to responses on the binding foundations ($\alpha = 0.81$), and high internal reliability for both locomotion ($\alpha = 0.84$) and assessment ($\alpha = 0.85$) strength. We also found, consistent with past findings (e.g., Graham & Haidt, 2009), that political conservatism significantly predicted higher endorsement of these binding foundations ($b = 0.46$, $t(74) = 4.52$, $p < 0.001$).³ As we predicted, controlling

¹For the purposes of regression, sex was coded as 1 for female and 0 for male.

²While no assessment effects are directly mentioned in this manuscript, all regressions were also run with assessment as a covariate without changing the reported effects.

for political beliefs and sex differences, we also found that higher chronic locomotion scores predicted greater endorsement of the binding foundations ($b = 0.26$, $t(72) = 2.66$, $p = 0.01$).⁴ Also as predicted, this effect was strongest among those with a more liberal political ideology, with the effect of locomotion on binding foundation endorsement significantly decreasing as political ideology became less liberal and more conservative ($b = -1.80$, $t(71) = -2.68$, $p = 0.009$). Importantly, locomotion and political identification were statistically unrelated to one another ($t < 1$). These results are illustrated in Figure 1.⁵ We found no relationship between locomotion ($t < 1$), assessment ($t < 1$), or political ideology ($t < 1$) and the harm/care foundation. We did find a marginally significant relationship between political ideology and the fairness/reciprocity foundation ($b = -0.20$, $t(74) = -1.74$, $p = 0.09$) as well as a significant relationship between greater locomotion strength and greater endorsement of fairness/reciprocity ($b = 0.31$, $t(74) = 2.75$, $p = 0.007$). The former is theoretically plausible from the point of view of moral foundations theory (Graham, Haidt, & Nosek, 2009), but the latter did not consistently replicate across our studies. There were no significant interactions between our variables and either of the individualizing foundations. Foundation-by-foundation results are available in Table 2.

These results confirm that there is a locomotion-related motivational component to endorsement of binding moral foundations, and this locomotion effect is strongest among self-described liberals. The flipside of this point is that it is low-locomotion liberals who have a particularly low opinion of the binding foundations. These effects are illustrated in Figure 2.⁶

Thus, there appear to be two distinct motivations contributing to binding foundation endorsement, particularly among liberals—belief that these foundations are reflective of reality and the belief that they may prove socially useful even if they are fundamentally untrue. However, with a paradigm that examines only chronic levels of locomotion strength, it is not possible to differentiate these motivations. It was this problem that we attempted to address in our second study. We predicted that if we primed participants with locomotion concerns (i.e., control concerns), then the relationship between locomotion and the binding foundations found in Study 1 would be found again. But if instead we primed assessment concerns (i.e. truth concerns), then we predicted that the locomotion effect would diminish or disappear entirely, whereas, given the connection cited above between moral belief and political ideology, the differences attributable to political beliefs would remain. Furthermore, since priming truth concerns would undercut chronic locomotion control concerns, we expected the variance of responses as a function of individual differences in locomotion control concerns to decrease in the assessment priming condition—particularly among those who are more liberal—because the additional considerations of moral usefulness would be set aside. These predictions were tested in Study 2.

Study 2

In this study we employed an experimental induction method to determine whether, using a situational induction of regulatory mode, the connection between chronic locomotion concerns and binding foundation endorsement could be severed (by priming assessment concerns) or maintained (by priming locomotion concerns).

³Reported betas are standardized to show relative weights of association.

⁴These results controlled for political ideology and sex differences. It should be noted that they remain significant whether or not political ideology or sex differences are included in the regression. This is also true for all subsequent analyses relating locomotion to binding foundations and political ideology presented in this paper unless otherwise mentioned.

⁵Political ideology scores have been “jittered” in order to keep the points on the graph from stacking.

⁶We thought it useful to show the effects of locomotion and political ideology across all moral foundations, and in this graph locomotion and political ideology were divided using a median split.

Method

Participants—Ninety-four participants drawn from Amazon’s Mechanical Turk participated in this study for the sum of two dollars. The participants were 30 males and 64 females. Females identified as significantly more liberal than males ($t(91) = 1.98, p = 0.05$), so sex was included as a covariate in all analyses. In order to ensure English proficiency, only participants from the United States were solicited. Descriptive statistics for the sample are available in Table 3. Participants were randomly assigned to either a locomotion induction or an assessment induction condition.

Procedure—Prior to induction, participants filled out the RMQ in order to measure chronic regulatory mode. Following this, in order to prime participants with either locomotion or assessment concerns, we used the method described in Avnet and Higgins (2006). Participants were asked to complete three short essays recalling times in their lives when they engaged in either locomotion or assessment behavior. All participants were given the following prompt:

For this task, we would like you to recall three different behaviors you have used successfully in the past and to write a short example for each behavior. These are the kind of behaviors you find people doing in everyday life.

To induce participants into a *locomotion* state, they were then presented with the following three prompts in succession:

please think back to the times...

- (1) ...when you acted like a “doer.”
- (2) ...when you finished one project and did not wait long before you started a new one.
- (3) ...when you decided to do something and you could not wait to get started.

To induce participants into an *assessment* state, they were presented with the following three prompts instead:

please think back to the times...

- (1) ...when you compared yourself with other people.
- (2) ...when you thought about your positive and negative characteristics.
- (3) ...when you critiqued work done by others or yourself.

After this regulatory mode induction, participants filled out the MFQ and indicated their political ideology on a scale from 1 (very liberal) to 7 (very conservative).

Results and Discussion

Again we found a high coherence among the different binding foundations ($\alpha = 0.85$), as well as high internal reliability for locomotion ($\alpha = 0.86$) and assessment ($\alpha = 0.86$) strength. We also replicated the relationship between political identification and binding foundation endorsement, with more conservative political ideology predicting higher endorsement ($b = 0.49, t(91) = 5.21, p < 0.001$). The overall effect of higher chronic locomotion scores predicting greater binding foundation endorsement was also found, controlling for political ideology, sex differences, and experimental condition ($b = 0.30, t(89) = 3.39, p = 0.001$).

The locomotion versus assessment induction effects were also consistent with our predictions. Controlling for political identification, chronic locomotion was significantly

predictive of binding foundation endorsement for those primed with locomotion concerns, ($b = 0.53$, $t(40) = 4.32$, $p < 0.001$), but it was *not* predictive for those primed with assessment concerns ($t(45) < 1$). As one might expect given these results, there was a significant interaction between chronic locomotion predominance and regulatory mode priming predicting binding foundation endorsement ($b = 1.63$, $t(88) = 3.16$, $p = 0.002$).

Similar to the results from Study 1, these effects of chronic locomotion concerns increasing binding foundation endorsement decreased as reported political ideology became more conservative (less liberal). This effect was present, though only marginally significant, collapsing across experimental conditions ($b = -0.99$, $t(87) = -1.68$, $p = 0.10$), but it was especially true among those primed with locomotion concerns ($b = -1.82$, $t(38) = -2.63$, $p = 0.01$). This interaction was not present when participants were primed with assessment concerns ($t(49) < 1$). This is consistent with the hypothesis that the increased variance among liberal binding foundation scores is due to emphasizing locomotion concerns that, unlike assessment concerns, adds an additional control-usefulness element. These relationships are illustrated in Figure 3.

We found no significant relationships between locomotion or assessment and either of the individualizing foundations in either condition, but there was a marginally significant positive relationship between harm/care and locomotion in the assessment condition ($b = 0.25$, $t(48) = 1.76$, $p = 0.09$) and a similar relationship between assessment and harm/care in the locomotion condition ($b = 0.27$, $t(41) = 1.82$, $p = 0.08$).⁷ Neither of these relationships occur reliably under similar circumstances in either of the other two studies in this paper, so we do not regard their existence as meriting further comment. However, we did find that political ideology only significantly predicted individualizing foundation endorsement in the locomotion condition (harm/care: $b = -0.47$, $t(41) = -3.24$, $p = 0.002$; fairness/reciprocity: $b = -0.60$, $t(41) = -4.55$, $p < 0.001$), and this translated into a significant interaction between ideology and experimental condition with respect to the harm/care foundation ($b = 0.63$, $t(89) = 2.03$, $p = 0.05$). This effect did not replicate significantly in Study 3, but it appears strong enough to merit some theoretical speculation. Perhaps liberals are especially interested in questions of harm and care when their social utility is primed rather than simply their truth. That is, perhaps they are more strongly motivated by the *effects* or *consequences* of endorsing such a view, strengthening their differences in the locomotion condition as compared to the assessment condition. Foundation-by-foundation effects are listed in Table 4 and Figure 4.

We also predicted that, since priming truth concerns in the assessment condition would undercut chronic locomotion control concerns, the variance of responses as a function of chronic differences in locomotion control concerns would decrease in the assessment priming condition—particularly among those who are more liberal—because considerations of moral usefulness would be set aside. Since the data is skewed to the right due to a high predominance of political liberals in the sample, we used the 10% trimmed mean as the robust variance comparison test statistic recommended by Brown and Forsythe (1974). Consistent with our prediction, the variance of binding foundation endorsement across the political spectrum varied significantly in the locomotion priming condition ($F(6, 37) = 2.35$, $p = 0.05$), but *not* in the assessment priming condition ($F(5, 44) < 1$). These results can be seen in Figure 5, with the *locomotion* condition showing more variance in binding foundation endorsement than the *assessment* condition on the liberal side of the spectrum but not on the conservative side.⁸ Further demonstrating that this is an effect of the removal of locomotion considerations in the assessment condition, in variance comparison tests

⁷The latter relationship becomes significant when controlling for sex differences, locomotion strength, and political ideology as shown in Table 4.

performed on the residuals of a regression of the binding foundations onto chronic locomotion the differences in variance in the locomotion condition became non-significant ($F(6, 37) = 1.45, p = 0.22$).

Taken together, Studies 1 and 2 clearly show that strong locomotion concerns can result in a greater endorsement of binding foundations, especially among those who are politically liberal. However, when participants are primed with assessment concerns (i.e., “truth”), the variability associated with chronic locomotion concerns disappears and only political ideology accounts for binding foundation differences. This suggests that while assessment concerns do not necessarily make individuals more liberal (there was no main effect of the manipulation), they do influence participants’ *reasons* for endorsing particular moral foundations—endorsement from truth rather than control usefulness.

Though it is clear from Study 2 that priming participants with locomotion (*vs.* assessment) concerns prior to their giving information about their moral beliefs makes locomotion concerns more relevant to these judgments than assessment concerns, it is not firmly established that these concerns are directly related to the *usefulness* of morality. That is, it is not certain that individuals with stronger locomotion concerns endorse binding foundations more readily because they perceive them as *useful*. Similarly, it is not entirely clear that priming assessment concerns caused participants to evaluate moral foundations in terms of *truth*. To examine this more directly, Study 3 directly manipulated whether participants made their judgments based on the perceived *truth* or *usefulness* of the moral foundations. We also increased the sample size in order to ensure that the lack of variance differences among conservatives was not simply due to a lack of sufficient statistical power.

Study 3

Method

Participants—Two hundred ninety-four participants drawn from Amazon’s Mechanical Turk participated in this study for the sum of one dollar. The participants were 108 males and 186 females. There were no significant sex differences for political ideology, regulatory mode, or any of the binding moral foundations. Again, in order to ensure English proficiency, only participants from the United States were solicited. Participants were randomly assigned to the ‘moral truth’ and the ‘moral usefulness’ conditions described below.

Procedure—We randomly assigned participants to fill out the MFQ following prompts instructing them to answer the questionnaire with respect to either *truth* or *usefulness*. To assess the degree of endorsement when participants are regarding morality in terms of its *truth*, we gave the following prompt (with the phrasing for *usefulness* given in parentheses):

In the following survey, we want to determine the degree to which people endorse particular kinds of morality. When indicating your preferences, please consider what you believe *actually is* morally right and wrong. (When indicating your preferences, please consider how moral rightness and wrongness *functions* in a society.) In both parts 1 and 2 below, please rate moral truth (usefulness), thinking of morality as an **end in itself (means to an end)**.

Prior to giving responses on part 1 of the MFQ, they received the following prompt:

⁸There were not enough “Very Conservative” (7) responses in either condition to produce standard deviations, so the corresponding space has been left blank in the figure.

When you decide whether or not something is right or wrong, to what extent are the following considerations relevant to your thinking? Please rate each statement using this scale, considering each behavior in terms of its **characteristics (consequences)**:

Prior to giving responses on part 2 of the MFQ, they received the following prompt:

Please read the following sentences and indicate your agreement or disagreement.

Please remember to focus on morality as an **end in itself (means to an end)**:

In addition to filling out the MFQ, participants also filled out the RMQ and indicated their political identification as they did in Study 2.

Results and Discussion

As in our previous studies, we first found high coherence among the binding foundation items ($\alpha = 0.84$) and high internal reliability for both locomotion ($\alpha = 0.82$) and assessment ($\alpha = 0.80$) strength. We also again replicated the relationship between political conservatism and binding foundation endorsement controlling for experimental condition ($b = 0.45$, $t(291) = 8.56$, $p < 0.001$). Similarly, we replicated the overall relationship between stronger locomotion concerns and higher binding foundation endorsement, controlling for political identification and experimental condition ($b = 0.10$, $t(290) = 1.94$, $p = 0.05$).

Supporting the logic underlying Study 2, but this time manipulating the functions of *truth* and *usefulness* directly, we found that the connection between binding foundation endorsement and chronic locomotion concerns was significant when participants were prompted to evaluate the *usefulness* of the moral beliefs assessed in the MFQ, again controlling for politics ($b = 0.16$, $t(158) = 2.21$, $p = 0.03$), but it was *not* significant when they were prompted to evaluate the *truth* of the moral beliefs ($t(130) < 1$). (There were no differences in binding foundation endorsement by whether the participants were prompted to view morality in terms of truth versus usefulness ($t(293) < 1$).)

Also in line with previous studies, controlling for experimental condition, the effect of chronic locomotion concerns on moral foundation endorsement was stronger as reported political liberalism increased, though this effect was only marginally significant ($b = -0.60$, $t(289) = -1.84$, $p = 0.07$). Again, this pattern was marginally significant exclusively within the moral *usefulness* condition ($b = -0.72$, $t(156) = -1.68$, $p = 0.10$), and was entirely absent within the moral *truth* condition ($t(129) < 1$). These relationships are illustrated in Figure 6.

As in previous studies, there were no consistent effects for the individualizing foundations for any of the independent variables studied. There was a significant effect of locomotion predicting harm/care in the usefulness condition ($b = 0.17$, $t(162) = 2.16$, $p = 0.03$). Again, this effect did not reliably replicate across our studies. Assessment was not predictive of either foundation in either experimental condition. Political ideology predicted both harm/care ($b = -0.21$, $t(162) = -2.78$, $p = 0.006$) and fairness/reciprocity ($b = -0.26$, $t(162) = -3.51$, $p = 0.001$) in the usefulness condition, and the latter in the truth condition ($b = -0.31$, $t(135) = -3.8$, $p < 0.001$). The interaction between political ideology and experimental condition went in the same direction as in Study 2, but it was not significant ($t < 1$). Foundation-by-foundation results are provided in Table 6 and Figure 7.

Also consistent with Study 2, there were significant differences in variance in binding foundation endorsement across the political spectrum for those asked to evaluate moral *usefulness* ($F(6, 154) = 2.91$, $p = 0.01$), but not among those asked to assess moral *truth* ($F(6, 128) = 1.07$, $p = 0.38$). These results are illustrated in Figure 8, with *usefulness* showing more variance on binding foundation endorsement than *truth* on the liberal side of

the spectrum but not on the conservative side. As with Study 2, in order to demonstrate that this increase in variance was due to the introduction of locomotion concerns, we performed the same tests again with the residuals from the regression of the binding foundations onto chronic locomotion, and again found that the difference dropped, this time to marginal significance ($F(6, 154) = 1.97, p = 0.07$).

These results are consistent with the hypothesis that the strength of people's locomotion concerns influence their endorsement of binding foundations if they are prompted to view these foundations as morally useful, but not if they are asked instead to evaluate moral truth. It also confirms that this is primarily an effect among liberals, and that liberals give more consistent responses under conditions of truth evaluation, presumably because locomotion control concerns are set aside. This effect is less true among conservatives, presumably because for them truth and usefulness coincide.

General Discussion and Conclusions

Our findings suggest that high locomotion concerns with control, managing, and effectiveness lead to a greater endorsement of the binding foundations, particularly among political liberals who would otherwise not endorse them. In addition, it appears that when individuals are induced into the regulatory mode state of assessment that is concerned with truth (Higgins, 2011), or are directly prompted to think about the truth-related aspects of their moral beliefs, this link between chronic locomotion control concerns and binding foundation endorsement disappears, leaving only political identification to explain differences in binding foundation endorsement (with an accompanying reduction among liberals in the variance of binding foundation endorsement responses).

An important limitation of this research that often faces similar research on political differences needs to be noted: the relative paucity of conservatives in each of our above samples. Samples taken from both student populations and online populations like Mechanical Turk tend to skew more liberal than the public at large. This is particularly relevant to our current research, since we are discussing a difference that exists *within* participants on the more liberal end of the spectrum rather than the more traditional differences *between* participants at different ends of the spectrum. It is conceivable that similar motivational distinctions exist within conservatives as well, but they have not been captured here due to the lack of a sufficiently broad representation of them in our samples.

Despite this, the present research suggests that regulatory mode theory has the potential to contribute to the investigation of moral beliefs along the dividing line of truth (assessment concerns with establishing what's real) versus usefulness (locomotion concerns with managing what happens). And this is particularly helpful for understanding political liberals in relation to binding foundation moral beliefs who, when high in locomotion concerns, become something like the contemporary heirs to ancient Rome's magistrates' treatment of religious beliefs—even if a belief is not true, it should be endorsed if it is useful. It should also be noted that when political liberals do *not* have strong locomotion concerns, they are the ones who do not endorse binding foundations because now it is only truth that matters—acting as heirs to ancient Rome's philosophers' treatment of religious beliefs. It is the low locomotion liberals who are, in this sense, the “true unbelievers.” Another important take-away point of these studies is that not only are there chronic individual differences in preferences for control-related usefulness reasons (locomotion) versus truth-related reasons (assessment) for holding particular moral beliefs, but there are also momentary situational conditions that can highlight these different ways of evaluating moral beliefs.

This research adds to existing research linking motivational orientations with political ideology (Jost et al, 2003; Janoff-Bulman, Sheik, & Baldacci, 2008). It can also contribute to the growing area of research investigating how certain groups differ from the normal liberal-conservative divide in their moral foundation beliefs (Haidt, Graham, & Joseph, 2009). It is conceivable that locomotion concerns play a part in these differences. For example, the moral foundation profiles of high-locomotion liberals in our studies look very similar to profiles of the “religious left” in Haidt, Graham, and Joseph (2009). It would also be interesting to investigate how locomotion and assessment may be related to system justification—which involves the assignment of responsibility to disadvantaged groups for their positions in society (Jost, Banaji, & Nosek, 2004). In addition, it would be important to learn whether these motivational differences account for differences in the level of objectivity people assign to particular moral beliefs in the manner investigated by Goodwin and Darley (2008), as well as whether these differences are related to a preference for consequentialist or deontological reasoning in moral dilemmas, such as those investigated by Greene (2007) and Cushman and Young (2009).

Taken together, these studies suggest an update to the quotation from Gibbon: “The binding moral systems that prevail in the Western world are generally considered by conservatives as equally true, by low-locomotion liberals as equally false, and by high-locomotion liberals as equally useful.” Going forward, to understand “motivated cognition” more fully in the area of moral judgment, it will be important to consider the role of *both* concern for control and concern for truth.

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Highlights

- We examine the link between moral foundations theory and regulatory mode theory.
- We establish a link between binding moral foundations and locomotion, particularly among liberals.
- This link can be severed when participants are induced into an assessment mode.
- This link can be severed when participants are asked to think about moral truth.

Figure 1.
Binding Foundation Endorsement over Political Conservatism and Locomotion Strength
(Study 1)

Figure 2.
Moral Foundation Endorsement as a Function of Political Ideology and Locomotion (Study 1)

Figure 3.
Binding Foundation Endorsement over Political Ideology and Locomotion Strength by
Regulatory Mode Induction (Study 2; standardized scores)

Figure 4.
Moral Foundation Endorsement as a Function of Political Ideology and Locomotion by
Regulatory Mode Induction (Study 2)

Figure 5.
Variance of Binding Foundation Endorsement by Political Ideology (Study 2)

Figure 6.
Binding Foundation Endorsement over Political Ideology and Locomotion Strength by
Judgment Condition (Study 3; standardized scores)

Figure 7.
Moral Foundation Endorsement as a Function of Political Ideology and Locomotion by Judgment Condition (Study 3)

Figure 8.
Variance of Binding Foundation Endorsement by Political Ideology (Study 3)

Table 1

Descriptive Statistics for Demographics, Political Ideology, RMQ, and MFQ (Study 1)

Questionnaire	Construct	Mean	SD	Min	Max
Regulatory Mode Questionnaire	Locomotion Strength	4.30	0.72	2.17	5.75
	Assessment Strength	4.01	0.87	2.42	6.00
Moral Foundations Questionnaire	Harm/Care	3.71	0.68	1.50	4.83
	Fairness/Reciprocity	3.83	0.65	2.00	5.00
	Ingroup/Loyalty	2.80	0.74	1.33	4.50
	Authority/Respect	2.83	0.82	0.83	4.17
	Purity/Sanctity	2.40	0.93	0.50	3.83
Political Ideology	Continuous Scale	3.44	1.97	1.00	9.00
	Proportion Liberal (< 5)	0.67			
	Proportion Conservative (> 5)	0.18			
Demographics	Age	23.65	4.28	18	36
	Proportion Female	0.66			

Moral Foundation Endorsement as Predicted by Political Conservatism and Regulatory Mode (Study 1; multiple regression betas)

Table 2

Moral Foundation					
	Harm/Care	Fairness/Reciprocity	Ingroup/Loyalty	Authority/Respect	Purity/Sanctity
Political Conservatism	-0.10	-0.19 [†]	0.35 ^{***}	0.28 [*]	0.52 ^{***}
Locomotion Strength	0.15	0.30 ^{**}	0.21 [*]	0.15	0.30 ^{**}
Assessment Strength	-0.14	0.05	-0.03	0.07	-0.04
Sex	-0.01	-0.04	-0.30 ^{**}	-0.23 [*]	-0.14

[†] $p < 0.10$;
* $p < 0.05$;
** $p < 0.01$;
*** $p < 0.001$

Table 3

Descriptive Statistics for Demographics, Political Ideology, RMQ, and MFQ (Study 2)

Questionnaire	Construct	Mean	SD	Min	Max
Regulatory Mode Questionnaire	Locomotion Strength	4.42	0.73	2.42	6.00
	Assessment Strength	3.92	0.84	1.5	5.67
Moral Foundations Questionnaire	Harm/Care	3.88	0.63	2.17	5.00
	Fairness/Reciprocity	3.75	0.69	2.33	5.00
	Ingroup/Loyalty	2.69	0.83	0.67	4.83
	Authority/Respect	2.76	0.97	0.17	4.83
	Purity/Sanctity	2.62	1.32	0.00	5.00
Political Ideology	Continuous Scale	3.32	1.63	1.00	7.00
	Proportion Liberal (< 4)	0.52			
	Proportion Conservative (> 4)	0.24			
Demographics	Age	31.79	9.99	19	65
	Proportion Female	0.68			

Table 4

Moral Foundation Endorsement as Predicted by Political Ideology, Regulatory Mode, and Sex Differences (Study 2; multiple regression betas)

Induction	Moral Foundation				
	Harm/Care	Fairness/Reciprocity	Ingroup/Loyalty	Authority/Respect	Purity/Sanctity
Locomotion	Political Conservatism	-0.51**	-0.60***	0.05	0.17*
	Locomotion Strength	0.20	0.03	0.31*	0.54***
	Assessment Strength	0.28*	0.17	-0.03	0.01
	Sex	-0.14	-0.02	-0.05	-0.20
Assessment	Political Conservatism	0.12	-0.20	0.50***	0.62***
	Locomotion Strength	0.24†	0.10	0.11	0.01
	Assessment Strength	0.08	-0.05	-0.21†	0.11
	Sex	-0.07	0.34*	0.10	0.25

† $p < 0.10$;

* $p < 0.05$;

** $p < 0.01$;

*** $p < 0.001$

Table 5

Descriptive Statistics for Demographics, Political Ideology, RMQ, and MFQ (Study 3)

Questionnaire	Construct	Mean	SD	Min	Max
Regulatory Mode Questionnaire	Locomotion Strength	4.31	0.75	1.50	5.83
	Assessment Strength	3.92	0.80	1.50	5.67
Moral Foundations Questionnaire	Harm/Care	3.78	0.77	1.33	5.00
	Fairness/Reciprocity	3.69	0.74	1.17	5.00
	Ingroup/Loyalty	2.74	0.93	0.33	5.00
	Authority/Respect	2.95	1.01	0.00	5.00
	Purity/Sanctity	2.69	1.27	0.00	5.00
Political Ideology	Continuous Scale	3.50	1.74	1.00	7.00
	Proportion Liberal (< 4)	0.49			
	Proportion Conservative (> 4)	0.26			
Demographics	Age	32.64	11.13	18	65
	Proportion Female	0.63			

Moral Foundation Endorsement as Predicted by Political Ideology and Regulatory Mode (Study 3; multiple regression betas)

Table 6

Induction	Moral Foundation				
	Harm/Care	Fairness/Reciprocity	Ingroup/Loyalty	Authority/Respect	Purity/Sanctity
Usefulness	Political Conservatism	−0.21**	−0.26**	0.35***	0.44***
	Locomotion Strength	0.17*	0.11	0.13 [†]	0.17*
	Assessment Strength	−0.03	0.04	−0.17*	−0.10
Truth	Political Conservatism	−0.14	−0.31***	0.28**	0.48***
	Locomotion Strength	0.10	0.04	−0.04	0.13
	Assessment Strength	0.09	0.03	0.01	−0.05

[†] $p < 0.10$;
* $p < 0.05$;
** $p < 0.01$;
*** $p < 0.001$