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EPISTEMOLOGICAL UNCERTAINTY AND POLITICAL IDEOLOGY: EXPLORING
THE RELATIONSHIP BETWEEN TEMPORAL THREATS AND IDEOLOGY

By

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Abstract Title: Epistemological Uncertainty and Political Ideology: Exploring the Relationship Between Temporal Threats and Ideology

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Research in motivation suggests that individuals are highly attuned to perceived risk and danger and tend to form groups (physical and ideological) on the basis of the threats they collectively share with like-minded others. These initial stages of threat detection and evaluation are often found to occur through subtle environmental cues. This study examined the relationship between feelings of uneasiness and political ideology through the framing of temporal cues (e.g., past- vs. future-tense). Participants ($n = 181$) were recruited through Amazon's *Mechanical Turk* (MTurk) and were randomly assigned a short vignette about a relatable life experience (e.g., purchasing a car). Each vignette was written in either the past-tense or the future-tense, and after reading the vignette, participants reported their emotional response to the presented scenario (e.g., "*If I were in the scenario, I would feel uneasy.*") using a Likert-type scale. Participants' levels of ideological conservatism were then measured. Counter to expectations, a negative interaction was found between ideological conservatism and temporal condition on uneasiness: Conservatives experienced more uneasiness when exposed to past-tense scenarios while liberals experienced more uneasiness when exposed to future-tense scenarios. However, partially consistent with expectations, conservatives' uneasiness was partially mediated by forecasted (but not observed) risk. Implications, limitations, and possible future directions for the research are discussed.

Keywords: Non-conscious perception, political ideology formation, temporal orientation

"Better the devil you know than the devil you don't know."
-Irish proverb, circa 1300sAD.

When examining the motivations of human behavior, the cynic is left to wonder if credit should be given to the angels of our good nature or if it is due instead to the devils that we fear. As much as we would like to believe our better natures drive the majority of our actions and ideologies, perhaps there is an underlying truth to the idea that human behavior is often best explained by a desire to choose the lesser devil. Maybe there are situations where we are drawn to follow one path simply because the alternative is too unpleasant to consider.

Indeed, the power of fear on behavior is a fairly well-established phenomenon in human psychology, and although its function and existence are most often associated with a long distant evolutionary past, we still have plenty of evidence that it persists in our modern everyday lives (for an overview, see Tannenbaum et al., 2015). While fears can often be directly attributed to individual experience (e.g., PTSD due to personal trauma), humans appear to have a selective innate wariness of potential dangers that both precedes and lends itself to the influence of outside forces (Åhs et al., 2018; Del Giudice, 2020). This innate wariness to specific stimuli in our environments is not limited to physical threats, but also seems to appear in proximity to metaphysical threats as well (e.g., challenges to one's identity, morals, or ideology; Brandt et al. 2021; Crawford, 2017; Haidt, & Joseph, 2004). These fear-based responses seem to be automatically or non-consciously generated by a type of "intuitive cognition" that creates feelings of uneasiness upon encountering specific risks and dangers (Haidt, & Joseph, 2004). Research in political psychology shows that this intuitive cognition may influence higher-order cognitive activities, such as reasoning through a moral dilemma, or choosing and

defending one's political ideology (Haidt, & Joseph, 2004). Other studies show that even though we tend to assume our inclinations, decisions, and opinions are the result of rational thought and conscious deliberation, they are more a reflection of our gut level instincts that we then justify and rationalize afterwards (Haidt, 2001; Hauser et al., 2007).

Examples like those above would suggest that one's reasoned/conscious responses often depend on the non-conscious sensitivity to the encountered situation. Or in other words, the degree of conscious engagement is positively correlated with the innate salience of the associated threat. Thus, when encountering situations that hold greater salience to one's intuitive cognitions, one's reasoned responses are likely to be activated to a similar degree. These differences in salience are made especially prominent when examining the moral foundations of different ideologies (Graham et al., 2011; Graham et al., 2012a; Haidt & Joseph, 2004). Research suggests that the explicit endorsement of specific "moral foundations" (areas of moral concern, e.g., Care, Fairness, Loyalty, Authority, and Sanctity) is preceded by a state of neural excitation implicitly triggered by morally salient words and statements (Graham et al., 2012b). This neural excitation appears to vary asymmetrically between liberals and conservatives depending on whether the target words or statements presented either related positively or negatively to a preferred set of moral foundations (e.g., primarily Care and Fairness for liberals, and primarily Care, Fairness Loyalty, Authority, and Sanctity for conservatives; Graham, Haidt, & Nosek, 2009).

These areas of intuitive moral concerns are not shared equally between members of different political ideologies, resulting in degrees of disparity when prioritizing different ideological policies and outcomes. One example of this is in the level of support

for public policies aimed at reducing the risks and danger of climate change. Research suggests that individuals who selectively value the moral foundations of Care and Fairness are more likely to endorse public policies that may reduce or circumvent the dangerous effects of climate change, whereas the individuals who value all five foundations (Care, Fairness, Loyalty, Authority, and Sanctity) were less likely to endorse those same policies (Dawson & Tyson, 2012). This difference in support falls roughly along the ideological lines of the political right and left where conservatives tend to be less supportive of government sponsored policies designed to address climate change and liberals tend to support them.

Importantly, past work also suggests that politically right and left persons tend to express differing preferences in their temporal orientation as indicated by the relative frequency of temporally focused words used by each group (e.g., conservatives tend to use more past-orientated language while liberals tend to use more future-oriented language; Robinson et al., 2015).

Building on this past work, this present study explored the relationship between subtle temporal cues and fear-based responses in the political right and left populations. Using Amazon's *Mechanical Turk* (MTurk), 181 participants were asked to report their levels of uneasiness after reading a scenario written with either a future- or past-tense framing. Following this, a two-item political ideology scale was used to determine the direction and strength of their self-identified political orientation (liberal/democrat and conservative/republican).

It was expected that feelings of uneasiness due to subtle temporal cues would be related to political ideology, with liberals more likely to report higher levels of uneasiness

in the past-tense condition and conservatives more likely to report higher levels of uneasiness in the future-tense condition. Results were mixed with some patterns identified. Regression analyses found a significant negative interaction between uneasiness and political ideology in the past- and future-tense conditions, with liberals expressing higher levels of uneasiness in the future-tense condition and conservatives reporting more uneasiness in the past-tense condition. While this negative interaction is in the opposite direction than predicted, additional analyses found that a sensitivity to forecasted risk (but not observed risk) partially accounted for the relationship between political conservatism and uneasiness in both the future- and past-tense conditions.

Below, I will discuss some of the research surrounding the biological mechanisms involved with the early detection of threats in humans. This will include an overview of how specific dangers appear to have greater salience in triggering intuitive threat evaluations and responses, as well as research that illustrates how these intuitive responses might influence our higher order cognitions such as attitudes and volitional behaviors. Next, I will examine how political ideologies can be influenced and maintained by the presence of salient non-conscious threats, including ways that these types of threats are asymmetrically processed by the political right- and left-wing populations. Finally, I will lay out a theoretical model that looks at the differences found between the political right and left in their innate preferences towards temporal orientations and how those preferences are shaped by the negative salience of temporally orientated language.

Early Threat Detection and Vigilance (Behavioral and Cognitive Priming)

Before we can understand something as complex as how one's political ideologies might be influenced by subtle (yet perhaps threatening) temporally oriented cues, we must first examine the biological origin and purpose of fear itself. Fear activation is largely recognized as a "hardwired" cognitive process that heavily involves a small subcortical area of the brain known as the amygdala. Research suggests that activation of this "fear center" has a downstream effect on an organism's physiological (e.g., heart rate, galvanic skin response, etc.) and behavioral responses (e.g., fight, flight, freeze, etc.) to both consciously and non-consciously perceived risks and dangers (Ohman et al., 2007). While the interconnected nature of the brain is such that one process cannot function in isolation, it does appear that one of the amygdala's main roles (aided in part by other neurological systems) is to detect threats and to initiate action by that organism (human or otherwise) to avoid, circumvent, navigate, or escape those threats. In some situations, it would appear that this fear detection system is primed to see specific dangers as more threatening than others. For example, "biological preparedness" is the phenomenon where some objects, animals, and/or situations trigger faster, and more extinction resistant, fear-based responses than other types of "neutral" stimuli. In past experiments, target stimuli are paired with an unpleasant experience (e.g., presenting a picture of either a spider or a butterfly accompanied by a loud noise). Exposure to certain target stimuli (e.g., spiders or snakes) tend to immediately elicit a heightened fear-based reaction that remains in strong effect for an extended period of time. In contrast, more neutral stimuli (e.g., butterflies or flowers) either fail to elicit a fear-based response, or the fear-based response is quickly extinguished soon thereafter (for recent overviews and

analysis of biological preparedness theory, please see Åhs et al., 2018; Del Giudice, 2020).

Applied to our present topic, this suggests that a primary question in identifying whether a similar process might produce generalized group behavior is: When and how are potential threats identified? Historically, it has been theorized that the criteria given for threat detection and vigilance towards danger was thought to originate from “higher level” cortical processes (i.e., consciousness). However, research now strongly suggests that subcortical activity (i.e., non-conscious perception) plays a significant role in early threat detection and response activation (Ohman et al., 2007). Early activation of these fear detection systems might seem disconnected from deliberative behaviors, but there are examples of how automatic threat monitoring generalizes itself to the actions we consciously undertake in our daily lives. The subtle awareness of one’s environmental cues seems to have real world impact on both our volition and observable behavior, as demonstrated in a study by Winkielman et al. (2005) that examined participants’ behavior following non-conscious exposure to either angry or happy faces. In this study, researchers found that when participants experienced non-conscious exposure to angry faces, their consumption behaviors decreased, along with their willingness to procure additional resources for consumption. However, the participants who were non-consciously exposed to smiling faces increased their consumption behaviors and later demonstrated a greater willingness to procure additional resources for consumption (Winkielman et al., 2005). This suggests that these subtle perceptions not only affect us at a basic physiological level, but contribute to our behavioral patterns as well.

In support of this idea, a study by Carretie´ et al. (2005) found that subcortical

activity within the amygdala (via non-conscious threat perception) may directly initiate higher order cognitive processes in the ventromedial prefrontal cortex. This area of the brain is commonly thought to be responsible for conscious decision-making, judgment and long-term planning. Other studies show that participants who are unconsciously primed with “polite” words tend to engage in more respectful behavior than those primed with “rude” words (Bargh et al., 1996), again suggesting that higher-order processes, such as volitional social behaviors, are partially rooted in the subtle perception of salient danger.

Studies like these suggest that subcortical, non-conscious, activation of fear-centers are not restricted to only producing basic physiological responses like heart rate, fight or flight, etc., but may directly contribute to both our observable behaviors as well as our perceived volition in choosing those behaviors. The results from these types of studies could be an indication that our social behaviors and attitudes may sometimes originate with the subcortical awareness of salient, non-conscious, threats.

Non-Conscious Threats and Ideology Formation

If our cognitions and behavior can be invisibly impacted by non-conscious threats and dangers, might this play a role in the creation of political populations? Are there common themes in how non-conscious threat guides ideology formation? Could there be systematic deviations to those themes?

Some researchers make the case that tribalism is a common thread at the heart of all groups and political ideologies (Clark & Winegard, 2019). This research argues that humans have an innate need to favor their “ingroup” (a social group you identify with, as opposed to an “outgroup” you do not identify with), even if such favoritism is achieved at

the expense of empirical truth or reality. This innate need is argued to be the result of a shared evolutionary history where the better organized groups (or political parties) were able to consistently prevail over those who did not successfully band together.

Historically, losing these battles meant the loss of life-sustaining resources or even outright death for the members of the less organized group. In these cases, failing to overcome one's individual differences in favor of the group's superordinate goals would cause the entire population to pay a steep price.

In modern times the result is not typically as drastic, yet it can be argued that this process, created and sustained by millennia of group warfare, is still evident in the modern political climate (Clark & Winegard, 2019). This ingroup favoritism is seen clearly in studies that suggest partisan bias can often be found in equal measure among members of both political parties (Ditto et al., 2018a; Ditto et al., 2018b).¹ Other studies in this area also confirm that neither end of the political spectrum is free from intolerance or openminded to all points of view (Brandt et al., 2014; Crawford & Brandt, 2020; Peters et al., 2020; Schepisi et al, 2019). One such study examined participants' ability and disposition to make use of quantitative information (numeracy) to determine if such skills allowed for a more valid and comprehensive interpretation of politically charged information. Results suggested that while elevated levels of numeracy were helpful in accurately evaluating neutral topics, they were in fact counterproductive in the face of politically charged topics, resulting in an increase of political polarization due to elevated levels of quantitative-reasoning in selectively interpreting the data (Kahan et al, 2017).

Given the studies that suggest all political parties share a common intolerance for

¹ It is important to note that this is a contested issue with some claiming the similarities in partisan bias are a false equivalence with one side having more justification in their bias (Baron & Jost, 2019).

their outgroups or competing ideologies, it is a different question to ask where and how that intolerance is triggered and subsequently directed. Results from recent neuroimaging studies suggest that the non-conscious perception of various threats appears to vary between political populations (Mendez, 2017). These studies show there are measurable neurological differences (both in levels of activity and mass) between liberals and conservatives in the areas of the brain involved with approach and avoidance behaviors. According to these neuroimaging studies, conservatives (in comparison to liberals) show greater activity in areas associated with the negativity bias (where exposure to negative stimuli results in increased focus and higher arousal), disgust (violation of a sense of purity), and threat sensitivity (aversion to potential risk). While liberals (in comparison to conservatives) show greater activity in areas of the brain associated with approach behavior and potential change (e.g., exploring new actions in response to conflict or risk; Mendez, 2017). This provides some indication that structural neurological differences may play a role in the formation and reinforcement of political ideologies. Additionally, these neurological differences lend support to the idea that members of the political left may have greater neural resources dedicated to the engagement of unknown risks and dangers while members of the political right may have greater neural resources dedicated to the engagement of known risks and dangers.

The Present Theory: The Interface of Ideology and Temporal-Based Threats

So far, it would appear that perceptions of danger play a pivotal role in shaping our cognitions and behaviors, but do certain types of dangers lend themselves to being classified as “known” and “unknown”? The “devils” that have traditionally plagued humanity are often very easy to identify. A short list of these potential hazards might

include a variety of dangers, from environmental risks such as *famine, disease, wild animals, and extreme weather or topography*, to more societal threats like *intergroup conflict, exploitation, criminal activity, and oppressive social structures (e.g., totalitarianism)*. While many threats are easily quantified by observing their occurrence in the past, forecasted threats (risks and dangers that are projected to occur rather than having occurred) do not as readily lend themselves to the same perceptual status as observed threats. Forecasted threats by their nature retain an element of uncertainty. Perhaps, these forecasted threats could be thought of as the devils that wait unknown in the shadows. With the appeal of the unknown, they present a medium of malleability, a way to dynamically engage with the future rather than the static past. In contrast, observed threats more easily adopt the role of the devil that we know. With the appeal of the known, they present a foundation of stability, allowing one to firmly engage with the established past rather than the uncertain future.

Temporal Orientation and Political Ideology

Accepting the premise that there are two types of “devils” in the world (observed and forecasted) may partially answer how temporal perception is involved with the formation and maintenance of different political ideologies. Is there any existing evidence that would support an ideological divide along this dimension? Yes. For example, in a study by Robinson et al., (2015), they found that liberals reference the future to a higher degree and use more future-oriented language in comparison to conservatives. While conversely, conservatives tended to reference the past and use more past-orientated language in comparison to liberals. It is possible these preferences in temporal orientation may be indicative of an innate need to substantiate and/or alleviate the asymmetrical fears

of these opposing ideological positions.

Another recent example looking at the effect of temporal cues on ideological positions is a study conducted by Lammers & Baldwin (2018). In this study they found that communicating liberal topics to conservatives using a past-temporal focus (compared with a future-temporal focus) reduced political disagreement between liberals and conservatives by between 30-100% depending on topic. However, in this example the researchers failed to find that communicating conservative topics to liberals using a future temporal focus had the same effect.

Another area of research that may give us some insight into the asymmetry of political ideology and temporal orientation is the domain of information gathering. Studies have looked at the amount of effort participants were willing to apply in the acquisition of novel information and found that liberals (in comparison to conservatives) demonstrated a greater degree of willingness to engage with increasing amounts of novel information (Tullett et al., 2016). The researchers point out that while their findings could be construed as conservatives having an aversion to engage with novel information, it was intriguing to note that conservative participants' indicated levels of curiosity in the novel information was the same as their liberal participants. While not tested for, this could be an indication that conservative participants' curiosity was easily satiated by the provided (observed) information, while the liberal participants' unsatiated willingness to engage in increasing amounts of information may indicate a need to engage with unprovided (forecasted) knowledge.

The Present Project: Non-Conscious Temporal Threat

Overall, there appears to be evidence for the idea that humans are hardwired to

unconsciously monitor for, detect, and guard against specific potential threats. It also appears that non-consciously perceived threats may at times automatically integrate themselves into higher order cognitive processes (including ideology formation and maintenance). Additionally, subpopulations of the political right and left tend to favor opposing temporal orientations (e.g., past vs future).

While past research has identified connections between political ideology, intuitive threat perception, and temporal orientations, it has not directly addressed the possibility that subtle temporal cues play an early role in the asymmetrical formation and maintenance of the political right- and left-wing's attitudes and beliefs. In the present study, I theorized that priming participants with subtle temporal cues in a potentially anxiety-producing scenario would reveal systematic ideological differences due to diverging temporal-based perceptions of risk and danger. This subtle priming was carried out by asking participants to read short scenarios that depicted a relatable and possibly anxiety-inducing experience written in either the future- or past-tense. Following this, participants reported their levels of uneasiness with the scenario they just read, then completed a measure of whether they found forecasted or observed threat to be more concerning. Finally, participants filled out a demographic questionnaire which included a two-item political ideology scale (measured on a continuum from liberal to conservative). These measurements were then used to determine if there was a relationship between ideological conservatism and uneasiness in the context of temporally oriented language (future-tense vs. past-tense), and if that relationship could be explained by the political subpopulations' feelings of concern over either forecasted or observed threat.

Hypotheses

H1: Ideological conservatism will have a conditional effect on uneasiness in past-tense vs. future-tense conditions:

H1a: Exposure to *future-tense* scenarios will result in a *positive* correlation between ideological conservatism and uneasiness.

H1b: Exposure to *past-tense* scenarios will result in a *negative* correlation between ideological conservatism and uneasiness.

H2: Sensitivity to risk and danger will partially explain the relationship between temporal orientation, ideological conservatism and uneasiness:

H2a: Because conservatives are hypothesized to be more sensitive to *forecasted* risk, sensitivity to *forecasted* risk and danger will partially account for the *positive* correlation between ideological conservatism and uneasiness in the *future-tense* condition.

H2b: Because liberals are hypothesized to be more sensitive to *observed* risk, sensitivity to *observed* risk and danger will partially account for the *negative* correlation between ideological conservatism and uneasiness in the *past-tense* condition.

Methods

Overview of Design

Participants were asked to read a short vignette that contained a relatable life experience (e.g., purchasing a car or selecting a major) with instructions to empathize with the perspective being expressed. Each vignette had two versions of its story. One version portrayed the experience as something that has occurred in the past (past-tense) while the other version portrayed that same experience as something that will occur in the future (future-tense). Otherwise, the content and wording of each version was kept as

identical as possible so that the temporal orientation of the story was the only thing that meaningfully varied across the stories.

After reading their randomly assigned vignette (either past- or future-tense), a manipulation check was used to determine whether participants were aware of the temporal orientation of the vignette (e.g., “*Did the scenario portray an event that happened in the past, or an event that will happen in the future?*”). Next, participants were asked to use Likert-type scales to report their emotional response to the scenario they just read (e.g., “*If I were in the scenario, I would feel uneasy.*”) and their level of agreement to a series of statements surrounding forecasted and observed risk (e.g., “*Creating social norms carries substantial risk*”). Finally, participants were prompted to fill out a demographic questionnaire which included questions about their age, sex, political ideological preference, voting preference, and political affiliation.

Participants

A total of two hundred and forty-nine U.S. adults (aged 18 years and older) were recruited via Amazon’s *Mechanical Turk* (MTurk). These participants were randomly assigned into two different conditions (past-tense and future-tense). A total of sixty-eight participants failed the manipulation check by indicating the scenario they read was in a different temporal orientation than their assigned condition (e.g., indicating the scenario was written in future-tense when it was written in past-tense). After accounting for the participants who failed the manipulation check, the past-tense condition had a total of ninety participants and the future-tense condition contained a total of ninety-one participants (N = 181; Average age was 40 years old (min 20, max 74); 44% female; Average income was \$50,000; 65% democrat, 21% republican, and 6% libertarian; 39%

liberal, 32% conservative, 16% moderate, and 10% independent; In 2020 election 65% voted for Biden, and 20% voted for Trump). *R* software analysis suggests that a sample size of 58 participants per condition has a 90% power to detect a small effect size of .25 with a significance level of 0.05 (two tailed; effect size measurement uses Cohen's *F*). Amazon's MTurk has been validated for use as a representative sample for research related to politics and political ideology (see, e.g., Clifford, Jewell, & Waggoner, 2015), generally shows similar results as other samples (for an example, see Conway et al., 2017; Houck, Conway, & Repke, 2014).

Independent Variables

The key condition-level moderator is exposure to temporally oriented language framed in either the past-tense or future-tense.

Type of Scenario. Two different scenarios were presented to participants in the form of short vignettes. The topics contained within these short vignettes were chosen to be easily relatable while remaining as ideologically neutral as possible. Vignette #1 asked participants to read and empathize with the experience of a first-time car buyer. Vignette #2 asked participants read and empathize with the experience of deciding what major to pursue in college. Participants were asked to read their randomly assigned vignette while imagining that they were experiencing the event firsthand.

Past Versus Future Tense. The two scenario conditions (first-time car buyer and deciding what major to pursue in college) were each portrayed with two different temporal framings, a past-tense condition where the events in the scenario were depicted as having occurred in the past, and a future-tense condition where the events in the scenario were depicted as having yet to occur in the future. In total, there were four

different groups and two different conditions: Vignette #1P, first-time car buyer written in the past-tense; Vignette #1F, first-time car buyer written in the future-tense; Vignette #2P, deciding what major to pursue in college written in the past-tense; And Vignette #2F, deciding what major to pursue in college written in the future-tense. All of these scenarios with their accompanying instructions are included below.

Vignette #1P (buying a car in past-tense)

“Please read this short vignette. In doing so, please try and identify with the experience as much as possible, imagining it as if you yourself were experiencing what is happening to the person in the vignette. Please be prepared to answer questions about this experience on the following pages:

Buying my first car was a daunting task at the time. I was worried about monthly payments, what kind of mileage it would get, how often it would need to go in for maintenance, and other things I didn't have a clue about. It was a huge decision that had a significant impact on my life. Thinking about the choice I made back then, I often wonder if I made the right decision.

Vignette #1F (buying a car in future-tense)

“Please read this short vignette. In doing so, please try and identify with the experience as much as possible, imagining it as if you yourself were experiencing what is happening to the person in the vignette. Please be prepared to answer questions about this experience on the following pages:

Buying my first car will be a daunting task when it's time. I am worried about monthly payments, what kind of milage it will get, how often it will need to go in for maintenance, and other things I don't have a clue about. It will be a huge decision that will have a significant impact in my life. Thinking about the choice I will make someday, I often wonder if I will make the right decision.”

Vignette #2P (deciding what major to pursue in college in past-tense)

“Please read this short vignette. In doing so, please try and identify with the experience as much as possible, imagining it as if you yourself were experiencing what is happening to the person in the vignette. Please be prepared to answer questions about this experience on the following pages:

Choosing what to study in college was really scary to me at the time. I was worried about things like getting hired after I graduated, how much money I would make per year, and whether or not I would succeed in all the areas that were important to me. It was a huge decision that had a significant impact on my life. Thinking about the choice I made back then, I often wonder if I made the right decision.”

Vignette #2F (deciding what major to pursue in college in future-tense)

“Please read this short vignette. In doing so, please try and identify with the experience as much as possible, imagining it as if you yourself were experiencing what is happening to the person in the vignette. Please be prepared to answer questions about this experience on the following pages:

Choosing what to study in college will be really scary when it’s time. I am worried about things like getting hired after graduation, how much money I will make per year, and whether or not I will be successful in all the areas that are important to me. It will be a huge decision that will have a significant impact in my life. Thinking about the choice I will make someday, I often wonder if I will make the right decision.”

Political Ideology. The key individual-level moderator is participants’ self-reported ideology. Participants completed a two-item scale designed to evaluate political orientation. It is anchored by liberal/conservative and Democrat/Republican. The individual scores of these two items were averaged together to create a measure of political conservatism where high scores reflect a more conservative orientation and low scores reflect a more liberal orientation. This scale has been used and validated in prior research in the field of political psychology (Conway et al., 2012; Conway et al., 2015).

Dependent Variable: Unease with the Vignette

The key dependent variable is participants' self-reported feelings of uneasiness following the reading of their assigned vignette. Specifically, participants were asked to rate how much they agree with the following four statements: "*If I were in the scenario, I would feel uneasy*", "*If I were in the scenario, I would feel distressed*", "*If I were in the scenario, I would feel anxious*", and "*If I were in the scenario, I would feel nervous*".²

Participants then used a Likert-type scale of 1-7 (where 1 equals *complete disagreement* and 7 equals *complete agreement*) to indicate their level of agreement with those statements. Those four items were averaged together to create a four-item scale of "uneasiness" where high total scores reflected elevated levels of uneasiness in the context of the scenario they had just read, and low total scores reflected static or low levels of uneasiness. Participants were also asked to respond to a set of questions utilizing the negative affect items adapted from the Positive and Negative Affect Schedule (PANAS-SF; Watson, Clark, & Tellegen, 1988).³

Mediating Variable: Sensitivity to Observed Versus Forecasted Norm Risk

The key mediator is sensitivity to observed versus forecasted risk and danger. Participants used a Likert-type scale of 1-7 (where 1 equals *complete disagreement* and 7 equals *complete agreement*) to indicate their level of agreement with six individual statements about observed and forecasted risk and danger surrounding the idea of social norms (e.g., "*Creating social norms carries substantial risk*"). The individual scores of these six items were averaged to create two three-item scales, a *forecasted* risk scale where high scores reflect a greater sensitivity to the risk and dangers inherent in change, and an *observed* risk scale where high scores reflect a greater sensitivity to the risk and

² Four-item uneasiness scale ($\alpha = .92$).

³ Nine-item negative affect scale ($\alpha = .94$).

danger inherent in the existing order.⁴ All six of these statements are listed below in their conceptual categories.

Forecasted Risk Items:

1. *Creating social norms carries substantial risk.*
2. *Creating new norms is dangerous for society.*
3. *In general, I'd rather keep the devil I know than trade them for a devil I don't.*

Observed Risk Items:

1. *Maintaining social norms carries substantial risk.*
2. *Maintaining existing norms is dangerous for society.*
3. *In general, I'd rather trade the devil I know for a devil I don't.*

Analytic Strategy

The main hypothesis (H1) was tested by running regression analyses using PROCESS Macro Model 1 (Hayes, 2013) in the statistical software SPSS. Ideological conservatism (X), past-/future-tense (M), and their interaction term (ideological conservatism*past-/future-tense (XM) were entered into a multiple regression analysis to predict whether ideological conservatism operates differently on uneasiness (Y) in past-tense vs. future-tense conditions (determining if there is a conditional effect of X on Y given M).

H1a was tested by running a correlation analysis within the future-tense condition. This analysis examined the strength and direction of the relationship between ideological

⁴ Sensitivity to risk and danger questionnaire was completed by 181 eligible participants. The forecasted risk subscale consisted of 3 items ($\alpha = .61$); the observed risk subscale consisted of 3 items ($\alpha = .77$). There was a positive correlation found between the forecasted risk and observed risk subscales, $r(179) = .54, p < .000$. A two-factor structure for the 6 items was generally (though not perfectly) supported based on a principal components exploratory factor analysis with a varimax rotation (please see Table 2 in Appendix I).

conservatism (X) and uneasiness (Y) in the *future-tense* condition.

H1b was tested by running a correlation analysis within the past-tense condition. This analysis examined the strength and direction of the relationship between ideological conservatism (X) and uneasiness (Y) in the *past-tense* condition.

H2 (H2a and H2b) were tested by running separate within-condition (future-tense or past-tense) regression analyses using PROCESS Macro Model 4 (Hayes, 2013).

H2a examined data within the *future-tense* condition by producing the indirect effect of ideological conservatism (X) on uneasiness (Y) through sensitivity to *forecasted* risk (M) in that condition ($X \rightarrow M \rightarrow Y$).

H2b examined data within the *past-tense* condition by producing the indirect effect of ideological conservatism (X) on uneasiness (Y) through sensitivity to *observed* risk (M) in that condition ($X \rightarrow M \rightarrow Y$).

Results

Interaction Between Ideological Conservatism and Temporal Uneasiness

The main hypotheses (H1, H1a, and H1b) explored the conditional effect of ideological conservatism on uneasiness in the past-tense vs. future-tense conditions.

H1: A statistically significant negative interaction was found between ideological conservatism and uneasiness in the past-tense and future-tense conditions ($b = -.27, p = .031$; 95% CI lower = $-.51$, upper = $-.02$). While this does suggest a conditional effect where ideological conservatism operates differently on feelings of uneasiness in past-tense vs. future-tense conditions, this interaction is in the opposite direction than predicted by H1.⁵

⁵ Supplementary analyses including the participants who failed the manipulation check found a similar but non-significant negative interaction pattern (e.g., $b = -.12, p = .245$; CI 95% lower = $-.32$, upper = $.08$).

H1a: Ideological conservatism was found to be negatively related to uneasiness in the future-tense condition ($b = -.12, p = .132$; 95% CI lower = $-.28$, upper = $.04$). While this main effect is non-significant, it does suggest that ideological conservatism is negatively correlated with feelings of uneasiness within the future-tense condition. However, this relationship is in the opposite direction predicted by H1a.

H1b: Ideological conservatism was found to be positively related to uneasiness in the past-tense condition ($b = .14, p = .119$; 95% CI lower = $-.04$, upper = $.32$). While this main effect is non-significant, it does suggest that ideological conservatism is positively correlated with feelings of uneasiness within the past-tense condition. However, this relationship is in the opposite direction predicted by H1b.

Overall, these results suggest, contrary to expectations, that individuals who reported lower levels of ideological conservatism (liberals) tended to experience more uneasiness in the context of the future-tense scenarios whereas individuals who reported higher levels of ideological conservatism (conservatives) tended to experience more uneasiness in the context of the past-tense scenarios.⁶

Manipulation on a Sensitivity to Risk - Mediation Analyses

Although the results from testing H1, H1a, and H1b showed evidence in the opposite direction of my theoretical model, nonetheless, it is possible that mediational analyses will show results consistent with the model (Darlington & Hayes, 2017; Hayes, 2009; Hayes & Rockwood, 2017). The secondary hypotheses (H2: H2a and H2b) were tested using PROCESS Macro Model 4 (Hayes, 2013) to explore the indirect effects of

⁶ Please refer to Table 1 in Appendix I for the complete list of negative affect correlations and their conditional interactions. Most negative affect items showed a similar (albeit weaker) pattern to uneasiness, particularly items conceptually closest to unease (e.g., “scared” and “afraid”). Items that were conceptually more distant to uneasiness (e.g., “guilty” and “ashamed”) tended to show the least similar patterns.

ideological conservatism on feelings of uneasiness through a heightened sensitivity to either forecasted risk or observed risk in the future- and past-tense conditions.

H2a: Future-tense Condition with Forecasted Risk. Within the future-tense condition, the indirect effect of ideological conservatism on uneasiness through a sensitivity to forecasted risk was found to be statistically significant (*indirect effect* = .08, $SE = .04$, $p < .05$, 95% CI lower = .01, upper = .17). Further zero-order correlation analyses within this future-tense condition found positive correlations between ideological conservatism and sensitivity to forecasted risk (IV with mediator; $r(89) = .29$, $p = .006$), as well as uneasiness and sensitivity to forecasted risk (mediator with DV; $r(89) = .28$, $p = .007$). While a non-significant zero-order negative correlation was found between ideological conservatism and uneasiness ($r(89) = -.15$, $p = .144$), partial correlation analyses controlling for a sensitivity to forecasted risk revealed a statistically significant negative correlation between ideological conservatism and uneasiness ($r(88) = -.26$, $p = .015$). These results suggest that a heightened sensitivity to forecasted risk may partially account for the relationship found between ideological conservatism and feelings of uneasiness in the future-tense condition, in the direction expected by H2a: As predicted, forecasted risk was positively related to both conservatism and uneasiness, and the relationship between conservatism and uneasiness went down when controlling for forecasted risk.

H2b: Past-tense Condition with Observed Risk. Within the past-tense condition, the indirect effect of ideological conservatism on uneasiness through a sensitivity to observed risk was found to be statistically non-significant (*indirect effect* = .04, $SE = .04$, $p > .05$, 95% CI lower = -.02, upper = .12). Further zero-order correlational

analyses within this past-tense condition found positive correlations between ideological conservatism and sensitivity to observed risk (IV with mediator; $r(88) = .15, p = .171$), as well as uneasiness and sensitivity to observed risk (mediator with DV; $r(88) = .34, p = .001$). A non-significant zero-order positive correlation was found between ideological conservatism and uneasiness ($r(88) = .17, p = .111$), while partial correlation analyses controlling for sensitivity to observed risk revealed a non-significant positive correlation between ideological conservatism and uneasiness ($r(87) = .13, p = .230$). These results suggest that a heightened sensitivity to observed risk did not significantly account for the relationship found between ideological conservatism and uneasiness in the past-tense condition.

Manipulation on a Sensitivity to Risk - Supplementary Mediation Analysis⁷

To better understand the results from the analyses conducted on the primary and secondary hypotheses, I used PROCESS Macro Model 4 (Hayes, 2013) to further explore the indirect effects of ideological conservatism on feelings of uneasiness through a heightened sensitivity to risk. This time, I evaluated the pairings opposite of each hypothesis: pairing forecasted risk with the past-tense condition and observed risk with the future-tense condition. My reason for doing this was to see if perhaps the effects reported above had more to do with risk in general or one kind of risk, instead of the “condition-matched” risk I originally proposed.

Past-tense Condition with Forecasted Risk. Within the past-tense condition, the indirect effect of ideological conservatism on uneasiness through a sensitivity to forecasted risk was found to be statistically significant (*indirect effect* = .13, *SE* = .05, $p <$

⁷ For the combined future- vs. past-tense mediational analyses, please see Tables 3 and 4 in Appendix I.

.05, 95% CI lower = 0.04, upper = 0.25). Further zero-order correlational analyses within this past-tense condition found positive correlations between ideological conservatism and sensitivity to forecasted risk (IV with mediator; $r(88) = .34, p = .001$) and sensitivity to forecasted risk and uneasiness (mediator with DV; $r(88) = .47, p < .000$). A non-significant zero-order positive correlation was found between ideological conservatism and uneasiness ($r(88) = .17, p = .111$), while partial correlation analyses controlling for sensitivity to forecasted risk revealed a non-significant positive correlation between ideological conservatism and uneasiness that substantially went down from zero-order ($r(87) = .02, p = .882$). These results suggest that a heightened sensitivity to forecasted risk may account for the relationship between ideological conservatism and uneasiness in the past-tense condition, in much the same way as it did in the future-tense condition.

Future-tense Condition with Observed Risk. Within the future-tense condition, the indirect effect of ideological conservatism on uneasiness through a sensitivity to observed risk was found to be statistically non-significant (*indirect effect* = .03, *SE* = .03, $p > .05$, 95% CI lower = -.02, upper = .10). Further zero-order correlational analyses within this future-tense condition found positive correlations between ideological conservatism and sensitivity to observed risk (IV with mediator; $r(89) = .14, p = .197$), and uneasiness and sensitivity to observed risk (mediator with DV; $r(89) = .24, p = .021$). A non-significant negative correlation was found between ideological conservatism and uneasiness ($r(89) = -.15, p = .144$), while partial correlation analyses controlling for sensitivity to observed risk revealed a negative correlation between ideological conservatism and uneasiness ($r(88) = -.20, p = .066$). These results suggest that a heightened sensitivity to observed risk did not significantly account for the relationship

between ideological conservatism and uneasiness in the future-tense condition.

Discussion

Overall, analyses of H1 and H2 suggest that ideological conservatism has a conditional effect on feelings of uneasiness in the context of past- vs. future-tense scenarios, and that increased conservative uneasiness may be partially accounted for by a heightened sensitivity to forecasted risk in the future-tense condition. Counter to expectations, the H1 results suggest that individuals high in ideological conservatism are more likely to experience elevated levels of uneasiness when imagining a scenario in the past, while those with lower levels of ideological conservatism are more likely to experience elevated levels of uneasiness when imagining a scenario in the future. However, H2 was largely supported with results indicating (as originally predicted) that a heightened sensitivity to forecasted risk partially accounted for the elevated feelings of uneasiness among individuals high in ideological conservatism in the future-tense scenario. These mixed theoretical findings suggest that a great deal of caution and prudence is needed to avoid overinterpreting what exactly this study can tell us about the relationship between political ideology and the subtle experience of temporal uneasiness. In the following sections, I will briefly lay out and discuss the specific results surrounding the unexpected interaction found between ideological conservatism and temporal uneasiness, followed by a discussion surrounding H2's findings with both the original and the supplemental mediational manipulation on sensitivity to forecasted vs. observed risk. Afterwards I will explore some possible reasons why H1 failed to achieve in its theoretical aims, then I will attempt to explain why H2 largely succeeded in its theoretical aims, following which, I will briefly discuss whether it is possible to make

sense of the mixed results. Finally, I will lay out the limitations of the study and then discuss a few of the possible directions this research might be extended to in the future.

Interaction Between Ideological Conservatism and Temporal Uneasiness.

Results from H1, H1a, and H1b suggest there is indeed a conditional effect of ideological conservatism on general feelings of unease within the subtle context of past-tense vs. future-tense scenarios. However, this conditional effect was revealed to be in the exact opposite direction as predicted by H1, H1a, and H1b, with ideological conservatism positively related to uneasiness in the past-tense condition and negatively related to uneasiness in the future-tense condition.

Overall, these primary results suggest, contrary to expectations, that liberals tended to experience a higher degree of uneasiness in the context of the future-tense scenarios, whereas conservatives tended to experience a higher degree of uneasiness in the context of the past-tense scenarios. We return to what this may mean in more detail in a later section.

Sensitivity to Risk. Curiously, although my theoretical expectations for the primary hypotheses were not met (and indeed the results went in exactly the opposite direction), my theoretical expectations for mediational hypotheses showed results largely consistent with my model. As expected, analyses of the secondary hypotheses (H2a) revealed that a heightened sensitivity to forecasted risk partially accounted for the relationship between ideological conservatism and feelings of uneasiness in the future-tense condition. As predicted by H2a, these results indicate that within the future-tense condition, elevated levels of uneasiness among individuals high in ideological conservatism (conservatives) are partially explained by a heightened sensitivity to

forecasted risk. However, H2b analyses failed to identify a similar pattern in the past-tense condition with no significant indirect effect found of ideological conservatism on uneasiness through a sensitivity to observed risk in the past-tense condition. These results from H2b suggest that a sensitivity to observed risk is unable to account for the relationship found between ideological conservatism and feelings of uneasiness within the past-tense condition. These combined H2 findings, along with the results of H1, prompted the consideration of additional mediational analyses within the “opposite” paired conditions (e.g., past-tense/forecasted risk and future-tense/observed risk) to gain a broader understanding of what may be driving these effects.

Supplementary Analyses of Sensitivity to Risk. To better understand the possible implications of H1’s and H2’s findings, subsequent mediational analyses examined the two remaining (and unpredicted) paired conditions: the indirect effect of ideological conservatism on feelings of uneasiness through a sensitivity to forecasted risk in the past-tense condition, and the indirect effect of ideological conservatism on feelings of uneasiness through a sensitivity to observed risk in the future-tense condition. Similar to the findings of H2a, analyses within the forecasted risk/past tense condition revealed that a heightened sensitivity to forecasted risk partially accounted for the relationship between ideological conservatism and feelings of uneasiness in the past-tense condition. These results indicate that within the past-tense condition, elevated levels of uneasiness among individuals high in ideological conservatism (conservatives) are partially explained by a heightened sensitivity to forecasted risk. However, analyses within the observed risk/future tense condition produced results very similar to the findings of H2b, where a heightened sensitivity to observed risk was unable to account for the relationship

between ideological conservatism and feelings of uneasiness in this future-tense condition. Taking these supplemental analyses into consideration, recognizable patterns began to emerge, with a strong differentiation between models that included a sensitivity to forecasted risk and the models that included a sensitivity to observed risk. Models that included a heightened sensitivity to observed risk as the mediating variable, regardless of whether in the past- or future tense condition, failed to significantly account for any portion of the relationship found between ideological conservatism and elevated feelings of uneasiness within those conditions. Meanwhile, models that included a heightened sensitivity to forecasted risk as the mediating variable consistently revealed statistically significant indirect effects of ideological conservatism on feelings of uneasiness within both the past- and future-tense conditions.

Overall, these results suggest that a heightened sensitivity to *forecasted* risk may partially account for the relationship found between ideological conservatism and feelings of uneasiness in both the future-tense condition as well as the past-tense condition. These results also suggest that a heightened sensitivity to *observed* risk does not significantly account for the relationship found between ideological conservatism and feelings of uneasiness in either of the temporally orientated conditions. Given these results, it appears that *forecasted* risk plays a role in motivating feelings of uneasiness for conservatives, regardless of the temporal context.

Results from H1, H1a, and H1b analyses indicate that ideological conservatism is positively correlated with uneasiness in the past-tense condition, and negatively correlated with uneasiness in the future-tense condition. However, H2 analyses suggest that a heightened sensitivity to forecasted risk partially explains the relationship between

political conservatism and feelings of uneasiness in the past-tense as well as the future-tense conditions. These two findings are both inconsistent and semi-consistent (respectively) with the original proposed theoretical framework, where conservatives were expected to experience more uneasiness when exposed to future-tense scenarios (explained by a sensitivity to forecasted risk) and liberals were expected to experience more uneasiness when exposed to past-tense scenarios (explained by a sensitivity to observed risk). In the following sections I will briefly discuss the possible reasons the primary hypotheses failed, why perhaps H2 was at least partially supported, what may be contributing to both of these results, and how future research may help illuminate these findings.

Why Did H1 Fail? The theory for H1 was tentatively supported by the existing research in the field. Although this prior research indicated that specific temporal preferences exist between liberal and conservative populations (e.g., Robinson et al., 2015), it is admittedly somewhat limited in both its scope and function. One of the reasons for this study was to help expand the field's understanding of temporal preferences among political populations and perhaps this "failure" of H1 will further that end.

Was there an unforeseen issue with the manipulation? Admittedly, the manipulation itself was extremely weak. Anytime researchers attempt to manipulate something subtle, there is a possibility that the manipulation will not work, even though this weakness is necessary to elicit as much of a non-conscious response as possible. Nonetheless, it is worth speculating on what might have happened with the manipulation.

One possibility is that the manipulation used to elicit this non-conscious response

may possibly have resulted in only one temporal outlook. Perhaps all these scenarios were unintentionally suggestive of impending or future risks and dangers (e.g., rather than inducing a truly past-tense orientation), and this swayed the entire sample towards only one temporal outlook: Specifically, a heightened sensitivity to impending or future risk and danger. After all, even though I focused on both past and future tenses, in some sense to participants, all the scenarios involved imagining something that had not directly happened. This might explain why the future risk measure was more predictive in both future and past tense conditions – maybe they both actually were psychologically “future” to participants.

Of course, none of this would be an explanation as to why this subtle and admittedly weak manipulation appeared to succeed in the opposite direction. After all, the manipulation does appear to have worked in some fashion. The prediction that there would be a conditional effect of political conservatism on uneasiness within past- vs. future-tense conditions was borne out, albeit in the opposite direction than expected. These results do suggest that liberals are more uneasy within the context of future-tense scenarios while conservatives are more uneasy within the context of past-tense scenarios. Perhaps this result -- counter to original expectations as it is -- can still provide an important clue to better understand the different primary temporal perspectives (if there are any) between the conservative and liberal political populations.

Given the type of manipulation involved and the limited research in the field in this specific area, it really is much too soon to draw solid conclusions from this one finding. However, it may be worth exploring what this result may mean. For example, even if the manipulation may have only triggered a single temporal outlook (the issue of

impending or future risk), it still required participants to evaluate that risk from a certain perspective and with specific criteria. In the case of the liberal population, perhaps that risk was evaluated from a present/future perspective, with the salient criteria originating from their need to address those specific concerns (e.g., how to deal with impending risk within the perspective of future possibilities). While in the case of the conservative population, perhaps that risk was evaluated from more of a past/present/future perspective, with the salient criteria originating from their need to address those specific concerns (e.g., how to deal with impending risk within the perspective of past certainties). This could possibly result in higher levels of uneasiness occurring in the context where one's perspective would place the evaluative criteria (past-tense for conservatives and future-tense for liberals).

Alternatively, it could be possible that H1 appeared to “succeed” because it is reflecting the exact opposite meaning of my original theoretical model, specifically, that conservatives would prefer to engage with the future while liberals would prefer to engage with the past. However, this seems unlikely. It is unlikely not only because it largely goes against the existing, albeit limited, research in this area, but also because the results from the secondary analyses (H2) show a pattern consistent with the idea that conservative uneasiness is due in part to concerns with future risk. These results suggest that not only do conservatives have a heightened sensitivity to forecasted risk, but that this specific sensitivity may help account for their feelings of uneasiness in both the past- and future-tense conditions.

Why Did H2 Work? Given the failure of H1, it is somewhat surprising that H2 was largely supported by the results. Once again, given the limited data, it is too early for

solid conclusions. However, it appears that a heightened sensitivity to forecasted risk may partially account for feelings of uneasiness among those individuals who reported higher levels of ideological conservatism regardless of whether they were in the past or future condition. The models that looked at a heightened sensitivity to observed risk found that it does not appear to account for the relationship between ideological conservatism and feelings of uneasiness in either of the temporal conditions (past- or future-tense). Had the original predictions surrounding H1 been proven to be correct, these results would have largely explained those expected findings, but given the completely opposite nature of H1's results, it simply creates a series of difficult questions in need of further answers.

Making Sense of The Mixed Results. To be sure, the mixed results from H1 and H2 make larger interpretation difficult, and it would be prudent to avoid overinterpreting data that appears to contradict itself. However, it may be that these results are suggestive that the original meaning behind the old Irish proverb, "*better the devil you know than the devil you don't know*", provided the whole story from the beginning. I started with the idea that conservatives would be more likely to prefer the devil they know to some unknown future devil. Within both the past- and future-tense conditions, conservatives consistently showed (compared to liberals) a heightened sensitivity to forecasted risk; and in both conditions, this sensitivity to forecasted risk consistently helped account for conservative feelings of uneasiness.

But is it possible that the results from H1 could also be explained by the devil you know? Although I can only speculate, it is indeed possible. The issue may be, contrary to my original predictions, that perhaps we do not shy away from the thing we fear most, perhaps instead we become fixated on it (such as high levels of uneasiness in

conservatives in the past-tense condition). Then, using that knowledge, we can tentatively approach the future with a blueprint of what to watch out for. However, it is possible that this principle of behavior is more common to a subset of the population, specifically among individuals who report higher levels of ideological conservatism.

If these patterns are successfully replicated in the future, it may open some intriguing directions for additional research into the mechanisms contributing to the uneasiness felt by each political population. For example, given that forecasted risk seems to account for the relationship between conservatism and uneasiness in a similar manner and to a similar degree, perhaps it could be suggested that we more fully engage with the devil we know, in order to make a deal with the devil we don't. Or in other words, perhaps a "temporally transient risk management system" allows for the salience found in the context of one temporal perspective to dictate the criteria for increased sensitivity to potential risk in alternate temporal perspectives. Thus, using the knowledge gleaned in the temporal perspective one has fully engaged with, they are then able to approach any impending risk or danger with a seemingly comprehensive (albeit, temporally biased) plan of mitigation. Much like the oft repeated quote "*Those who do not learn from history are doomed to repeat it*" (attributed to George Santayana), this behavior may allow one to confront any impending devils by first closely monitoring and evaluating the devils from the past. Given the results from this study, it is possible that this Temporally Transient Risk Management model exists and moreover may be more common to one side of the political spectrum (e.g., specifically among conservatives whose uneasiness is suggested to be partly accounted for by an elevated sensitivity to forecasted risk in both past and future conditions).

Limitations. Like all studies, this research is not without some limitations. Foremost of these concerns is the manipulation itself. Given the relatively weak nature of the two conditions (past- vs. future-tense) these results can only be viewed with a great deal of caution, and there is a very real need to see if these effects can be replicated with additional studies. The interaction effect in the opposite direction would be a very interesting finding in its own right, *if* it was replicable. But given the tenuous and conflicting nature of these data, caution is warranted.

Another issue is that the participants were collected using the online platform Mturk, and the fictional stories they read may have little ability to invoke the specific emotions and conditions found in the real world. While this is not a unique criticism of this work and low-external validity studies have many benefits (see, e.g., Mook, 1983), future research would do well to examine these processes in more real-world situations.

This sample was collected in early March 2022 and the responses may have been impacted by a stressful atmosphere created by the novel 2020 COVID virus and its accompanying restrictions beginning two years prior. This timing of this sample was also during a politically charged midterm election year and this may have impacted the participant's sense of what topics may or may not be political in nature.

Additionally, this work was conducted entirely on U.S. samples. We do not claim that these effects would necessarily occur in the same manner in other places – future research should evaluate that question more closely as well.

Future Directions. In light of the general issues concerning the manipulation used to produce these results (and the theoretically mixed results themselves), additional reiterations of this study will be needed to confirm these two patterns. Specifically,

replication studies are needed for (1) the pattern where liberals tend to feel more uneasy when subtly primed to think about the future, while conservatives tend to feel more uneasy when subtly primed to think about the past, and (2) the pattern where a sensitivity to forecasted risk tends to account for feelings of uneasiness among conservatives (but not liberals) regardless of the temporal context they are presented with.

In addition to straight replication studies, it might be worthwhile to use different manipulations and/or measurements in other paradigms to determine if the results found in this study can be generalized to other types of temporally associated uneasiness. For example, perhaps future work could use a manipulation of exposure to Abstract vs. Realism artwork. It is possible that priming participants with one or the other of these types of artistic expressions may trigger similar emotional responses as elicited in the current study (e.g., uneasiness after reading a vignette written in the future tense). This non-conscious priming could theoretically be accomplished via exposure to a painting viewed by the participants for a short period of time. These paintings could be either of art from the Realism movement (with emphasis on depicting reality as it exists) or art from the Abstract movement (with emphasis on depicting reality in an altered state). After viewing the paintings, the participants could be asked to describe their reaction to the image and how it made them feel. These written impressions could then be analyzed by the Linguistic Inquiry and Word Count (LIWC; Pennebaker et al. 2001) software to identify if any linguistic patterns exist between conservatives and liberals in their use of negative affective language (e.g., words associated with uneasiness, risk, and/or danger). Then participants would be asked to use their personal preference in categorizing the picture they viewed as belonging more to the past or to the future. This would create four

conditions for potential analyses: Realism/past, Realism/future, Abstract/past, and Abstract/future. If temporal patterns were found between political conservatism and the use of negative affective language in these four conditions (e.g., elevated uneasiness among conservatives in both the Realism/past and Abstract/past conditions), it may provide an additional metric to better gauge the results of the current study regarding whether feelings of uneasiness are triggered by temporally related cues. However, it is possible that it would reveal a pattern more consistent with the original hypotheses (elevated uneasiness among conservatives in the future conditions and among liberals in the past conditions). Either result would help provide additional clues or crucial potential directions to this nuanced research topic.

Another possible way to explore the validity and potential of the current study's findings would be to employ an Implicit Association Test (IAT; Greenwald et al. 1998) to evaluate the speed in which temporally orientated words are associated with words describing feelings of uneasiness. It is possible that conservatives and liberals will have varied response speeds when tasked with grouping temporally orientated words (e.g., past or future) with words commonly associated with uneasiness (e.g., anxious, nervous, uncomfortable). For example, the study could record participants' response times in associating words like "past" or "yesterday" with words like "threat" vs. "safe," or "uneasy" vs. comfortable," and then do the same with words like "future" or "tomorrow." If it was found that conservatives tended to respond faster to word associations like "past" and "uneasy," while liberals tended to respond faster to word associations like "future" and "uneasy," this would help strengthen the current study's findings and

perhaps justify further research into the possible mechanisms contributing to ideological differences in temporal uneasiness.

Another potential direction for future research would be an examination of the broader relationship between temporal attunement and political ideology and any possible mechanisms that contribute to that relationship. While a limited amount of past research does suggest a temporal dichotomy between political populations (with conservatives oriented towards the past and liberals oriented towards the future; Robinson et al., 2015), the results from this current study may suggest an alternative model for future studies to explore. Specifically, that temporal attunement may be politically unilateral in nature. In this current study, conservatives (but not liberals) tended to engage with the past to a greater degree (as suggested by elevated uneasiness in the past-tense condition), however, they presumably did so in an effort to stave off any risk and/or danger that may occur in the future (as suggested by a heightened sensitivity to forecasted risk in both conditions). It is possible that political conservatism is positively correlated with increasing emotional engagement with multiple temporal perspectives (e.g., past, present, and future). The theoretical Temporally Transient Risk Management model may serve as a tentative guide in exploring this possibility. Perhaps conservatives experience greater salience in the context of one temporal perspective (e.g., the past), which then dictates the criteria for increased sensitivity to risk in other temporal perspectives (e.g., present and the future). Meanwhile on the other end of the political spectrum, liberals may place an increasing amount of focus on a single temporal perspective which regulates their emotional engagement and directs their risk assessment.

This Temporally Transient Risk Management model may be able to be tested by

presenting a potentially threatening issue or situation to participants (e.g., cars driving next to the sidewalk can potentially throw road debris which may hit pedestrians) and tasking them with choosing the best source of information that would allow them to solve the issue. For example: "This is a potential problem that threatens you and those around you, which of the following types of information do you think might be most helpful in solving this problem? (1) More details about this problem as it existed previously in the past. (2) More details about this problem as it exists now in this moment. (3) More details about this problem as it may exist someday in the future."

Following this, the participants could be asked whether they are personally most concerned about the potential problem as it existed previously in the past, as it exists now in the present, or as it may someday exist in the future. These two responses (temporal information seeking, and temporal threat concern) could be measured against participants' levels of political conservatism to see if there is a positive relationship between political conservatism, a preference to engage with the past, and concerns about potential problems in the future. If such a relationship was found, this may suggest that conservatives intuitively try to gain a better understanding of the devil they know in order to counter the devil that they don't, while individuals low in political conservatism (liberals) may tend to orient their information seeking and their threat concerns towards a single temporal orientation.

Expanding on this general framework of politically unilateral temporal attunement, we may be able to explain why liberals tend to be more future-oriented in their language (Robinson et al., 2015) other than a possible temporal dichotomy. For example, temporal context itself may simply not be as salient to liberals as it is to

conservatives. This was in fact suggested by the Lammers & Baldwin study (2018) where communicating liberal topics to conservatives using a past-temporal focus (compared with a future-temporal focus) tended to reduce political disagreement between liberals and conservatives. Meanwhile, in this study they also found that communicating conservative topics to liberals using a future-temporal focus did not have any effect on the level of political disagreement. This could indicate that unilateral temporal attunement may have facilitated a reduction in political disagreement for conservatives but not for liberals. It may be worth noting that a somewhat similar study using Moral Foundations Theory (Haidt & Joseph, 2004) found that framing topics with relevant moral foundations (e.g., Care/Harm and Fairness/Cheating for liberals, and Care/Harm, Fairness/Cheating, Loyalty/Betrayal, Authority/Subversion, and Sanctity/Degradation for conservatives; Graham, Haidt, & Nosek, 2009) tended to increase the self-reported magnitude and intensity of both liberals' and conservatives' political attitudes, and in the case of conservatives, this framing altered some of the originally held attitudes about the topics presented (Day et al. 2014).

Given these types of results from past studies, where conservatives tend to find increased merit in arguments using temporally relevant or morally relevant cues while liberals tend to find increased merit in morally relevant cues, we may be able to ascertain if liberals' tendency to reference to the future (as shown by Robinson et al., 2015) is primarily in the service of some other relevant cue (e.g., Care/Harm) rather than the simple merit of the future's temporal orientation. This could potentially be tested by exposing conservatives and liberals to a collection of twelve scenarios (six describing a past event, and six describing a future event), where each scenario depicts a different

(relativity gentle) violation of a specific moral foundation (Care/Harm, Fairness/Cheating, Loyalty/Betrayal, Authority/Subversion, Sanctity/Degradation, and Liberty/Oppression). Participants' levels of uneasiness with the scenario they just read could then be analyzed along with their level of political conservatism to see if there is a conditional effect of political conservatism on uneasiness in each of the twelve individual conditions as well as between the six collective past conditions and the six collective future conditions. If there is a disruption to the simple temporal pattern suggested in the current study (e.g., conservatives being more uneasy in the past-tense and liberals more uneasy in the future tense), it may be an indication that the temporal uneasiness felt by liberals and/or conservatives is more contingent on the possibility of salient moral violations rather than temporal discomfort.

Taken together, all of these potential studies could build on and help explain the pattern of effects found in the current study. As previously noted, it would be best to be cautious in interpreting what may simply be a statistical anomaly. However, given that the research in this particular area is very limited, any new information could be seen as helpful in forwarding our understanding of how political ideology may, or may not, be shaped and influenced by subtle temporal cues.

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Appendix I

Table 1

The relationship between political conservatism and negative emotion indicators.

	Past Condition	Future Condition	Interaction
Unease Variable	.14	-.12	-.27*
Guilty	.12	.19	-.08
Scared	.20	-.06	-.25
Hostile	.25	.07	-.18
Irritable	.26*	.06	-.19
Ashamed	.28*	.23*	-.05
Upset	.39**	.02	-.37*
Jittery	.21	.01	-.21
Afraid	.21	-.07	-.28
Angry	.19	.07	-.13
Total Negative Affect	.24*	.05	-.19

* $p < .05$. ** $p < .01$

Note: Interaction term is the interaction between condition (past/future) and political conservatism on the variable listed in each row.

Table 2

Exploratory Factor Analysis of Sensitivity to Forecasted/Observed Risk Items.

Rotated Component Matrix^a

	Component	
	1	2
1. Creating social norms carries substantial risk.	.352	.712
2. Maintaining social norms carries substantial risk.	.701	.390
3. Creating new norms is dangerous for society.	.618	.408
4. Maintaining existing norms is dangerous for society.	.840	.026
5. I would rather keep the devil I know than encounter a devil that I don't know.	-.007	.853
6. I would rather trade away the devil I know for a devil that I don't know.	.828	.086

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Table 3

Mediation and correlation items in the future-tense condition.

Future-tense Condition	Forecasted Risk			Observed Risk		
	Zero-Order Correlation (Forecasted Risk)	Partial Correlation Controlling for Forecasted Risk	Mediation - Indirect effect through Forecasted Risk	Zero-Order Correlation (Observed Risk)	Partial Correlation Controlling for Observed Risk	Mediation - Indirect effect through Observed Risk
Political conservatism and sensitivity to...	.29*			0.14		
Uneasiness and sensitivity to...	.28*			.24*		
Political conservatism and uneasiness	-0.15	-.26*	.08*	-0.15	-0.20	0.03

* $p < .05$ **Table 4**

Mediation and correlation items in the past-tense condition.

Past-tense Condition	Forecasted Risk			Observed Risk		
	Zero-Order Correlation (Forecasted Risk)	Partial Correlation Controlling for Forecasted Risk	Mediation - Indirect effect through Forecasted Risk	Zero-Order Correlation (Observed Risk)	Partial Correlation Controlling for Observed Risk	Mediation - Indirect effect through Observed Risk
Political conservatism and sensitivity to...	.34*			0.15		
Uneasiness and sensitivity to...	.47**			.34*		
Political conservatism and uneasiness	0.17	0.02	.13*	0.17	0.13	0.04

* $p < .05$. ** $p < .001$

Appendix II

Independent Variables

Vignette #1P (first-time car buyer in past-tense)

“Please read this short vignette. In doing so, please try and identify with the experience as much as possible, imagining it as if you yourself were experiencing what is happening to the person in the vignette. Please be prepared to answer questions about this experience on the following pages:

Buying my first car was a daunting task at the time. I was worried about monthly payments, what kind of mileage it would get, how often it would need to go in for maintenance, and other things I didn't have a clue about. It was a huge decision that had a significant impact on my life. Thinking about the choice I made back then, I often wonder if I made the right decision.

Vignette #1F (first-time car buyer in future-tense)

“Please read this short vignette. In doing so, please try and identify with the experience as much as possible, imagining it as if you yourself were experiencing what is happening to the person in the vignette. Please be prepared to answer questions about this experience on the following pages:

Buying my first car will be a daunting task when it's time. I am worried about monthly payments, what kind of mileage it will get, how often it will need to go in for maintenance, and other things I don't have a clue about. It will be a huge decision that will have a significant impact in my life. Thinking about the choice I will make someday, I often wonder if I will make the right decision.”

Vignette #2P (choosing a profession in past-tense)

“Please read this short vignette. In doing so, please try and identify with the experience as much as possible, imagining it as if you yourself were experiencing what is happening to the person in the vignette. Please be prepared to answer questions about this experience on the following pages:

Choosing what to study in college was really scary to me at the time. I was worried about things like getting hired after I graduated, how much money I would make per

(5) In the last presidential election, I voted for (please indicate most appropriate answer):

[Biden] [Trump] [Other] [None/Cannot say]”

Dependent Variable: Unease with the Vignette

“Using the following scale, please indicate your level of agreement with the statements below concerning the vignette you just read:

- 1 = complete disagreement
- 2 = mostly disagree
- 3 = somewhat disagree
- 4 = neither disagree nor agree
- 5 = somewhat agree
- 6 = mostly agree
- 7 = complete agreement

- 1. *If I were in the scenario, I would feel uneasy.*
- 2. *If I were in the scenario, I would feel distressed.*
- 3. *If I were in the scenario, I would feel nervous.*
- 4. *If I were in the scenario, I would feel anxious.*

Negative Affect Items (Adapted from the Positive and Negative Affect Schedule (PANAS-SF; Watson, Clark, & Tellegen, 1988).

“Using the following scale, please indicate your level of agreement with the statements below concerning the vignette you just read:

- 1 = complete disagreement
- 2 = mostly disagree
- 3 = somewhat disagree
- 4 = neither disagree nor agree
- 5 = somewhat agree
- 6 = mostly agree
- 7 = complete agreement

- 1. *If I were in the scenario, I would feel guilty.*
- 2. *If I were in the scenario, I would feel scared.*
- 3. *If I were in the scenario, I would feel hostile.*
- 4. *If I were in the scenario, I would feel irritable.*

5. *If I were in the scenario, I would feel ashamed.*
6. *If I were in the scenario, I would feel upset.*
7. *If I were in the scenario, I would feel jittery.*
8. *If I were in the scenario, I would feel afraid*
9. *If I were in the scenario, I would feel angry.*

Mediating Variable: Sensitivity to Observed Versus Forecasted Norm Risk

“Please indicate your level of agreement to the statements below using the following

scale:

- 1 = complete disagreement
- 2 = mostly disagree
- 3 = somewhat disagree
- 4 = neither disagree nor agree
- 5 = somewhat agree
- 6 = mostly agree
- 7 = complete agreement

1. *Creating social norms carries substantial risk.*
2. *Maintaining social norms carries substantial risk.*
3. *Creating new norms is dangerous for society.*
4. *Maintaining existing norms is dangerous for society.*
5. *I would rather keep the devil I know than encounter a devil that I don't know.*
6. *I would rather trade away the devil I know for a devil that I don't know.*

Items 2, 4, and 6 will be reversed scored. Low total scores reflect a greater sensitivity to observed risk and danger while high total scores reflect greater sensitivity to forecasted risk and danger.”

Left-Wing Authoritarianism (LWA) Scale (Conway et al., 2017a)

“For the following questions, please answer on a 1-7 scale, where 1 = ‘I disagree completely’, 4 = ‘neutral/undecided’, and 7 = ‘I completely agree’.

1. Our country desperately needs a mighty and liberal leader who will do what has to be done to destroy the radical traditional ways of doing things that are ruining us.

2. Christian fundamentalists are just as healthy and moral as anybody else.
3. It's always better to trust the judgment of the proper authorities in science with respect to issues like global warming and evolution than to listen to the noisy rabble-rousers in our society who are trying to create doubts in people's minds.
4. Christian Fundamentalists and others who have rebelled against the established sciences are no doubt every bit as good and virtuous as those who agree with the best scientific minds.
5. The only way our country can get through the crisis ahead is to get rid of our "traditional" values, put some tough leaders in power who oppose those values, and silence the troublemakers spreading bad (and so-called "traditional") ideas.
6. There is absolutely nothing wrong with Christian Fundamentalist camps designed to create a new generation of Fundamentalists.
7. Our country needs traditional thinkers who will have the courage to defy modern progressive movements, even if this upsets many people.
8. Our country will be destroyed someday if we do not smash the traditional beliefs eating away at our national fiber and growing progressive beliefs.
9. With respect to environmental issues, everyone should have their own personality, even if it makes them different from everyone else.
10. Progressive ways and liberal values show the best way of life.
11. You have to admire those who challenged the law and the majority's view by protesting against abortion rights or in favor of reinstating school prayer.
12. What our country really needs is a strong, determined leader who will crush the evil of pushy Christian religious people, and take us forward to our true path.

13. Some of the best people in our country are those who are challenging our government, supporting religion, and ignoring the “normal way” things are supposed to be done.
14. We should strongly punish those who try to uphold what they claim are “God’s laws” about abortion, pornography, and marriage, when they break the actual laws of the country in order to do so.
15. There are many radical, immoral Christian people in our country today, who are trying to ruin it for their religious purposes, whom the authorities should put out of action.
16. A Christian’s place should be wherever he or she wants to be. The days when Christians are submissive to the conventions of this country belong strictly in the past.
17. Our country will be great if we honor the ways of progressive thinking, do what the best liberal authorities tell us to do, and get rid of the religious and conservative “rotten apples” who are ruining everything.
18. With respect to environmental issues, there is no “ONE right way” to live life; everybody has to create their own way.
19. Christian Fundamentalists should be praised for being brave enough to defy the current societal and legal norms.
20. This country would work a lot better if certain groups of Christian troublemakers would just shut up and accept their group’s proper place in society.”

Right-Wing Authoritarianism (RWA) Scale (Altermeyer, 1998)

“For the following questions, please answer on a 1-7 scale, where 1 = ‘I disagree

completely’, 4 = ‘neutral/undecided’, and 7 = ‘I completely agree’.

1. Our country desperately needs a mighty leader who will do what has to be done to destroy the radical new ways and sinfulness that are ruining us.
2. Gays and lesbians are just as healthy and moral as anybody else.
3. It’s always better to trust the judgment of the proper authorities in government and religion than to listen to the noisy rabble-rousers in our society who are trying to create doubts in people’s minds.
4. Atheists and others who have rebelled against the established religions are no doubt every bit as good and virtuous as those who attend church regularly.
5. The only way our country can get through the crisis ahead is to get back to our traditional values, put some tough leaders in power, and silence the troublemakers spreading bad ideas.
6. There is absolutely nothing wrong with nudist camps.
7. Our country needs free thinkers who will have the courage to defy traditional ways, even if this upsets many people.
8. Our country will be destroyed someday if we do not smash the perversions eating away at our moral fiber and traditional beliefs.
9. Everyone should have their own lifestyle, religious beliefs, and sexual preferences, even if it makes them different from everyone else.
10. The “old-fashioned ways” and “old-fashioned values” still show the best way of life.
11. You have to admire those who challenged the law and the majority’s view by protesting for abortion rights, for animal rights, or to abolish school prayer.

12. What our country really needs is a strong, determined leader who will crush evil, and take us back to our true path.
13. Some of the best people in our country are those who are challenging our government, criticizing religion, and ignoring the “normal way” things are supposed to be done.
14. God’s laws about abortion, pornography, and marriage must be strictly followed before it is too late, and those who break them must be strongly punished.
15. There are many radical, immoral people in our country today, who are trying to ruin it for their godless purposes, whom the authorities should put out of action.
16. A “woman’s place” should be wherever she wants to be. The days when women are submissive to their husbands and social conventions belong strictly in the past.
17. Our country will be great if we honor the ways of our forefathers, do what the authorities tell us to do, and get rid of the “rotten apples” who are ruining everything.
18. There is no “ONE right way” to live life; everybody has to create their own way.
19. Homosexuals and feminists should be praised for being brave enough to defy “traditional family values.”
20. This country would work a lot better if certain groups of troublemakers would just shut up and accept their group’s traditional place in society.”

Manipulation Check

“Please recall the scenario you read earlier in the study and answer the following question:

1. Did the scenario portray an event that happened in the past or an event that will

happen in the future?

- a. Past
- b. Future

General Background Questionnaire:

“1. Age: _____

2. Biological sex assigned at birth:

Male Female Intersex

3. How would you define your gender:

Male Female Transgender (Male to Female) Transgender (Female to Male)

Non-binary Genderqueer Intersex Agender Another gender _____

4. Ethnic Background: _____

5. Religion:

Buddhist

Christian/Catholic

Hindu

Muslim

Jewish

B’ahai

Christian/Protestant

Other religion: _____

6. Describe in your own words what you think the experimenters were expecting to happen in this study: