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UNBIASING INFORMATION SEARCH AND PROCESSING  
THROUGH PERSONAL AND SOCIAL IDENTITY MECHANISMS

by

Benjamin A. Lyons

B.A., Illinois College, 2010

M.A., Southern Illinois University Carbondale, 2013

A Dissertation

Submitted in Partial Fulfillment of the Requirements for the degree of

Doctor of Philosophy

in the field of Mass Communication and Media Arts

College of Mass Communication and Media Arts

in the Graduate School

Southern Illinois University Carbondale

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DISSERTATION APPROVAL

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April 27, 2016

AN ABSTRACT OF THE DISSERTATION OF

BENJAMIN A. LYONS, for the Doctor of Philosophy degree in MASS COMMUNICATION AND MEDIA ARTS, presented on APRIL 27, 2016, at Southern Illinois University Carbondale.

TITLE: UNBIASING INFORMATION SEARCH AND PROCESSING THROUGH PERSONAL AND SOCIAL IDENTITY MECHANISMS

MAJOR PROFESSOR: Dr. Aaron S. Veenstra

Group commitments such as partisanship and religion can bias the way individuals seek information and weigh evidence. This psychological process can lead to distorted views of reality and polarization between opposing social groups. Substantial research confirms the existence and persistence of numerous identity-driven divides in society, but means of attenuating them remain elusive. However, because identity-protective cognition is driven by a need to maintain global and not domain specific integrity, researchers have found that affirming an unrelated core aspect of the self can eliminate the need for ego defense and result in more evenhanded evaluation.

This study proposes a competing intervention. Individuals possess numerous social identities that contextually vary in relative prominence; therefore a different means to unbiased cognition may be to make many social identities salient simultaneously, reducing influence of any potentially threatened identity. This may also reduce selective exposure to congenial information, which has not been found with affirmation. This study also advances research on the phenomenon of selective exposure by considering individuals' interpersonal networks in information search. Because networks are not static, and are instead contextually activated, inducing a more complex representational structure of the self may broaden the set of contacts from whom individuals seek information.

The bias-mitigative potential of self-affirmation and social identity complexity is examined here in a series of dispute contexts — two partisan, one religious — over a mining spill, an advanced biofuels mandate, and gene editing technology. Results from the three experiments (total N = 1,257) show modest support for social identity complexity reducing group-alignment of beliefs, behavior, and information search, while affirmation failed to reduce, and in some cases increased, group alignment.

*Keywords:* social identity, social identity complexity, self-affirmation, motivated reasoning, discussion networks, selective exposure, conspiracy beliefs

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## TABLE OF CONTENTS

<u>CHAPTER</u>	<u>PAGE</u>
ABSTRACT .....	i
ACKNOWLEDGMENTS.....	iii
LIST OF TABLES .....	v
LIST OF FIGURES .....	vi
CHAPTERS	
CHAPTER 1 – Introduction .....	1
CHAPTER 2 – Literature Review .....	4
CHAPTER 3 – Hypotheses and Research Questions .....	23
CHAPTER 4 – Study 1: Mining Spill Dispute.....	27
CHAPTER 5 – Study 2: Advanced Biofuels Dispute.....	35
CHAPTER 6 – Study 3: Gene Editing Dispute.....	46
CHAPTER 7 – Discussion .....	55
REFERENCES .....	63
APPENDICES	
Appendix A: Tables and Figures .....	78
Appendix B: Stimuli and Questionnaire.....	88
Appendix C: Pretest Factor Loading .....	97
VITA .....	99

## LIST OF TABLES

<u>TABLE</u>	<u>PAGE</u>
Table 1.1 Party-Aligned Beliefs by Condition — Mining Spill .....	79
Table 1.2 Party-Aligned Beliefs by Condition and Strength of Affiliation — Mining Spill .....	79
Table 1.3. Selective Exposure by Condition and Strength of Affiliation — Mining Spill .....	80
Table 2.1 Party-Aligned Beliefs by Condition and Strength of Affiliation — Biofuels.....	81
Table 2.2 Party-Aligned Beliefs by Condition and PSID Strength — Biofuels.....	81
Table 2.3 Party-Aligned Conspiracy by Condition and Strength of Affiliation — Biofuels.....	81
Table 2.4 Party-Aligned Conspiracy by Condition and PSID — Biofuels .....	82
Table 2.5 Dual Endorsement by Condition and Strength of Affiliation — Biofuels.....	82
Table 2.6 Dual Endorsement by Condition and PSID — Biofuels .....	82
Table 2.7 Selective Exposure Means and <i>SEs</i> for Condition by Strength of Affiliation .....	83
Table 2.8 Pairwise Comparisons of Manipulations on Selective Exposure — Biofuels.....	83
Table 2.9 Selective Exposure Means and <i>SEs</i> for Condition by PSID — Biofuels .....	83
Table 2.10 Pairwise Comparisons of Manipulations on Network Density — Biofuels .....	84
Table 2.11 Amplified Density Means and <i>SEs</i> by Condition — Biofuels.....	84
Table 2.12 Pairwise Comparisons of Manipulations on Amplified Density — Biofuels.....	84
Table 3.1 Group-Aligned Beliefs by Condition — Gene Editing .....	85
Table 3.2 Group-Aligned Beliefs by Condition and Strength of Affiliation — Gene Editing .....	85
Table 3.3 Condition Means for Three Measurements of Conspiracy Endorsement.....	87
Table 3.4 Selective Exposure by Condition and Strength of Affiliation — Gene Editing .....	87
Table 4. Summary of Support for Hypotheses .....	88



## LIST OF FIGURES

<u>FIGURE</u>	<u>PAGE</u>
Figure 1.1. Party-Aligned Belief — Mining Spill.....	80
Figure 3.1. Group-Aligned Regulatory Support — Gene Editing.....	86
Figure 3.2. Group-Aligned Behavioral Support — Gene Editing.....	86

## CHAPTER 1

### INTRODUCTION

“Do I contradict myself? Very well then I contradict myself, (I am large, I contain multitudes.)”

— Walt Whitman

People, and their identities, are complex. In the course of a given day, one might find themselves in a number of situations that alternately make relevant their race, occupation, gender, age, religion, political party, geographic ties, status as a parent, union membership, or any others in an infinite constellation of social categorizations. When a social identity becomes contextually salient, perhaps by way of some symbolic threat — as when a voter’s political party is denigrated as backward, mistaken, or immoral — the identity may guide how an individual seeks out and makes sense of information, which can result in bias and polarization. But more than one identity may be made salient at a given time. If an individual is reminded not only of their partisanship, but also of their gender, and race, and their religion, and their status as a parent, and their ties to their local or regional community, then the relative prominence of their partisanship should be reduced. This fact motivates this dissertation. While group-based polarization is derided as a modern plague, understanding situations when it may be defused is critical. This may require recognizing the multiplicity of our selves.

\*

One of the greatest challenges facing a functional democracy is the effect of group commitments on individuals' perceptions of facts and search for information (Kahan, 2011). Our tendency to engage in forms of identity protective cognition, such as partisan motivated reasoning, when faced with uncongenial information has resulted in meaningful gaps in beliefs about factual issues (Hindman, 2009; Veenstra et al., 2014). These gaps impede democracy, because they make agreement on basic reality, let alone policy direction, impossible. Identity protective cognition has posed an especially wicked problem as it makes traditional approaches to education (i.e., information deficit models) moot — it can even strengthen misperceptions in the face of cross-cutting corrections (Nyhan & Reifler, 2010).

Because these group-aligned processes of belief formation flow from individuals' self-concepts, which are integrated with group prototypes under conditions of salience (Hogg, 2000), potential routes to unbiased processing likely also flow through the self. Self-affirmation may reduce the need for ego defense by bolstering an unrelated domain: Among others, Cohen et al. (2000), Nyhan and Reifler (2013) and Binning et al. (2015) have provided evidence of affirmation's buffering effect for beliefs. Stroud (2015), though, suggests this may not hold true for defensive information search (i.e., selective exposure).

But because the self is an exceedingly rich construct (Linville, 1985), where numerous identities overlap and contribute to one overarching structure (Roccas & Brewer, 2002), invoking this complexity may likewise reduce the need to rely on any one dominant form of identity, such as partisanship, when it is threatened or otherwise salient. This dissertation tests the current literature's dominant intervention, self-affirmation, against a new competing method, complexity priming.

The following literature review provides background on the concepts of social identity and its effects on individuals' search for and interpretation of information. Then the two potential interventions are described: self-affirmation and the concepts of social identity complexity and relative identity prominence. Finally their potential effects on discussion network activation and conspiracy beliefs, respectively, are described. These phenomena can provide a broader perspective on the global effects of the interventions. The effects of these interventions are explored in three dispute contexts: a partisan dispute over mining spill response; a partisan dispute over an advanced biofuels mandate; and a religious/secular dispute over gene editing technology. Results indicate that affirmation was ineffective, but show modest support for identity complexity as a mitigator of group alignment in factual beliefs, behavior, conspiracy beliefs, media choice, and activated discussion networks. This open-mindedness may have a downside, however, as complexity priming also resulted in greater generalized conspiracy endorsement.

## CHAPTER 2

### LITERATURE REVIEW

#### **Social Identity**

The first, and most enduring, definition of social identity is “the individual’s knowledge that he belongs to certain social groups together with some emotional and value significance to him of this group membership,” (Tajfel, 1972, p. 292). Turner (1982) calls social identity the sum of one’s social identifications, both what a person is and what they are not (e.g., negative partisanship). In contrast to idiosyncratic personal identity, social identity is one’s membership in large social collectives, either ascribed or avowed. Social identities are shared, and are relatively consensual across group members (Turner & Onorato, 1999). These shared mental representations enable collective behavior and homogenized perception. Together, social affiliation along with shared attitudes and values contributes to a social identity gestalt (Sellers, Smith, Shelton, Rowley, & Chavous, 1998) that promotes continued participation and normative behavior (Clayton, 2003).

Perhaps the most compelling account of social identity’s source is the case for social comparison (e.g., Hogg, 2000; Tajfel, 1972). This account argues that groups’ norms, structures, and relationships to other groups derive from the comparisons individuals make between themselves and others, specifically those in groups to which they belong and those in outgroups. These comparisons build into subjective definitions of groups, and from these prototypes can emerge. In particular, this enables self-categorization (Turner, 1985; Turner et al., 1987), which

“depersonalizes self by assimilating self to the in-group prototype,” and generates group behaviors (Hogg, 2000, p. 411).

The “satisfaction” and social value of a social identity is only made possible through comparison with other groups; groups only acquire meaning in relation to others, in distinctions between them (Tajfel, 1972). Information about these differences can be obtained interpersonally, through media, or through indirect inferences made possible by the cognitive processes of self-stereotyping (referent informational influence, Turner, 1982). Social identifications and the comparisons that make them possible are driven by needs both to reduce uncertainty and to increase self-esteem. Festinger (1954a,b) first proposed that social comparisons are motivated by a drive for accuracy as checked against the opinions of others (i.e., social cognition), but later theorists noted the need for self-enhancement can also motivate comparison (Tajfel, 1972; Thornton & Arrowood, 1966; Turner, 1975; 1984).

Uncertainty reduction has been revived as a fundamental motivation in social identity processes, however (for a review, see Hogg & Mullin, 1999). Uncertainty about beliefs, attitudes, opinions, and perceptions is aversive because it amounts to reduced control (e.g., Sorrentino & Roney, 1986). This can be alleviated through self-categorization and assimilating to ingroup prototypes, and more globally by joining and identifying with groups (Hogg, 2000). However, not all uncertainty is subjectively important enough to motivate its reduction (one may simply not care that they don’t know where they stand on an issue); conversely, some contexts may forcefully compel reduction. Because uncertainty reduction works through the assimilation of self to the group prototype, unambiguous prototypes of homogenous and distinct groups provide better relief. This may explain why people join extreme groups. Because uncertainty reduction is

adaptive, it boosts self-esteem. Moreover, because the self is integrated with the group prototype, the satisfaction gained in reducing uncertainty produces positive attitudes toward the group and its members in addition to the self (Hogg, 2000). Certainty attained within a stable social structure of group relations can counter-intuitively produce satisfaction even for those identifying with the lower-status groups (Jost & Banaji, 1994; Jost, 1995).

It should be emphasized that self-categorization (and therefore its downstream effects) is highly context-dependent, because the self-concept exists to mediate adaptively between environment and behavior, regulating the latter. People regulate behavior based on different self-conceptions in different situations. This contextual activation leads to the appropriate construal of social stimuli and results in adaptive behaviors (Turner, 1982, p. 20). This is a manifestation of the affiliation-attitude-behavior gestalt (Sellers et al., 1998) mentioned previously. In many scenarios, however, such behavior can be deleterious to the individual and society (Kahan, 2011; Kunda, 1990; Sherman & Cohen, 2006).

### **Identity Protective Cognition**

Because we depend on others (social groups), we perceive in ways that support them, and by extension ourselves. As with social comparison, our information processing more generally is also driven by either accuracy or self-esteem, leading to evidentiary or normative (directional) reasoning (e.g., Binning et al., 2015; Bolsen et al., 2014; Druckman, 2012). When social identities are impugned by a source of information, the latter need dominates cognition and behavior.

Identity-protective cognition is driven by intangible needs associated with preservation of self-image (Kahan, 2011). As in other species of directional motivated reasoning, that which is

prompted by social identity works through a number of psychological mechanisms as individuals interact with threatening information (e.g., Bolsen et al., 2014; Ditto & Lopez, 1992; Kahan, 2011; Kunda, 1990; Taber & Lodge, 2006). First, they engage in biased search, seeking out information that bolsters their group's positions. In part, this may be achieved by employing group membership as a heuristic for source selection. More longitudinally, the cumulative effects of biased search can produce increased group identification and greater polarization between groups over time through selective exposure to agreeable information (Stroud, 2010) and selective avoidance of that which is disagreeable (Garrett 2009; Garrett & Stroud, 2014). This demonstrates the possibility of reciprocal effects of information and identity, referred to as mutually reinforcing spirals (Feldman et al., 2014; Slater, 2007).

Second, biased assimilation occurs when individuals evaluate evidence in terms that favor their social identity, assigning more credibility to ingroup members or favorable information. Discrepant information tends to boomerang, or backfire, producing shifts away from the outgroup position (David & Turner, 1996; see also Nyhan & Reifler, 2010). It's no surprise that people reject influence from outgroup members. In part, this is because normative group positions are defined as much by contrast with outgroups as through ingroup assimilation (Hogg & Reid, 2006; Turner & Onorato, 1999, p. 29).

Aside from effects on information processing, primed social identity induces normative behaviors, including decision making. For example, there is evidence that social identity threat leads not only to biased information processing "but also (collective) social action against a social identity threat," such as protest or public discrediting of threatening evidence (Nauroth et al., 2015, p. 3). In a different domain, Benjamin et al. (2010) find primed ethnic and gender



identities induce economic preferences in line with normative expectations (i.e., more or less risk-averse according to identity-based stereotypes) even after accounting for confounds. These identity-congruent shifts can be accounted for by fluctuations in an individual's active self concept (Wheeler et al., 2007); values linked with a social identity become more salient (LeBoeuf et al., 2008; Reed, 2004). This is an outcome of the contextual identity activation Turner (1982) says leads to the appropriate construal of social stimuli and results in adaptive behaviors (p. 20).

Morris, Carranza, and Fox (2008) suggest that because identities consist of more than just values, other components can also weigh on decision making, such as their linguistic content. For example, one's expression choices become more likely to reflect patterns of rhetoric associated with a salient group (Hong et al., 2001; Palomares, 2004). This also supports social identity's role in frame resonance (Snow & Benford, 1988; Mols, 2012; Huddy, 2013). For example, Babb (1996) found that unions backed frame-resonant policies that actually hurt labor interests. Because objects associated with the self receive a positive valence, content with social identities' linguistic signatures can sway decisions, even for an arbitrary connection. Morris, Carranza, and Fox (2008), for example, found conservatives preferred risky financial options when they were labelled as "conservative."

A broader consequence of social identity-protective cognition is the inevitable exaggeration of differences in evidentiary understanding produced by public debates. When social or national debates implicate opposing groups, and hinge on facts, these facts will be misconstrued through the processes motivated reasoning as well as naive realism (asymmetric perception of motivated reasoning — seeing it in other groups but not one's own) (Kahan, 2011).

This results in earnest misperception of objective reality, and ultimately in dangerous decision making at both the individual and collective level. This danger is especially apparent in debates over science, health, the environment, and other sources of risk when they become connected with social identities, political or otherwise.

### **Interventions**

Despite evidence of group alignment in beliefs across many domains, there are circumstances that can vitiate social identity influence. That is because motivated reasoning, “rather than being an inevitable political decision-making process, [...] depends on the individual and the context,” (Druckman, 2012, p. 205). Of course, some contexts inherently limit reliance on in-group cues in information processing, such as intra-group disputes and disputes that are polarized but not highly contested and thus not symbolically tied to group membership (Druckman, 2012; Bolsen et al., 2014). Subgroups’ dissatisfaction with the larger group can also result in reduced conformity (Lee, 1993; Worchel et al., 1992). But of interest to the present work are psychological interventions that indirectly disarm directional thinking or encourage accuracy-motivated processing. Manipulating individuals’ motivation, for instance, holds potential to mitigate motivated reasoning: There is evidence that encouraging individuals to reflect on their reasoning, consider other perspectives, or be more accountable to others who disagree can be effective (Bolsen et al., 2014; Lord et al., 1984; Redlawsk, 2002; Tetlock, 1983). In this dissertation, two interventions that alter the self concept are tested — self-affirmation and social identity complexity priming.

## Self-Affirmation

The potential for psychological interventions of defensive processing has attracted scholars across the social sciences. An interdisciplinary body of research examines the effects of self-affirmation on processing of threatening information. Recently applied in political science (Nyhan & Reifler, 2013; Stroud, 2015; also see Cohen et al., 2000), self-affirmation originated in psychology as a general theory about approaches to self-threat (Steele, 1988) and has been applied extensively in health contexts (e.g., Koningsbruggen & Das, 2009; Reed & Aspinwall, 1998; Sherman et al., 2000). Drawing on many of the same premises as identity protective cognition, self-affirmation researchers suggest that closed-mindedness to challenging information is driven by self-regard. Because a sense of worth is derived from beliefs and their accuracy, conflicting information can threaten self worth, while defensive rejections can preserve self-integrity (Cohen, Aronson, & Steele, 2000; Reed & Aspinwall, 1998; Sherman, Nelson, & Steele, 2000; for a review, see Sherman & Cohen, 2006).

Affirmation theorists see defensive responses as adaptations that reduce self-integrity threats (Sherman & Cohen, 2006). These can be maladaptive, though, in blocking learning from threatening information or experiences. However, these adaptive responses can be displaced by a different adaptive response that does not work through distortion to render threats less challenging. As an *indirect* psychological adaptation, self-affirmation alternatively allows for both the restoration of self-integrity and accurate perception (Sherman & Cohen, 2006).

The self-affirmation theoretical framework consists of four premises (Sherman & Cohen, 2006). First, individuals are motivated to maintain their perceived self-worth (Steele, 1988). Second, this motivation can lead to defensive, rationalizing responses to diminish threats

(Kunda, 1990). Third, the self-system is flexible. Global self-integrity is the product of many domains: values, goals, beliefs, groups and identities, relationships, roles and so on. The fungibility of the system allows for threats to one domain to be offset by bolstering another (Steele, 1988). Finally, individuals can be affirmed through activities that make salient other core aspects of their self-worth. Threats then lose their potency as individuals reduce the prominence of the threatened domain (e.g., social group), putting the threat into broader perspective and eliminating the need for ego protection.

In a study of self-affirmation and biased assimilation (Cohen, Aronson, & Steele, 2000), affirmation resulted in more evenhanded evaluation of information, less assumption of bias, and moderation of long-held beliefs about capital punishment — from both parties. In another study, (Cohen et al., 2000), pro-life and pro-choice partisans came to more balanced evaluations of activists of both sides and become less confident in the validity of their own attitudes. Attempting to answer *why* this occurred, Correll, Spencer and Zanna (2004) found that affirmation increased sensitivity to intrinsic argument strength regardless of accordance with one's own views.

The notion of self-affirmation also calls the logic of cognitive dissonance and consistency (Festinger, 1957) into question. Because self-affirmation shows that people are able to tolerate cognitive inconsistency if their self-worth is buttressed indirectly, it suggests self-integrity maintenance — or self-enhancement — is the underlying motivation, that only sometimes results in defensive distortions (Sherman & Cohen, 2006). Accordingly, self-affirmations in the same domain as threatening information result in greater dissonance (Blanton et al., 1997) because

they make the domain's norms salient, and people tend to choose to affirm an unrelated domain to reduce this dissonance (Aronson et al., 1995).

While much of the research described so far covers many situations where information challenges personal identity, the theory has also been extended to social identity threats. This is possible because personal and social identities are “fundamentally confounded” (Sherman & Cohen, 2006, p. 206; Cohen & Garcia, 2005). Both contribute to an overarching goal of self-integrity maintenance. Like threats to one's personal identity, threats to social identities can be buffered through indirect adaptations such as self-affirmation. This leads to less anchoring of group evaluations in one's self-concept, allowing individuals to evaluate groups independent of their self evaluation (Sherman & Kim, 2005). Cohen et al. (2007) for instance found that self-affirmation prompted openness to information critical of America among patriots and skepticism among “anti-patriots.” In other words, social identity did not act as a perceptual screen.

Identity centrality and salience play a crucial moderating role in these effects, however. The importance of the domain, or particular social group, conditions the degree of self-threat and therefore effectiveness of affirmation (Boninger et al., 1995). As Sherman and Cohen (2006) summarize, it is ironically those who place the most importance on an issue who are most sensitive to or open to affirmation-induced shifts (Correll et al., 2004; Kunda, 1987; Liberman & Chaiken, 1992; Sherman et al., 2000). Because only high centrality or salience of a social identity would result in greater “identity costs” if compromised, it is only these costs that can be reduced through alternative sources of self-integrity (Sherman & Cohen, 2006, p. 218; Cohen et al., 2007).

Self-affirmation's potential to reduce defensive search, and not just processing, is only now receiving attention. The research has been limited; as Stroud (2015) writes, there may be reason selective exposure would be affected in the same way as other forms of selectivity, such as biased assimilation. The argument for equivalent effects is based upon the fact that biased search and assimilation are so closely connected in identity protective cognition processes — both being guided by group membership heuristics (e.g., Fischer, et al., 2005; Taber & Lodge, 2006). Conversely, as Stroud again points out, assimilation and search may be distinct processes. In a study of both phenomena, for example, Meffert et al. (2006) found evidence of party-aligned beliefs in the absence of selective exposure. There is even some evidence that selective exposure may increase among affirmed participants (Munro & Stansbury, 2009; Reed & Aspinwall, 1998). This suggests affirmation may affect assimilation and search differently. Along these lines, evidence reported by Stroud (2015) suggests self-affirmation might not be an effective intervention for selective exposure, despite theoretical promise. Still, further investigation is certainly warranted. Not only can a single study never be dispositive, but motivated reasoning is often idiosyncratic across issue domains (e.g., Veenstra et al., 2014; Veenstra et al., 2016).

### **Social Identity Complexity and Relative Prominence**

There may be other ways to alter self-perspective to reduce defensiveness. Indeed, this dissertation suggests that reducing the relative prominence of threatened identity by raising the salience of many identities simultaneously may result in more consistent reduction in group alignment. This potential attenuator is based upon the concept of social identity complexity — individuals' subjective representation of their multiple identities' interrelationships (Roccas & Brewer, 2002). Only one study has manipulated complexity, or what the authors more clearly

refer to as “the perceived relationship among and thus prominence of constituent identities,” (Grant & Hogg, 2012, p. 539). When an identity has to compete with more salient groups in the cognitive repertoire (i.e., greater “complexity”), that identity will be less prominent and bear less upon self-conception and subsequent cognition (Grant & Hogg, 2012). This study applies this logic to identity protective information search and processing. By raising the salience of multiple identities at once, identity complexity priming may reduce the sway of particular group commitments.

Individuals “probably possess a greater amount of information about the self than any other cognitive domain,” (Linville, 1985, p. 96; Baumeister, 1998). The richness of this data demands “elaborate organization and a higher level of differentiation to function” efficiently (Linville, 1985, p. 96) and much of the rest of the information we gather from the world around us, especially the social world, is related to the self when processed. A unitary structure could not handle these demands. A more complex representational structure of the self is necessary, particularly to manage the multiple social identities individuals possess, which may overlap to different degrees. The dynamic nature of these representational structures may provide opportunities to alter identity’s effects on information processing.

Grant and Hogg (2012) provide the only experimental exploration of subjective identity prominence, showing that it can be contextually primed, and therefore offer the best account of its underlying mechanisms. As they rightly point out, Roccas and Brewer’s (2002) conception of complexity seems to predict divergent effects of its two components — identity uniqueness and identity overlap — under conditions of self-uncertainty. Grant and Hogg propose that uncertainty reduction dictates individuals in such conditions are more likely to identify with a group if they

a) have few alternative competing group identities in their cognitive repertoire — what Roccas and Brewer's theory would deem low complexity — *and* if b) the group's attributes makes it highly distinct from others with little overlap — what would be called high complexity. Grant and Hogg show that this contradiction is illusory, proposing that both identity uniqueness and overlap are aspects of *relative prominence*, and affect uncertainty-reducing group identification through the same logic. Both perceived uniqueness and low perceived overlap aspects contribute to increase group prominence within the self-concept. Their findings support the notion that having few salient social identities contributes to zealotry or extreme views (Hogg, 2005; Hogg et al., 2011).

When identity representation is low on complexity (one identity with relative higher prominence), individuals are more likely to rely on, or activate, their perceptual screen, filtering information to serve, protect, and bolster that identity. When complexity is high, and relative prominence low, the incentive for dissonance avoidance is removed (Linville, 1985). Lower complexity may result in greater swings in affect and global self-appraisal, while higher complexity may act as a buffer (see also Morgan & Janoff-Bulman, 1994). Highly related aspects of self can be contaminated by a hit to any one aspect; this dense structure is more vulnerable. However, when individuals see their identities as complex they accept greater diversity in groups and are less negative toward outgroups (Brewer & Pierce, 2005), because complexity mediates between threat and bias and makes distinctions less clear. These individuals also have better access to disparate knowledge sets (Cheng, Sanchez-Burks & Lee, 2007; Leung, et al., 2008) that can strengthen the groups to which they belong.



The degree of identity interrelation is likely to vary across individuals (Settles, Seller & Damas, 2002). Variation can be attributed to experiential and motivational factors that affect accessibility of the representations that distinguish between groups (Roccas & Brewer, 2002). Motivational factors include both dispositional and contextual, the latter of which may allow for an experimental intervention.

The most powerful contextual factor in subjective prominence of an identity is threat. Threat raises salience (inducing dominance) and may induce stress which depletes cognitive resources that allow for complex representations (Rothgerber, 1997). Conversely, because integrative complexity requires effortful cognitive strategies (Tetlock, 1983; 1986; Roccas & Brewer, 2002, p. 93), when cognitive resources are greater, complex integration of multiple identity representations is more likely. Additionally, the more contextually distinct an identity (e.g., one man in a large group of women), the more likely it serves as a dominant, simple representation (Cota & Dion, 1986; McGuire & McGuire, 1988). In all cases, these contextual states temporarily reduce the complexity available in individual's self concepts, often reducing them to a single dominant, threat-defending identity that results in distorted information seeking behavior and assimilation. Conversely, an intervention that boosts complexity could result in less bias.

### **Identity and Motivated Network Activation**

The effects of conjuring disparate components of an individual's social identity should not only reduce the sway of a single affiliation on beliefs and media selection, but also which portions of their discussion network they activate to discuss issues. Interpersonal networks serve as a critical source of information that facilitates attitude formation — regarding the social

world, the political sphere, and nearly all other domains. Indeed, attitudes are dynamic products of individual-level interactions with surrounding social contexts (e.g., Bloom & Levitan, 2011; Erikson, 1988). Some of the mass communication field's seminal studies explored the two-step flow of information from mass media, through opinion leaders, on to broader networks (Lazarsfeld, Berelson, & Gaudet, 1944; Katz & Lazarsfeld, 1955); informal contacts were discovered to be the primary source of election information for most respondents. While the hypothesis has been "amended in a dozen ways to prefer influence over information, talk between equals over opinion leaders, multiple steps over two steps, etc.," (Katz, 1987, p. 26), our interpersonal networks continue to play an important role in our acquisition of attitudes, opinions, and beliefs (Choi, 2015; Huckfeldt & Sprague, 1995; Levitan & Visser, 2009; Li, 2013; Mutz, 2006; Park, 2013; Perloff, 2013; Visser & Mirabile, 2004), even if the interactions no longer necessarily occur face to face. Therefore, studies designed to test the mitigation of selective exposure to information should account not just for media choice, but the contextually activated discussion networks of participants.

**Density and Homogeneity.** Structure and composition of networks are critical factors in their influence. The level of interconnectedness within a network, or density, as well as the degree of similarity or agreement between individuals and their set of contacts augment knowledge and group-alignment. More diversity, broadly speaking, is able to prevent echo chambers, and improve information quality (e.g., Schafer, 2015). Weak ties (which reduce network density) are more likely to bring in novel information through bridging more disparate networks (Bakshy et al., 2012; Granovetter, 1973; Meraz, 2013). Barbera (2014) finds that weak ties lead to more moderate views due to a greater proportion of novel information distributed

throughout a network. Klar and Shmargad (2016) show that less-dense networks with more weak ties increase exposure to underrepresented viewpoints, and individuals within these networks become more open to persuasion. Individuals in such low-density networks reported learning more about and placing more importance on the issue being discussed, leading to shifts toward the underrepresented view. Conversely, those in dense, or high-cluster networks were denied this exposure and opportunity for change. Likewise, Erisen and Erisen (2012) show that cohesive, interconnected networks consistently impair the quality of political thinking, in terms of volume, causality, and integrative complexity.

Similarly, disagreement (i.e., heterogeneity) within personal networks likely has several beneficial outcomes relevant to belief formation. It can increase tolerance by depolarizing feelings about in and out-groups (Parsons, 2010); likewise, Klar (2013) finds that heterogeneous social spaces discourage directional motivated reasoning. Also, anticipation of future disagreement can drive an information search for new material (Eveland, 2004; Xenos et al., 2011), increase knowledge and sophistication through increased exposure to diverse or novel information (Gastil & Dillard, 1999; Scheufele et al., 2004), and can in turn strengthen one's arguments. It increases understanding of both one's own position and the rationales supporting the opposition's (Barabas, 2004; Huckfeldt, Mendez, & Osborn, 2004; Mutz, 2002). This can in turn lead to higher levels of persuasion (Levitan & Visser, 2008).

On the other hand, being surrounded by more like-minded individuals leads to greater polarization (Huckfeldt et al., 2004). Discussion that occurs in homogenous social groups may increase motivated reasoning through increasing the salience of a shared identity and its accompanying normative motivation (Klar, 2014). Further, individuals in attitudinally congruent

networks are more resistant to change, as such networks decrease ambivalence and boost certainty (Visser & Mirabile, 2004). This is undesirable because ambivalence is arguably a normative good (Lavine, Johnson, & Steenbergen, 2012). It makes us process information more deliberately, more via the central route than the peripheral — relying less on heuristics and more on evidentiary reasoning (Lavine et al., 2012).

**Contextual Activation.** But the network we consult does not remain constant as topics, cues, or our internal psychological conditions change (Menon & Blount, 2003; Menon et al., 2006; Smith et al., 2012). More broadly speaking, cognitive activation takes place as concepts or attributes are primed and become accessible (Higgins & Kruglanski, 1996). Smith and colleagues show how this applies to networks — situational priming can determine which ties surface and structure the individual's network (2012). Just as identity salience can drive selective exposure to likeminded media, a dominant identity can constrict the nature of the portions of one's network they activate in seeking information. This subconscious process of motivated information seeking mirrors the subconscious one underlying motivated reasoning and selective exposure; individuals do not necessarily seek out group-consonant voices intentionally. This common sense mechanism, where identity salience may structure our contextually activated networks, has been neglected by researchers. Although networks are recognized as dynamic phenomena, most studies measure their composition and antecedents as static (e.g., Flynn et al., 2006; Klein et al., 2004; McPherson et al., 2006; Mouw, 2002; Sasovova et al., 2010; Srivastava & Banaji, 2011).

Instead, network consultation is in part governed by the salient concerns of any given information-seeking task. We seek different components of our far-larger latent network based on conscious or unconscious motivations (Menon & Smith, 2014). Recently, Menon and Smith

(2014) linked identity and cognitive network activation during times of change. Because individuals' sense of who they are shifts situationally (White, 2008), "so too does their mental representation of their social networks," (Menon & Smith, 2014, p. 117; Smith et al., 2012). This allows for a shift in focus from between-subjects to within-subjects variation in networks. And, rather than being strategic in network activation, Menon and Smith argue that patterns of activation depend on underlying psychological states. Because a social identity complexity prime would be likely to activate disparate identities and their associated social groups, we can expect complexity to result in less density — fewer interconnections — within an activated network subset. Likewise, complexity may reduce the average domain-based similarity of contacts to the individual if the individual is selecting a network subset with many identities simultaneously activated. However, there is not a clear hypothetical relationship between self-affirmation and the structure or composition of networks.

### **Conspiracy Beliefs**

Conspiracy beliefs may be seen as an extreme subset of the group-aligned perceptions detailed previously. Although conspiracy beliefs are espoused by average individuals and not only extremists, they go beyond most types of forms of misinformation in scope and assumed intent of their targets (Miller et al., 2015). Sunstein and Vermeule (2009, p. 205) define conspiracy theories as "an effort to explain some event or practice by reference to the machinations of powerful people, who attempt to conceal their role." Uscinski and Parent (2014, p. 31) highlight how conspiracy theories focus on "secret arrangement[s] between two or more actors to usurp political or economic power, violate established rights, hoard vital secrets, or unlawfully alter government institutions." Generally, then, conspiracies speak to the unseen

actions of power-seeking groups “to which individuals can attribute an insidious explanation to a confusing event,” (Miller et al., 2015).

Conspiracy theory endorsement has been associated with epistemic needs — order, control, certainty, and reducing anxiety in their absence (Goertzel, 1994; Sunstein, 2014; Swami & Coles, 2010; Whitson & Galinsky, 2008). However, conspiracy endorsement is also a highly motivated process that serves social identity needs (Kahan et al., 2011; Miller et al., 2015; Uscinski & Parent, 2014), much as with the general biased assimilation of beliefs outlined previously. That is, people are more likely to endorse conspiracies that make rival groups look bad (Berinsky, 2012). In essence, conspiracy belief is an extreme form of motivated reasoning. Not surprisingly, we might expect strong group affiliates to be especially likely to engage in this behavior, as their status implies greater ability and motivation to do so (Miller et al., 2015). These individuals are better able to apply their group membership to new information and understand its implications for their group going forward. Moreover, the strength of their affiliation motivates a greater need to protect their group’s stances and impugn the outgroup’s.

The forms of cognition associated with conspiracy ideation — and its reduction — are important when considering the hypothetical effects of the two interventions explored in this dissertation. For example, there is evidence that aspects of schizotypy that parallel disorganized thought processes are linked with greater endorsement of conspiracies (Barron, Morgan, Towell, Altemeyer, & Swami, 2014; Darwin, Neave, & Holmes, 2011), as is belief in contradictory statements (Wood, Douglas, & Sutton, 2012). These kinds of thought patterns could be induced by an identity complexity prime, which would prime many sometimes-conflicting aspects of the self-concept. That is, while considering the many social groups to which one belongs could

reduce the dominance of any single group, it could also increase the chances of viewing even in-group-defaming conspiracies as plausible. On the other hand, Swami et al. (2014) show that analytic thinking reduces belief in conspiracy theories (see also Banas & Miller, 2013). Because self-affirmation has been shown to moderate evaluations of information by way of increasing sensitivity to intrinsic argument strength, regardless of the perceivers' affiliations or views (Correll, Spencer & Zanna, 2004), we can expect self-affirmation to reduce generalized conspiracy beliefs, which are inherently unsupported by evidence and tend to be extreme.

## CHAPTER 3

### HYPOTHESES AND RESEARCH QUESTIONS

#### **Assimilation — Group Beliefs and Behavior**

In general, the negative claims by outgroup members in dispute stimuli should provide a setting to induce group cohesion (e.g., Lee & Otattati, 1995). This could be exacerbated by threat primes, but also could be mitigated by reconstitutions of the self concept that buffer against group-threat's influence. Two competing ideas regarding such reconstitution are tested. However, while the following set of hypotheses follow prior studies' findings about the success of self-affirmation, the novel competing intervention, relative prominence priming, is positioned as a more consistent means of diffusing group-based bias in light of concerns raised by e.g., Stroud (2015).

Based on the review of the literature, this study hypothesizes that self-affirmation and relative identity prominence priming will have related but not fully symmetrical effects. In both cases, the theoretical underpinnings point to the potential for reducing biased assimilation of social identity-threatening information. While we might reasonably expect main effects of the interventions on group alignment, the literature suggest it is more likely that their effects will be limited to strongly affiliated members. Therefore it is hypothesized that the interventions will result in lower mean group alignment among treated strong members than among strong members in the control group. Relative to strongly affiliated group members in the control and threat conditions:



**H1.** Relative identity prominence priming will reduce group alignment in factual beliefs among the strongly affiliated.

**H2.** Self-affirmation priming will reduce group alignment in factual beliefs among the strongly affiliated.

**H3.** Relative identity prominence priming will reduce group alignment in behavior among the strongly affiliated.

**H4.** Self-affirmation priming will reduce group alignment in behavior among the strongly affiliated.

The interventions are expected to perform the same way in reducing group-aligned conspiracy beliefs as with the less extreme factual beliefs in H1 and H2. Relative to strongly affiliated group members in the control and threat conditions:

**H5.** Relative identity prominence priming will reduce group alignment in conspiracy beliefs among the strongly affiliated.

**H6.** Self-affirmation priming will reduce group alignment in conspiracy beliefs among the strongly affiliated.

However, due to the forms of cognition associated with conspiracy ideation, as well as those assumed to stem from each of the interventions, it is expected that the effects of interventions will diverge for generalized conspiracy beliefs (i.e., including conspiracy beliefs that target one's in-group). Specifically, the disorganized and potentially conflicting associations brought about by a complexity prime are hypothesized to increase generalized endorsement. Conversely, the increased sensitivity to argument strength produced by self-affirmation is hypothesized to lower generalized endorsement.

**H7.** Relative identity prominence priming will increase generalized conspiracy endorsement.

**H8.** Self-affirmation priming will reduce generalized conspiracy endorsement.

### **Search — Media and Networks**

In real-world situations, eventual beliefs depend on the nature of individuals' search for information; if they engage in biased search, the promise of unbiased assimilation may be moot. Self-affirmation, which has been shown to reduce biased assimilation, may also reduce selective exposure as the two processes are based on similar identity protective needs (Fischer, et al., 2005; Taber & Lodge, 2006). However, these may be distinct processes, affected differently by affirmation (Meffert et al., 2006); Affirmation may even enhance selective exposure (Munro & Stansbury, 2009; Reed & Aspinwall, 1998; Stroud, 2015). This is therefore posed as a research question. Alternately, complexity priming may reduce selective exposure through reduced prominence of the relevant identity in relation to the number of others primed. Relative to strongly affiliated group members in the control and threat conditions, it is hypothesized that:

**H9.** Relative identity prominence priming will reduce group alignment in information search among the strongly affiliated.

**RQ1.** How, if at all, will self-affirmation affect selective exposure to group-aligned information?

Finally, because social identity complexity primes associations with numerous, disparate social groups, it may also expand individuals' contextually activated social networks to include more diverse components of their latent network versus a control group or threatened respondents. Relative to participants in the control and threat conditions:

**H10.** Relative identity prominence priming will reduce network density.

**H11.** Relative identity prominence priming will reduce network homogeneity.

Because homogeneity, or average similarity of contacts to the individual regarding the relevant domain (in this study, political or religious views) is explicitly governed by group affiliation, a research question asks if it is moderated by strength of affiliation.

**RQ2.** Will strength of affiliation moderate relative identity prominence priming's effect on homogeneity?

## CHAPTER 4

### STUDY 1: MINING SPILL DISPUTE

Data for a pilot study, hereafter Study 1, were collected using Amazon Mechanical Turk's panel of human intelligence task workers. Demographically, Turkers are marginally more diverse than the typical Internet sample, and significantly more diverse than an undergraduate sample (Buhrmester, Kwang & Gosling, 2011). Data from Mechanical Turk studies is at least as reliable as that collected using many other traditional methods; Participants follow directions at least as well as traditional counterparts (Paolacci, Chandler & Ipeirotis, 2010, p. 417). Mullinix et al. (2015) conducted a series of parallel framing experiments, comparing effects across a nationally representative survey sample, a Mechanical Turk sample, a student sample and other convenient samples. They found that not only were Mechanical Turk samples' effects in the same direction as those of the national sample, but of the same significance threshold and similar magnitude for each of the four topics examined.

Respondents provided an  $N$  of 257, with a mean age of 35.73 ( $SD = 12.23$ ). They were 76.6% white, 50.7% male, with a median income of \$20-40,000 and median education of a bachelor's or associate's degree. Respondents were 27.2% Republican, 23.8% Independent, and 50% Democrat, with economic ideology  $M = 3.78$ ,  $SD = 1.80$ , and social ideology  $M = 3.15$ ,  $SD = 1.78$ , both on 7-pt. (coded conservative) scales. Mean political interest was 4.58,  $SD = 1.67$ , mean environmental interest was 5.12,  $SD = 1.63$ , and reported familiarity with the fictional mining spill was  $M = 2.64$ ,  $SD = 1.76$ , all on 7-pt scales. Respondents were randomly assigned to one of the three experimental conditions or the control. Cell size ranged from 60 to 71.

Random assignment was checked with ANOVA, with age, race, gender, income, education, party, affiliation strength, and political interest not varying significantly across conditions.

## **Design**

*Experimental Conditions.* Social identity complexity was primed with the prompt “People are complex and belong to many different social groups at the same time. Which identities do you consider important in providing you with a sense of who you are?” Participants were provided with a list of common examples (see Appendix for full wording of all prompts) to select from or add to, and asked to “briefly describe how each identity you selected applies to you and what it means to you.” This prime echoes the numerical identity prominence prime used by Grant and Hogg (2012), which asked participants to write about either 1 (low complexity) or 3 (high complexity) social identities “important in providing a sense of who they are,” (p. 540), while also intending to stimulate a larger repertoire of accessible identities, and thus lower prominence of any one. Of the two primes employed by Grant and Hogg (2012), both of which were validated, the numerical (i.e., uniqueness) prime was chosen to decrease prominence instead of the overlap prime because the logic by which it reduces prominence can more easily be extended (to a larger repertoire and hypothetically, even lower prominence of a threatened group).

Self-affirmation was primed by providing participants with list of values (e.g., family relationships, friendships, romantic relationships, work/career, education/personal growth, etc.). After selecting the most personally important value, they were instructed to “think about this value and how this value has influenced your past behaviors or attitudes and how you use this value in your everyday life” and write about why the value is important to them. The values,

taken from the Personal Values Questionnaire II (Blackledge et al., 2007; Cullen, 2014), are generally in line with the most common affirmation instruments (e.g., Nyhan & Reifler, 2013) but give greater focus to internal values. Political identity threat was primed with the following: “Some voters are concerned that the principles that underlie their party affiliations are being threatened by current policies. What about you? When you make political decisions, how important is it to protect your party’s principles?” This threat prime is designed to raise partisan identity prominence (Klar, 2013) and prompt directional motivated reasoning. Participants in the control listed everything they had to eat or drink in the last 48 hours (Nyhan & Reifler, 2013).

***Materials and Procedure.*** Following the writing prompt, participants completed a battery of manipulation checks. Next, they were informed that they would be asked about “a recent event in the news. An investigation by the United States Environmental Protection Agency at an Alaskan mine went badly awry earlier this year, triggering a spill of zinc, iron, copper, and other heavy metals into the water supply.” They then selected a news story they would choose to read about it, from one of three headlines. These headlines were neutral in content, but were attached to a Fox News logo, MSNBC logo, or AP logo, which were randomized. Next, participants read a news story on the spill, constant across conditions. The article reported two statements from each group (Republicans vs. Democrats and the EPA) that blamed the other for the spill. The article did not adjudicate or fact-check any claims. Participants then reported their belief in each of four claims. Last, they answered demographic questions.

## **Measures**

***Mediators and Covariates.*** Complexity manipulation was gauged by asking “How many important different identities do you feel you have?” on a 9-pt scale (Grant & Hogg, 2012),  $M =$

4.43,  $SD = 2.49$ . Self-affirmation was checked with a 5-question battery, 5-pt scale (Napper, Harris & Epton, 2009), Chronbach's  $\alpha = .932$ ,  $M = 3.92$ ,  $SD = .94$ . These questions asked respondents if they agreed that the prompt made them: "Think about positive aspects of myself"; "Focus my attention on who I am"; "Aware of things I value about myself"; "Think about things personally important to me"; and "Think about my values." An alternate mediator for affirmation, self-concept clarity, was measured using a 3-question battery with a 5-pt scale (Cerully, 2011; Nezlek & Plesko, 2001), Chronbach's  $\alpha = .891$ ,  $M = 2.48$ ,  $SD = 1.11$ . Questions included: "My beliefs about myself conflict with one another"; "My beliefs about myself seem to change"; and "If I were asked to describe my personality, my description might end up being different today compared to another day." To test for primes' effects across levels of group identification, strength of party affiliation (19.1% weak, 48.2% moderate, 31.5% strong) was measured. Weak and moderate responders were collapsed to create a binary measure.

***Dependent Variables.*** *Group-aligned belief* was measured by combining respondent party with their (7-pt agree-disagree) responses to questions based on the simulated news article. These questions, adapted from Pingree, Brossard and McLeod's (2014) measurement of factual beliefs were: "The EPA probably allowed the toxic spill to occur on purpose," ( $M = 3.02$ ,  $SD = 1.69$ ); "The EPA probably is not being held to the same standard they would apply to a private business," ( $M = 4.57$ ,  $SD = 1.58$ ); "Republican lawmakers were probably willing to risk the spill in order to discredit the EPA," ( $M = 4.10$ ,  $SD = 1.73$ ); and "Republicans are probably using the spill to undercut the Obama administration's rollout of emissions regulations," ( $M = 4.47$ ,  $SD = 1.69$ ). Each of these beliefs cast blame on either Republicans or Democrats and the EPA; those which blamed Republicans were reverse coded so that all beliefs ranged from Democrat-aligned

(1) to Republican-aligned (7). These were combined, recoded with a midpoint at 0, and crossed with respondent party (also recoded to midpoint at 0) to create a final group-aligned, or selective, belief measure ( $M = 1.19$ ,  $SD = 2.01$ ). This measure was converted to a standardized z-score.

Of the two claims made against each side in the article, one was especially designed to tap conspiracy ideation. These were “The EPA probably allowed the toxic spill to occur on purpose,” and “Republican lawmakers were probably willing to risk the spill in order to discredit the EPA.” *Group aligned conspiracy belief* was measured by reversing the in-party targeting conspiracy belief for each party, adding it to the out-party belief, averaging the two and crossing this term with respondent party. *Generalized conspiracy belief* was measured in three ways: a simple average of the two beliefs, irrespective of respondent party ( $M = 3.57$ ,  $SD = 1.29$ ); a dichotomous measure of whether the respondent agreed with each belief above the midpoint (i.e., 5-7),  $M = .14$ ,  $SD = .35$ ; and a dichotomous measure of whether they endorsed neither belief above the midpoint,  $M = .45$ ,  $SD = .50$ .

*Selective exposure* to likeminded information was measured by combining respondent party affiliation with their news outlet choice (Fox News, MSNBC, Associated Press). Those whose media section ideologically aligned with their party (i.e., Republicans choosing Fox News and Democrats choosing MSNBC) were coded 1, all others 0 ( $M = .23$ ,  $SD = .42$ ).

### **Manipulation Checks**

Respondents assigned to the complexity manipulation reported feeling that they had significantly more important identities ( $M = 4.94$ ,  $SD = 2.62$ ) than those in the control group ( $M = 3.88$ ,  $SD = 2.48$ ,  $p = .022$ ). Respondents assigned to the affirmation condition reported feeling



significantly more affirmed ( $M = 4.28$ ,  $SD = .63$ ) than those in the control group ( $M = 3.36$ ,  $SD = 1.13$ ,  $p = .000$ ).

## Results

### Group-Aligned Belief

All hypotheses were tested by comparing the interventions against the control group via parameter estimates. Full ANOVA results are reported for descriptive purposes. H1 and H2 were tested using an ANOVA model with condition, strength of party affiliation and their interaction term as factors and party-aligned belief as dependent variable. Party strength had a significant main effect on party-aligned belief,  $F(1, 197) = 36.82$ ,  $p < .001$ , as did condition,  $F(3, 197) = 3.53$ ,  $p = .016$ . The interaction was not significant,  $F(3, 197) = 2.01$ ,  $p = .113$ . Pairwise comparisons showed party alignment was significantly lower in the complexity condition ( $M = -.14$ ,  $SE = .12$ ) than in the affirmation ( $M = .44$ ,  $SE = .14$ ,  $p = .003$ ) and control ( $M = .23$ ,  $SE = .14$ ,  $p = .05$ ) conditions. Parameter estimates, in which each condition was compared directly against the control, showed that complexity resulted in significantly less party alignment,  $\beta = -.64$ ,  $SE = .30$ ,  $p = .036$ .

Complexity resulted in the lowest mean party alignment overall, as well as among strong party identifiers in particular (see Table 1.1, Table 1.2, and Figure 1.1). These results provided some support for H1 (although the effect was not moderated by strength of affiliation), but H2 was rejected. H3 and H4 (behavioral alignment) were not tested in Study 1.

### Effects on Conspiracy Beliefs

H5 and H6 predicted that complexity and affirmation would reduce group-aligned conspiracy endorsement for strongly affiliated members. This was tested using an ANOVA with

condition, strength of affiliation, and their interaction as fixed factors. Only strength of affiliation had a significant main effect,  $F(1, 253) = 13.86, p < .001$ , with no main effect of condition  $F(3, 253) = .74, p = .527$ , nor the interaction,  $F(3, 253) = 1.16, p = .326$ , detected. H5 and H6 were not supported.

H7 and H8 predicted complexity would increase, and affirmation decrease, conspiracy endorsement in general, regardless of in- or out-group targets. This question was addressed by first using the average of agreement with the two conspiracy beliefs; second, with a dichotomous measure of whether the respondent agreed above the midpoint (i.e., 5 through 7 on a 7-pt. scale) with both conspiracy beliefs; and third, a dichotomous measure of whether the respondent agreed with neither conspiracy belief above the midpoint. Each was tested as the dependent variable in ANOVA models with condition as a fixed factor.

In the averaged agreement model, there was a main effect of condition,  $F(3, 253) = 2.94, p = .034$ , with pairwise comparison showing complexity-primed individuals exhibited significantly greater generalized endorsement than the control,  $p = .034$ . Meanwhile, affirmed participants' endorsement was significantly less than the complexity ( $p = .016$ ) or threat (.046) groups'. In the dual endorsement model, there was also a main effect,  $F(3, 253) = 2.77, p = .042$ , with pairwise comparison showing affirmed participants were less likely to endorse both than were those in the threat condition,  $p = .008$ . In the neither-endorsed model, the main effect of condition was significant at the  $p < .1$  level,  $F(3, 253) = 2.12, p = .098$ , with pairwise comparison showing complexity condition participants were significantly less likely to endorse neither conspiracy than were those in the control,  $p = .014$ . In sum, H7 and H8 received support, with complexity increasing and affirmation decreasing generalized conspiracy endorsement.

## Selective Exposure

H9 predicted that complexity priming would result in a lower level of selective exposure among strongly affiliated group members. RQ1 asked how affirmation would affect strongly affiliated group members. An ANOVA model with condition, strength, and their interaction as fixed factors and selective exposure as the dependent variable addressed these. This model showed no main effect of condition ( $F(3, 253) = .62, p = .60$ ) or strength ( $F(1, 253) = 1.36, p = .245$ ), but a significant interaction,  $F(3, 253) = 3.66, p = .013$ . Parameter estimates showed a significant reduction effect of complexity vs. the control,  $\beta = -.81, SE = .33, p = .014$ , with complexity-primed strong partisans exhibiting significantly less bias than weak partisans,  $\beta = -1.18, SE = .39, p = .003$  (see Table 1.3). Network effects were not tested in Study 1.

## CHAPTER 5

### STUDY 2: ADVANCED BIOFUELS DISPUTE

Study 2 examined priming effects in the context of a partisan advanced biofuels dispute.

#### Sample

598 participants were recruited via Amazon Mechanical Turk in March 2016, and compensated \$.75. Participants were 53% female, 75.4% white, with a mean age of 39.22,  $SD = 13.5$ , median education of a Bachelor's or Associate's, and median income of \$20-40K. They were 44.1% Democrat, 19.9% Republican, and 36% Independent, with 52% saying their affiliation was strong and 48% not so strong. Accounting for independents who leaned toward one party or another, the participants were 57.5% Democrat, 27.3% Republican, and 15.2% Independent. Economic ideology was  $M = 3.83$ ,  $SD = 1.72$ , social ideology was  $M = 3.27$ ,  $SD = 1.73$ , political interest was  $M = 4.85$ ,  $SD = 1.73$ , and reported familiarity with the issue was  $M = 3.32$ ,  $SD = 1.69$ , all on 7-pt scales.

#### Design and Procedure

Participants were randomly assigned to the four conditions (Complexity  $N = 150$ , Affirmation  $N = 130$ , Threat  $N = 174$ , Control  $N = 144$ ). Random assignment check by way of ANOVA showed these groups did not vary based on the demographic characteristics listed above. The content of the primes were identical to those in Study 1, except for threat, which was replaced by Klar's (2013) party identity threat wording.

Following the priming exercise, participants completed a manipulation check battery, followed by a brief statement about a partisan dispute over an advanced biofuels mandate,

questions about their discussion network, media choices, and a two-minute news video. The video included claims made in favor of advanced biofuels, attributed to Democrats, and claims against, attributed to Republicans. Participants then answered questions about perceived risks, benefits, and their behavioral support. They then answered demographic questions. Full wording for primes, questions, and the stimulus material can be found in the Appendix.

## Measures

***Risk, Benefit, Behavior, and Conspiracy.*** Beliefs about the disputed issue were assessed by measuring perception of a series of risks and benefits claimed by the opposing parties in the stimulus, both on 7-pt. scales. These items were drawn from Fung et al. (2014), and cover economic, environmental, and social aspects of biofuels technology. Risk perception was measured with six items, Chronbach's alpha = .854,  $M = 3.77$ ,  $SD = 1.21$ . Benefit perception was also measured with six items, Chronbach's alpha = .901,  $M = 5.21$ ,  $SD = 1.13$ . Pro-biofuels behavioral support was measured with five items (Fung et al., 2014) asking about support for federal and state funding, production, and use, Chronbach's alpha = .962,  $M = 4.95$ ,  $SD = 1.54$ .

Conspiracy beliefs were also included in the analysis. The news story included a claim from each party accusing the other of conspiring with and acting on behalf of lobbyists — Republicans and the oil lobby or Democrats and the biofuels lobby. A pretest showed these beliefs loaded onto a separate factor than the other belief items in terms of matching the definition of conspiracy belief (see Appendix for full wording and factor analysis). *Conspiracy endorsement* was measured first by summing and averaging these terms,  $M = 4.33$ ,  $SD = 1.15$ . Alternately, endorsement was approached by collapsing responses according to whether the participant agreed above the midpoint of the scale (5 through 7), resulting in dichotomous

measures of *dual-endorsement* ( $M = .20, SD = .40$ ) and *neither-endorsement* ( $M = .28, SD = .45$ ). These three different approaches were all included because they measure different components of conspiracy belief, which overlap to some degree but not fully. Taken together, they can provide a more dimensional view of the phenomenon.

***Party Aligned Measures.*** Party-aligned beliefs were calculated by subtracting risk from benefits ( $M = 1.44, SD = 2.05$ ), and crossing with respondent party,  $M = 1.18, SD = 2.03$  *Party-aligned behavior*; also the product of crossing reported behavioral support with party, had a mean of  $.81, SD = 1.49$ . Finally, a *party-aligned conspiracy belief* measure was calculated by centering and crossing the conspiracy endorsement measure with respondent party, ranging from -3 to 3,  $M = .71, SD = 1.11$ .

***Selective Exposure.*** Selective exposure to likeminded media was measured following Stroud (2015) and others, providing participants with 6 slanted news headlines, 3 pro-attitudinal and 3 counter. Participants were allowed to select multiple headlines. A pretest showed the categories loaded on two separate factors (see Appendix for full wording and factor analysis). *Pro-Attitudinal* choice ( $M = .72, SD = .74$ ) and *Counter-Attitudinal* choice ( $M = .51, SD = .72$ ) were computed by crossing slant direction and respondent party. *Selective Exposure* ( $M = .21, SD = .98$ ) was computed by subtracting Counter-Attitudinal from Pro-Attitudinal choices, and so ranged from -3 to 3.

***Network Measures.*** Selective exposure to interpersonal information sources was also gauged using a series of activated network measures. Participants were asked to provide up to 5 discussion partners, the strength of ties among these (0, 1, 2), and the political similarity of each to the participant (1-7). The average network size was  $M = 3.45, SD = 1.43$ . *Basic network*

*density* was calculated by summing the strength of ties and dividing by total possible ties of each respondent's network,  $M = .69$ ,  $SD = .71$ . To account for the effect of network size, a final version of this variable was computed by centering density on 0 and multiplying by total network size, thus delineating large-and-dense, large-and-sparse, small-and-dense, and small-and-sparse networks; *amplified network density* ranged from -5 to 5,  $M = .68$ ,  $SD = 2.91$ .

Finally, participants provided 7-pt. ratings of perceived similarity of each contact's political views to their own. *Political network homogeneity* took the average of these (using pairwise deletion due to default missing data),  $M = 5.32$ ,  $SD = 1.20$ . Following the same logic as with density, an amplified homogeneity measure was computed by centering and multiplying by network size (thus ranging from -15 to 15),  $M = 4.55$ ,  $SD = 4.78$ .

**Covariates.** In addition to party affiliation strength (52% strong), two alternate measures of strength of identity were taken. *Partisan social identity* was measured with four items on a 5-pt. scale (Huddy, Mason & Aroe, 2010), which included "How important is being a Democrat/Republican/Independent to you?"; "How well does the term Democrat/Republican/Independent describe you?"; "When talking about Democrats/Republicans/Independents, how often do you use 'we' instead of 'they'?" and "To what extent do you think of yourself as being a Democrat/Republican/Independent?", Chronbach's alpha = .902,  $M = 2.84$ ,  $SD = 1.94$ . Partisan SID was dichotomized for use as a moderator of priming effects.

### **Manipulation Check**

Priming effects were tested using the same measures as Study 1. The complexity prime resulted in participants feeling they had significantly more important identities ( $M = 5.27$ , S.E. = .20) than those in the control ( $M = 3.33$ , S.E. = .20),  $F(3, 597) = 16.20$ ,  $p < .001$ . Those in the

affirmation ( $M = 4.22, p = .002$ ) and threat ( $4.14, p < .001$ ) conditions felt significantly fewer identities than the complexity condition participants, and significantly more than those in the control ( $p = .013; p = .015$ ). The affirmation prime resulted in significantly more felt affirmation ( $M = 4.18, S.E. = .07$ ) than the control ( $M = 3.06, S.E. = .06$ ),  $F(3, 597) = 73.81, p < .001$ . The affirmation condition mean was also significantly higher than the threat condition ( $M = 3.85, p < .001$ ), while the threat condition surpassed the control ( $p < .001$ ). Self-concept clarity ( $F(3, 597) = .73, p = .537$ ) did not vary among conditions.

## Results

### Effects on Risk and Benefit Perception

H1 and H2 predicted that complexity and affirmation would result in lower levels of group-aligned beliefs at high levels of affiliation. This was tested using an ANOVA model with party-aligned risk-benefit perception as the dependent variable, with condition, strength of affiliation, and their interaction as fixed factors. Strength of affiliation increased party alignment ( $F(1, 598) = 28.75, p < .001$ ),  $\beta = 1.15, SE = .33, p < .001$ . Condition ( $F(3, 598) = 1.58, p = .755$ ) and the interaction ( $F(3, 598) = 3.62, p = .435$ ) were not significant. Overall, mean party alignment ranged from the a low in the threat condition ( $M = 1.03, SE = .15$ ), to complexity ( $M = 1.15, SE = .16$ ) to affirmation ( $M = 1.21, SE = .18$ ) to a high in the control ( $M = 1.26, SE = .17$ ). Among strong partisans, complexity-priming resulted in the lowest party alignment ( $M = 1.39, SE = .23$ ) as shown in Table 2.1.

The PSID specification produced similar findings (see Table 2.2), but with complexity replacing threat as the lowest overall party-aligned condition (Complexity  $M = 1.20$  vs. threat  $M = 1.30$ ; affirmation  $M = 1.31$ , control  $M = 1.43$ ). In sum, while complexity priming resulted in



lower party alignment in perception of risk and benefit in the proposed advanced biofuels mandate, particularly among strong partisans, these differences were not significant.

### **Effects on Behavior**

H3 and H4 predicted that complexity and affirmation primes would reduce group-aligned behavior at the high level of affiliation. This was tested using an ANOVA model with group-aligned behavior as the dependent variable, and condition, affiliation strength, and their interaction as fixed factors. While strength of affiliation resulted in greater alignment with party-line behavior ( $F(1, 597) = 25.80, p < .001$ ), condition ( $F(3, 597) = .55, p = .651$ ) and the interaction ( $F(3, 597) = .15, p = .932$ ) were not significant. The same held true for the PSID moderator model. H3 and H4 were rejected in the biofuels context.

### **Effects on Conspiracy Beliefs**

H5 and H6 predicted that complexity and affirmation would reduce party-aligned conspiracy endorsement for strong partisans. This was tested using an ANOVA with condition, strength of affiliation, and their interaction as fixed factors. This model showed that while strength of affiliation predicted party-aligned endorsement ( $F(1, 598) = 33.84, p < .001$ ), condition ( $F(3, 598) = 1.03, p = .377$ ) and the interaction ( $F(3, 598) = 1.65, p = .177$ ) were not significant. However, parameter estimates indicated that complexity ( $\beta = -.46, SE = .17, p = .009$ ) reduced party alignment, an effect that may have been obscured by its alignment-increasing effect at the low level of affiliation strength ( $\beta = .53, SE = .25, p = .036$ ). In terms of overall condition means for group-aligned conspiracy beliefs, complexity ( $M = .63, SE = .09, p = .137$ ) and threat ( $M = .63, SE = .83, p = .121$ ) were somewhat lower than the control group ( $M = .82, SE = .09$ ), with affirmation ( $M = .72, SE = .10, p = .438$ ) falling between. The reduction in the

threat condition was driven mostly by those in the low-strength cell (where the threat prime was more likely to backfire), as seen in Table 2.3. As predicted, however, complexity priming resulted in the lowest level of group-alignment among strong identifiers ( $M = .71$ ,  $SE = .12$ ).

Similar effects were detected in the model that used PSID as the moderator — partisan identity  $F(1, 598) = 12.43$ ,  $p < .001$ , condition  $F(3, 598) = 1.78$ ,  $p = .149$ , interaction  $F(3, 598) = 1.73$ ,  $p = .160$ . In this model, the parameter estimates showed complexity reduced group alignment,  $\beta = -.54$ ,  $SE = .24$ ,  $p = .022$ , while pairwise comparisons showed complexity priming resulted in significantly lower group alignment than the control,  $p = .024$ .

H7 and H8 predicted complexity would increase, and affirmation would decrease, conspiracy endorsement in general, regardless of in- or out-group targets. This question was addressed using three different constructions of generalized conspiracy endorsement — first, the average of agreement with the two conspiracy beliefs; second, a dichotomous measure of whether the respondent agreed above the midpoint (i.e., 5 through 7 on a 7-pt. scale) with both conspiracy beliefs; and third, a dichotomous measure of whether the respondent agreed with neither conspiracy belief above the midpoint. Each was tested as the dependent variable in ANOVA model with condition, strength of affiliation, and their interaction as fixed factors. This was again followed by a model specification with PSID as the moderator instead of affiliation strength.

In the first model (averaged agreement), condition means did not differ significantly,  $F(3, 598) = 1.96$ ,  $p = .119$ , nor did levels of affiliation strength,  $F(1, 598) = .25$ ,  $p = .617$ . Their interaction was significant at the  $p < .1$  level,  $F(3, 598) = 2.36$ ,  $p = .070$ . Parameter estimates showed complexity to increase generalized conspiracy endorsement relative to the control

condition,  $\beta = .38$ ,  $SE = .18$ ,  $p = .041$ , particularly among strong partisans relative to weak partisans,  $\beta = .52$ ,  $SE = .27$ ,  $p = .055$ . Overall, condition means ranged from a high of 4.45 ( $SE = .09$ ) in the complexity condition, to 4.36 ( $SE = .09$ ) for threat, to 4.33 ( $SE = .10$ ) in the control, to a low of 4.13 ( $SE = .10$ ) for those in the affirmation condition. Pairwise comparison showed that conspiracy endorsement was significantly greater in the complexity condition than affirmation,  $p = .018$ . The PSID specification results did not differ substantively.

In the second model (dual endorsement), condition ( $F(3, 598) = .91$ ,  $p = .436$ ) and strength ( $F(1, 598) = .034$ ,  $p = .855$ ) were not significant, but the interaction term was,  $F(3, 598) = 3.53$ ,  $p = .015$ . Parameter estimates showed the complexity prime increased dual endorsement relative to the control,  $\beta = .21$ ,  $SE = .06$ ,  $p = .001$ . Within the complexity condition, the prime resulted in significantly greater dual-endorsement among strong identifiers than among weak identifiers,  $\beta = .28$ ,  $SE = .09$ ,  $p = .003$ . Overall, condition means of dual conspiracy endorsement ranged from a high of .24 ( $SE = .03$ ) in the complexity condition, to .21 ( $SE = .03$ ) in the threat condition, to .18 ( $SE = .04$ ) in the affirmation condition, to .17 ( $SE = .03$ ) in the control.

In the PSID-as-moderator specification, some means-differences were heightened. In this model, condition means differed at the  $p < .1$  level,  $F(3, 598) = 2.41$ ,  $p = .066$ . The interaction term was significant,  $F(3, 598) = 3.83$ ,  $p = .01$ . Parameter estimates showed complexity increased dual endorsement relative to the control,  $B = .27$ ,  $SE = .09$ ,  $p = .002$ , with complexity-primed strong identifiers exhibiting increased dual endorsement relative to weak identifiers,  $\beta = .27$ ,  $SE = .10$ ,  $p = .01$ . Meanwhile, affirmation also increased dual endorsement relative to the control, albeit to a lesser degree,  $\beta = .17$ ,  $SE = .09$ ,  $p = .058$ , with affirmed strong identifiers increasing significantly more than weak,  $\beta = .22$ ,  $SE = .11$ ,  $p = .044$ . Pairwise comparisons

showed mean dual endorsement in the complexity condition was significantly greater than in the control,  $p = .009$ , as well as threat,  $p = .068$

In the third model (neither-endorsed), mean belief was significantly greater among weak identifiers than strong, ( $F(1, 598) = 4.86, p = .028$ ), and conditions differed at the  $p < .1$  level, ( $F(3, 598) = 2.11, p = .098$ ). The interaction was not significant ( $F(3, 598) = .57, p = .636$ ). Dunnett t-tests showed affirmation-primed participants were more likely to endorse neither conspiracy theory compared with the control,  $p = .02$ . The PSID specification produced the same result. In sum, priming exposure did affect generalized conspiracy beliefs. In particular, complexity priming appeared to increase endorsement of conspiracies that implicated both in- and out-groups, especially among strong partisans, while affirmation decreased this behavior.

### **Selective Exposure**

H9 predicted that complexity priming would result in a lower level of selective exposure among strongly affiliated group members. RQ1 asked how affirmation would affect strongly affiliated group members. An ANOVA model with condition, strength, and their interaction as fixed factors and selective exposure as the dependent variable addressed these. This showed that while participants in the complexity ( $M = .15$ ) and affirmation ( $M = .14$ ) conditions exhibited lower levels of selective exposure than those in the threat ( $M = .24$ ) or control ( $M = .29$ ), differences among conditions were not significant,  $F(3, 597) = .83, p = .481$ ). Neither strength of affiliation ( $F(1, 597) = .30, p = .583$ ) nor the interaction term ( $F(3, 597) = 1.20, p = .31$ ) were significant. As shown in Table 2.7, complexity-primed participants exhibited the lowest levels of selective exposure among strong identifiers, followed by affirmed participants.

Looking at parameter estimates which compared each condition against the control, complexity and affirmation had modest mitigating effects: marginal at  $\beta = -.34$ ,  $SE = .21$ ,  $p = .10$  for complexity; not significant at  $\beta = -.32$ ,  $SE = .22$ ,  $p = .15$  for affirmation. Similar patterns of effects occurred using both strength of affiliation and PSID. In the PSID specification (Tables 2.8 and 2.9), the means-differences were slightly larger: complexity  $M = .15$ ,  $SE = .09$ ; affirmation  $M = .15$ ,  $SE = .09$ ; threat  $M = .31$ ,  $SE = .08$ ; control  $M = .35$ ,  $SE = .09$ . Parameter estimates showed selective exposure was again lower in the complexity condition relative to the control,  $\beta = -.34$ ,  $SE = .21$ ,  $p = .10$ . Overall, these tests offered marginal support for H9.

### **Effects on Networks**

H10 and H11 predicted that complexity priming would result in activated discussion networks that were a) less dense and b) less politically homogenous. RQ2 asked if strength of party affiliation would moderate the latter. Primes' effects on network activation were assessed using four ANOVA models with basic density, amplified density, basic homogeneity, and amplified homogeneity as the respective outcome variables. The density models included only condition as a fixed factor, while the homogeneity models included condition, strength of affiliation, and their interaction term as fixed factors.

In the basic density (centered) model, the ANOVA showed significant differences among conditions ( $F(3, 533) = 3.32$ ,  $p = .02$ ). As expected, complexity priming reduced activated network density relative to the control ( $\beta = -.29$ ,  $SE = .10$ ,  $p = .004$  — see Table 2.10). Similarly, the ANOVA for amplified density showed significant differences among conditions,  $F(3, 542) = 2.96$ ,  $SE = .03$ ,  $p = .032$ . Again, the complexity-primed participants ( $\beta = -.86$ ,  $SE = .36$ ,  $p = .$

016) exhibited smaller density effects than control participants after accounting for network size's multiplicative effect (Table 2.11 and 2.12).

The model testing network homogeneity (centered) showed strength of affiliation  $F(1, 542) = 15.10, p < .001$ ) was associated with more homogenous networks, but condition ( $p = .57$ ) and the interaction term ( $p = .97$ ) were not significant factors. The model for amplified network homogeneity was similar: affiliation strength ( $F(1, 542) = 11.93, p = .001$ ) correlated with more homogenous networks, but condition ( $p = .81$ ) and the interaction ( $p = .90$ ) were not significant. Results in the PSID specifications did not differ. In sum, complexity priming resulted in less dense networks. However, network homogeneity was not impacted by exposure to primes. These findings support H10 but not H11.

## CHAPTER 6

### STUDY 3: GENE EDITING DISPUTE

Study 3 examined priming effects in the context of a religious-secular dispute over gene editing technology.

#### Sample

400 participants were recruited via Amazon Mechanical Turk in March 2016, and compensated \$.75. Participants were 52.6% female, 76.7% white, with a mean age of 37.88,  $SD = 12.5$ , median education of a Bachelor's or Associate's, and median income of \$20-40K. They were 38.3% Democrat, 24.6% Republican, and 37.1% Independent. Economic ideology was  $M = 3.92$ ,  $SD = 1.70$ , social ideology was  $M = 3.36$ ,  $SD = 1.75$ , science interest was  $M = 5.34$ ,  $SD = 1.43$ , and reported familiarity with the issue was  $M = 3.24$ ,  $SD = 1.70$ , all on 7-pt scales.

In terms of religious affiliation, Protestants made up 21.1% of the sample, followed by "Other Christian denominations" (14.8%), Catholics (14.6%), and Non-Christian faiths (5.8%). Meanwhile, Agnostics comprised 24.6% and Atheists 19.1% of the total. Regarding these affiliations, 63% said they were strong. Religiosity was addressed from multiple angles (Nisbet, 2005). Church attendance was measured on a 5-pt. scale, with 50.1% never attending, and 19.6% attending weekly or more often. 43.6% said religion was an important part of their life, regardless of attendance (yes/no). 16.8% said they viewed the Bible as the actual word of God, while 30.2% said it is the word of God but not everything in it should be taken literally and 53% said the Bible is a book written by men and is not the word of God. The amount of guidance religious beliefs provide in day-to-day lives was measured on a 4-pt. scale,  $M = 2.82$ ,  $SD = 1.23$ .

Given the options of “religious,” “not religious,” or “atheist” (World Values Survey, 2010), 39.3% said they were religious, 40.1% not religious, and 20.6% atheist.

### **Design and Procedure**

Participants were randomly assigned to the four conditions (Complexity N = 91, Affirmation N = 87, Threat N = 100, Control N = 121). Random assignment check by way of ANOVA showed these groups did not vary based on the demographic characteristics listed above. The design and procedure were essentially identical to those in Study 2, but with religious cues removed from the affirmation and complexity prime lists to minimize unintended backfire effects. The wording of the threat prime was slightly altered to religious rather than political terms. The dispute in the stimulus materials featured a dispute between religious groups and secular humanist groups over the controversial science of gene editing technology, with religious groups stressing the risks and secular figures stressing benefits. Full wording of all materials can be found in the Appendix.

### **Measures**

***Risk, Benefit, Behavior, and Conspiracy Measures.*** Beliefs about the disputed issue were assessed by measuring perception of a series of risks and benefits claimed by the opposing groups in the stimulus, on 7-pt. scales. These items were drawn from existing news coverage of the technology. Risk perception was measured with three items: “Gene editing’s unpredictable effects on future generations,” “Mis-targeted application of gene editing in individuals using current techniques,” and “Environmental risks of gene editing, such as the extinction of insect species,” Chronbach’s alpha = .851,  $M = 4.95$ ,  $SD = 1.45$ . Benefit perception was measured with four items: “Gene editing’s potential to eliminate birth defects and genetic disorders,” “Gene



editing enhancing our understanding of how embryos develop,” “Gene editing’s potential to reduce deaths from chronic diseases, such as cancer and diabetes,” and “Gene editing’s potential to delay the aging process,” Chronbach’s alpha = .888,  $M = 5.37$ ,  $SD = 1.37$ . *Behavioral support* was measured with three items asking about hypothetical personal, familial, and general use of the technology, Chronbach’s alpha = .955,  $M = 5.11$ ,  $SD = 1.77$ . *Regulatory support* was measured with two items asking if gene editing should be banned (reverse coded), and if gene editing should be fully supported, Chronbach’s alpha = .828,  $M = 4.70$ ,  $SD = 1.63$ .

Conspiracy beliefs were also included in the analysis. The news story included a claim from each group accusing the other of conspiring against/in favor of gene editing technology for their own gain. A pretest showed these beliefs loaded onto a separate factor than the other belief items in terms of matching the definition of conspiracy belief (see Appendix for full wording and factor analysis). *Conspiracy endorsement* was measured first by summing and averaging these terms,  $M = 4.19$ ,  $SD = 1.15$ . Alternately, endorsement was approached by collapsing responses according to whether the participant agreed above the midpoint of the scale (5 through 7), resulting in dichotomous measures of *dual-endorsement* ( $M = .20$ ,  $SD = .40$ ) and *neither-endorsement* ( $M = .23$ ,  $SD = .42$ ).

***Group-Aligned Measures.*** Group-aligned beliefs were calculated by centering and crossing the above belief measures with religious affiliation. A measure of group-aligned benefit-risk perception was constructed by centering the benefit and risk scales, subtracting risk from benefit to create a net measure, and then crossing with affiliation,  $M = .63$ ,  $SD = 2.23$ .

Calculated in the same manner, group-aligned behavioral support had a mean of  $-.67$ ,  $SD = 1.78$ , and group-aligned regulatory support had a mean of  $.50$ ,  $SD = 1.70$ . The negative sign for this

group alignment measurement (i.e., behavior was not predicted by group membership) may be attributed to a skew in overall support for the behavior across groups. Overall mean support for use of the technology was  $M = 5.11$ ,  $SD = 1.77$ ; mean support among the non-religious was  $5.59$ ,  $SD = 1.54$ , while support among the religious was  $4.72$ ,  $SD = 1.84$ . Finally, a group-aligned conspiracy belief measure was calculated by crossing a centered conspiracy endorsement measure with affiliation, ranging from -6 to 6,  $M = .66$ ,  $SD = 2.70$ .

**Selective Exposure.** Selective exposure to likeminded media was measured identically as in Study 2. A pretest showed the pro- (secular) and anti- (religious) gene editing headline slant categories loaded on two separate factors (see Appendix for full wording and factor analysis). Pro-Attitudinal choices ( $M = .82$ ,  $SD = .75$ ) and Counter-Attitudinal choices ( $M = .55$ ,  $SD = .66$ ) were computed by crossing slant direction and religious affiliation (collapsed to religious vs. agnostic and atheist). Selective Exposure ( $M = .27$ ,  $SD = 1.06$ ) was computed by subtracting Counter-Attitudinal from Pro-Attitudinal choices, and so ranged from -3 to 3.

**Network Measures.** As in Study 2, participants were asked to provide up to 5 discussion partners, the strength of ties among these (0, 1, 2), and this time the religious similarity of each to the participant. The average network size was  $M = 3.62$ ,  $SD = 1.30$ . Basic network density was  $M = 1.33$ ,  $SD = .68$ . To account for the effect of network size, a final version of this variable was computed by centering density on 0 and multiplying by total network size, thus delineating large-and-dense, large-and-sparse, small-and-dense, and small-and-sparse networks; amplified network density ranged from -5 to 5,  $M = -.37$ ,  $SD = 2.32$ . Finally, participants provided 7-pt. ratings of perceived similarity of each contact's religious views to their own. Religious network homogeneity took the average of these (using pairwise deletion due to default missing data),  $M =$

5.05,  $SD = 1.47$ . Following the same logic as with density, an amplified homogeneity measure was computed by centering and multiplying by network size (thus ranging from -15 to 15),  $M = 3.92$ ,  $SD = 5.50$ .

### **Manipulation Check**

Priming effects were tested using the same measures as Study 1 and 2. The complexity prime resulted in participants feeling they had significantly more important identities ( $M = 5.41$ ,  $S.E. = .24$ ) than those in the control ( $M = 3.382$ ,  $S.E. = .23$ ), affirmation ( $M = 3.86$ ,  $S.E. = .25$ ), and threat groups ( $M = 3.82$ ,  $S.E. = .23$ ),  $F(3, 399) = 12.61$ ,  $p < .001$ . The affirmation prime resulted in significantly more felt affirmation ( $M = 4.15$ ,  $S.E. = .09$ ) than the control ( $M = 2.89$ ,  $S.E. = .07$ ),  $F(3, 399) = 62.17$ ,  $p < .001$ . The complexity condition mean ( $M = 4.18$ ,  $S.E. = .09$ ) was also significantly higher than the control ( $p < .001$ ) and threat ( $M = 3.93$ ,  $S.E. = .08$ ,  $p = .034$ ) conditions', while threat also surpassed the control,  $p < .001$ .

## **Results**

### **Effects on Risk and Benefit Perception**

H1 and H2 predicted that complexity and affirmation would result in lower levels of group-aligned beliefs at high levels of affiliation. This was tested using an ANOVA model with condition and strength of affiliation as fixed factors and group-aligned net benefit as the dependent variable. In this model, strength of affiliation ( $F(1, 396) = 18.95$ ,  $p < .001$ ) and condition ( $F(3, 234) = 2.73$ ,  $p = .044$ ) predicted group-alignment, but their interaction ( $F(3, 396) = .73$ ,  $p = .537$ ) did not. Parameter estimates showed complexity ( $\beta = -1.02$ ,  $SE = .50$ ,  $p = .044$ ) reduced group alignment, as did threat to a lesser extent ( $\beta = -.99$ ,  $SE = .51$ ,  $p = .055$ ), but both

mainly among the weakly affiliated (See Table 3.1 and 3.2). Although complexity did reduce the effect of group commitments, support for H1 was mixed.

### **Effects on Behavior**

H3 and H4 predicted that complexity and affirmation primes would reduce group-aligned behavior at the high level of affiliation. Because the two behavior variables were correlated ( $r = .802$ ), this was tested using a MANOVA model with group-aligned behavioral support and group-aligned regulatory support as the dependent variables, and condition, affiliation strength, and their interaction as fixed factors. The multivariate result was significant for strength (Pillai's Trace = .114,  $F(2, 388) = 24.89, p < .001$ ), but not condition (Pillai's Trace = .016,  $F(6, 778) = 1.07, p = .378$ ) or the interaction (Pillai's Trace = .015,  $F(6, 778) = 1.01, p = .416$ ). Strength affected both behavioral alignment variables equally ( $p < .001$ ). Condition effects were stronger for regulatory support ( $p = .141$  vs.  $p = .627$  for behavioral support). For group-aligned regulatory support, pairwise comparison showed complexity priming resulted in significantly less group alignment ( $M = .28$ ) than affirmation did ( $M = .77, p = .027$ ), with threat ( $M = .44$ ) and control ( $M = .51$ ) groups falling between. Complexity also resulted in the least group-aligned behavioral support ( $M = .16$ ), and affirmation the most ( $M = .40$ ), with threat ( $M = .28$ ) and control ( $M = .34$ ) falling between. For both dependent variables, the complexity-treated participants exhibited the least group alignment among strongly affiliated group members, and affirmation-treated participants exhibited the most (See Figures 3.1 and 3.2). That affirmation seemingly exacerbated group influence was unexpected, and while there was some evidence that complexity priming reduced group influences, the effect appeared limited.

## Effects on Conspiracy Beliefs

H5 and H6 predicted that complexity and affirmation would reduce group-aligned conspiracy endorsement for strongly affiliated members. This was tested using an ANOVA with condition, strength of affiliation, and their interaction as fixed factors. Only strength of affiliation had a significant main effect,  $F(1, 292) = 22.37, p < .001$ . H5 and H6 were not supported.

H7 and H8 predicted complexity would increase, and affirmation decrease, conspiracy endorsement in general, regardless of in- or out-group targets. This question was addressed using three different constructions of generalized conspiracy endorsement — first, the average of agreement with the two conspiracy beliefs; second, a dichotomous measure of whether the respondent agreed above the midpoint (i.e., 5 through 7 on a 7-pt. scale) with both conspiracy beliefs; and third, a dichotomous measure of whether the respondent agreed with neither conspiracy belief above the midpoint. Each was tested as the dependent variable in ANOVA model with condition, strength of affiliation, and their interaction as fixed factors.

In the first model (averaged agreement), the ANOVA did not show that the condition means differed significantly,  $F(3, 291) = 1.92, p = .126$ . Parameter estimates showed that relative to the control, affirmation ( $\beta = -.52, SE = .16, p = .062$ ) marginally reduced generalized belief in conspiracy theories regardless of their target. Strength of affiliation ( $F(3, 291) = .00, p = .977$ ) and the interaction ( $F(3, 291) = .33, p = .804$ ) were not significant.

In the second model (dual endorsement), condition ( $F(3, 291) = 1.22, p = .303$ ) and strength ( $F(1, 291) = .21, p = .644$ ) were not significant, nor was the interaction term,  $F(3, 291) = 2.17, p = .092$ . Mean dual endorsement ranged from .26 ( $SE = .05$ ) in the complexity condition, to  $M = .22, SE = .04$  in the control, to  $M = .19, SE = .05$  in the affirmation condition,

to  $M = .13$ ,  $SE = .05$  in the threat condition (Pairwise comparison of complexity and threat group means was significant at  $p < .1$  level,  $p = .064$ ).

In the third model (neither-endorsed), mean belief differed significantly between conditions,  $F(3, 292) = 2.67$ ,  $p = .048$ , but strength of affiliation ( $F(1, 292) = .95$ ,  $p = .33$ ) and the interaction ( $F(3, 292) = .41$ ,  $p = .748$ ) were not significant. Pairwise comparison showed affirmation-primed ( $M = .27$ ,  $SE = .05$ ,  $p = .066$ ) and threat-primed ( $M = .34$ ,  $SE = .06$ ,  $p = .007$ ) respondents were significantly more likely to endorse neither conspiracy theory than those in the control ( $M = .15$ ,  $SE = .05$ ). Those in the complexity condition fell between,  $M = .23$ ,  $SE = .05$ . In sum, priming exposure did affect generalized conspiracy beliefs. In particular, affirmation and threat decreased endorsement of conspiracies that implicated both in- and out-groups. A summary of each test for conspiracy endorsement can be found in Table 3.3

### **Selective Exposure**

H9 predicted that complexity priming would result in a lower level of selective exposure among strongly affiliated group members. RQ1 asked how affirmation would affect strongly affiliated group members. An ANOVA model with condition, strength, and their interaction as fixed factors and selective exposure as the dependent variable addressed these. This model showed that strength of affiliation ( $F(1, 396) = 27.23$ ,  $p < .001$ ) predicted selective exposure, but condition ( $F(3, 396) = .26$ ,  $p = .852$ ) and the interaction ( $F(3, 396) = 1.20$ ,  $p = .309$ ) were not significant. In terms of conditions, the complexity group exhibited the lowest level of selective exposure ( $M = .14$ ,  $SE = .11$ ), followed by the control ( $M = .18$ ,  $SE = .10$ ), affirmation ( $M = .26$ ,  $SE = .11$ ) and threat ( $M = .26$ ,  $SE = .11$ ) groups. Contrary to expectation, mitigation effects were concentrated in the weak identity category (See Table 3.4).

## Effects on Networks

H4 predicted that complexity priming would result in discussion networks that were a) less dense and b) less religiously homogenous. RQ2 asked if strength of affiliation would moderate the latter. Primes' effects on network activation were assessed using four ANOVA models with basic density, amplified density, basic homogeneity, and amplified homogeneity as the respective outcome variables. The density models included only condition as a fixed factor, while the homogeneity models included condition, strength of affiliation, and their interaction term as fixed factors.

In the basic density (centered) model, condition differences were not significant,  $F(3, 398) = .48, p = .699$ . Likewise, in the amplified density model, conditions did not significantly differ in outcomes,  $F(3, 393) = .51, p = .678$ . The model testing network homogeneity (centered) showed significant differences between weak and strongly affiliated group members,  $F(1, 393) = 5.57, p = .019$ . However, condition ( $F(3, 393) = 1.26, p = .287$ ) and the interaction term ( $F(3, 393) = .56, p = .64$ ) were not significant. Likewise, only strength of affiliation was significant in the amplified homogeneity model,  $F(1, 395) = 8.49, p = .004$ . In sum, no significant differences in activated networks were detected based on priming exposure in the gene editing dispute context.

## CHAPTER 7

### DISCUSSION

This study tested two potential interventions aimed at reducing selective exposure and in-group bias in both partisan and religious disputes. Both of these — self-affirmation and relative identity prominence priming — were intended to displace maladaptive defensive processing with an indirect psychological adaptation, allowing individuals to maintain self-integrity while more evenhandedly pursuing a given issue. At the same time, this study expanded on previous tests of selective exposure by looking at activated social networks in terms of both density and homogeneity.

A full summary of support for hypotheses across studies can be found in Table 4. In terms of beliefs and behavior, results showed that relative prominence priming resulted in significantly reduced group alignment of factual beliefs in the context of a partisan mining dispute and a religious-secular dispute over gene editing, but its alignment reduction in a partisan biofuels dispute was not significantly less than the control. The relative prominence prime reduced conspiracy belief alignment in the biofuels context, and also reduced group-aligned regulatory support in the gene editing context (behavior was not included in the mining context). Affirmation meanwhile did not reduce the sway of group commitments on beliefs and behavior, and even increased it in some cases.

In terms of search, results also showed that relative prominence priming significantly reduced media-based selective exposure in the mining context, and had a marginal reductive effect in the biofuels context. This provides some evidence that its effect extends to both channel



seeking (Study 1) and content seeking (Study 2 and 3) forms of selective exposure. Relative prominence priming also resulted in significantly broader discussion networks in the biofuels context. The relative prominence prime failed to reduce network homogeneity in either Study 2 or 3, while affirmation was ineffective across all three search variables in both studies.

Lastly, the results for generalized conspiracy endorsement show that complexity's effects may not all be so desirable. In both the biofuels and mining spill contexts, the relative prominence prime increased conspiracy beliefs that included in-group-targeting theories, while affirmation decreased it in the biofuels and gene editing contexts. Overall, then, the relative prominence intervention was more successful at reducing group alignment than affirmation across contexts, as predicted. These results provide a promising first step in better understanding the role of social identity in information processing, but several limitations should be noted.

First, the way in which group membership and affiliation were modeled is a simplification of more complex group dynamics. This may not be as great of concern in the political contexts, where the two parties represent fairly symmetrically opposed groups, and where partisan social identity was employed as an alternative to simple strength of affiliation. But the religious/secular dispute context collapsed group influences from two asymmetrical social identities — religious and nonreligious — with differing sets of norms and mechanisms of influence. Moreover, each of these contained subgroups (i.e., Catholics and Protestants; Atheists and Agnostics) that respond to the parent group threat differently. A brief post-hoc examination of sub-group alignment in the gene editing dispute bears this out: Nonreligious participants were significantly more group-aligned in behavioral response than were religious participants, with Protestants more aligned than other religious subgroups. This supports Lee (1993; Lee & Otatti,

1995) and others who argue that at times subgroups prefer to express their difference rather than similarity to the parent group. This issue could be approached through oversampling of groups that are likely to contain such internal division, to allow a more meaningful analysis of their subgroups. Future research may also take this process as the inspiration for a different potential intervention; priming intra-group differences could also reduce alignment.

Another concern with identity that the data cannot address is amount of overlap in respondents' existing social circles. Whether or not an individual's various social identities are distinct or mostly conterminous will likely moderate the effect of priming associations with those many different groups. More specifically, thinking of many different identities may be less reductive of a particular identity's influence if those other identities are highly interconnected in the person's mind. This would lead not only to less reduction in group-aligned beliefs and behaviors, but also denser networks; for certain types of individuals, the complexity prime may produce the opposite of the intended effect (see Mason, 2016). Future work may control for trait-based identity complexity (vs. state complexity induced in the manipulation), collected during an initial panel, and may find the effect of the intervention to be stronger.

That the findings consistently contradict the prevailing research on self-affirmation, finding opposite of the intended effect at times, may help call into question the uniformity and consistency of the effects reported in the published literature so far. The poor performance of the affirmation prime seems to concur with Stroud's (2015) null findings. As she writes, "it seems probable that self-affirmation effect is not as consistent as currently reported in the research literature," (p. 10). Indeed, a number of recent studies in social psychology suggest that affirmation interventions, while effective in some cases, may be moderated by context — and

thus fail in others (Protzko & Aronson, 2016; Weisz et al., 2016, also find evidence of larger effects in published lab affirmations vs. unpublished, thus suggesting publication bias). Future studies should focus on *how* context moderates affirmation's success (Protzko & Aronson, 2016). This dissertation's findings, specifically the amplification of alignment through affirmation, further lends support to Munro and Stansbury (2009) and Reed and Aspinwall (1998).

Priming individuals with the complexity of their social selves was more successful in unaligning beliefs, but its effect was often not moderated by strength of affiliation, as theory would predict. Future studies may dig in and examine why this could be the case. Complexity also produced more promising differences in information search, but the size of its effects, particularly on traditional (media) selective exposure, should be noted. In part, the design may have played a role here: As this was a one-shot experimental design, respondents' prior attitudes regarding the advanced biofuels and gene editing issues were not measured. Instead, the survey in Studies 2 and 3 indicated the group-based disagreement on the issue, and relied on respondent membership as the directional factor. Future studies could improve on this by employing panel experiments. It's worth noting that in the channel-seeking design of Study 1 (i.e., neutral headlines selected based on source cues), which did not rely on prior attitudes to drive exposure, the mitigative effect of the relative prominence prime was greater.

More generally, the social identity complexity/relative prominence priming method is quite new; only one other variation has been tested (Grant & Hogg, 2012). The results here might be extended by both simple replication as well as tests of variations of the instrument. A refined complexity prime may result in larger and more consistent effects. In particular, Grant and Hogg identified two dimensions of relative identity prominence — uniqueness and overlap. It may be

possible to amplify the uniqueness approach employed here, for instance asking participants to expend greater effort in considering each identity, or compelling longer lists. It might also be the case that the overlap approach is more effective at reducing relative prominence, although Grant and Hogg found relatively symmetrical effects between the two.

In terms of network effects, the measures employed merit further attention. The lack of movement on homogeneity could indicate that networks are more constrained (and less sensitive) than would allow for significant increases in heterogeneity, as research has shown that people consistently form homophilous networks. On the other hand, this finding might be an artifact of self-reports. People may misremember how often they actually disagree with close contacts, glossing over instances of casual conflict and only recalling truly extreme disputes (see Klofstad et al., 2013); people may also be unlikely or unwilling to see their close contacts as very different from themselves. Conversely, complexity's impact on density — the interconnections within one's activated network — may be because it is more manipulable as something like a social identity complexity prime brings more far-flung contacts to mind. Density may also avoid the measurement problem of homogeneity because the ties among the network are less subjective and amorphous than perceived disagreement. However, it is also the case that decreasing density, on its own, may not increase information diversity in one's network, although theory would point to this probabilistically.

As a dependent variable, behavior could also be tackled in a different way. While the measurement of behavioral intention in this study is drawn from a large and robust body of work (i.e., theory of planned behavior, Ajzen, 1991, 2012), researchers could also *observe* the effects of primes on behavior. This could be achieved by following the identity primes with choice

experiments such as the “dictator” game (Forsythe et al., 1994). Fowler and Kam (2007) show that social identity (partisanship) guides allocation behavior in the game; administering a relative identity prominence prime or self-affirmation exercise prior to the game could show whether such reconstitutions of the self alter group identification’s impact. This could be the case because as economics research shows, subtle cues (Haley & Fessler, 2005) and self-image (Johansson-Stenman & Svedsater, 2003) can affect the outcome of such allocation experiments.

The practical implications of the findings pose a broader question. As the data were the result of manipulations testing a psychological model, some may argue they tell us little about how citizens interact with information in the real world. Self-affirmation experiments, especially, have been noted as limited in outside applicability to the actual information environment, despite their value in theory building; As Nyhan and Reifler (2013) say, “it seems difficult for a third party to affirm people’s self-worth outside of [the lab’s] artificial context,” (p. 30). However, it may be that social identity complexity primes can be more easily integrated into bias-defusing messages. Public service announcements and even some styles of journalism that borrow more from the feature-writing tradition could address factual disputes from an array of social identity perspectives, incorporating how policies would affect many of the distinct groups to which readers or viewers would potentially belong: their churches, their children’s schools, their ethnic groups, and on and on. Indeed, future studies could compare how news writing that includes a full repertoire of social identity cues — hence setting the table for a potential relative identity prominence reduction — fares against wiring stripped of all cues, which Pingree et al. (2014) show can allow for successful fact-checking.

Finally, while experiments are ideal for locating causal effects, there may also be an overlooked threat to this assumption. As Einstein and Glick (2015) show, environmental conditions and the prevailing news occurring in the real world, such as elections, can moderate survey experiment outcomes. This may be worth considering as this dissertation's experiments took place in fall and spring leading up to the 2016 U.S. presidential election, which has been noted for its party-dividing primaries, specifically with large factions of both Democrats and Republicans expressing dissatisfaction with party elites. While the intra-party division that occurs during primary season may be temporary, this context could have reduced the normative cohesion within political parties and lessened party members' response to elite cues, thus reducing the amount of alignment the interventions could have mitigated. Likewise, it is also possible that the presidential primary temporarily inflated the ranks of "strong" partisans, as the election cycle converts casual observers into quadrennially engaged voters. This could have resulted in a pool of "strongly affiliated" group members who behaved more like weak partisans, and could account in part for the main effect of the relative prominence prime, but lack of interaction with affiliation strength, found in many of the analyses.

But overall, this study makes theoretical and methodological contributions by testing a novel intervention (social identity complexity/relative identity prominence) in three separate contexts, with differing social identities as the orienting objects — both partisanship and religious orientation. This study also provides a rich set of dependent variables, pairing search and assimilation, and looking at behavioral support and conspiracy beliefs alongside more traditionally tested belief outcomes. Likewise, by incorporating multiple network measures, this study helps broaden the conceptualization and measurement of selective exposure. By the same

token, this study contributes to a small body of work that shifts how researchers think about networks — as dynamic products activated by social contexts. By employing a broad set of dependent variables, this study offered a wider look at the effects of the interventions.

Ultimately, this study provides a step toward unraveling the pernicious effects of identity-protective cognition on our interactions with information. The modest but consistent results in the expected directions for the complexity prime suggest that raising the salience of many identities simultaneously may indeed be one route to less biased search and processing, for better or worse. While neither affirmation nor complexity are silver bullets, the results detailed here point the way toward a more comprehensive understanding how social identity integrates with and influences the self in cognitive processes, and offer a number of avenues for future research to follow. The complex nature of the self, if activated, may provide some insulation from our worst tendencies toward bias.

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## APPENDICES

**APPENDIX A  
TABLES AND FIGURES**

**Study 1 - Mining Spill Context**

Table 1.1  
*Party-Aligned Beliefs (Z-score) by Condition — Mining Spill*

		95 % CI
Complexity	$M = -.14, SE = .12$	-.38 to .11
Affirmation	$M = .44, SE = .14$	.16 to .72
Threat	$M = .01, SE = .13$	-.40 to .53
Control	$M = .23, SE = .14$	-.04 to .50

Table 1.2  
*Party-Aligned Beliefs (Z-score) by Condition and Strength of Affiliation — Mining Spill*

	<i>Strong</i>	<i>Weak</i>
Complexity	$M = .03, SE = .20$	$M = -.30, SE = .15$
Affirmation	$M = 1.06, SE = .23$	$M = -.18, SE = .17$
Threat	$M = .39, SE = .20$	$M = -.37, SE = .17$
Control	$M = .68, SE = .23$	$M = -.22, SE = .15$



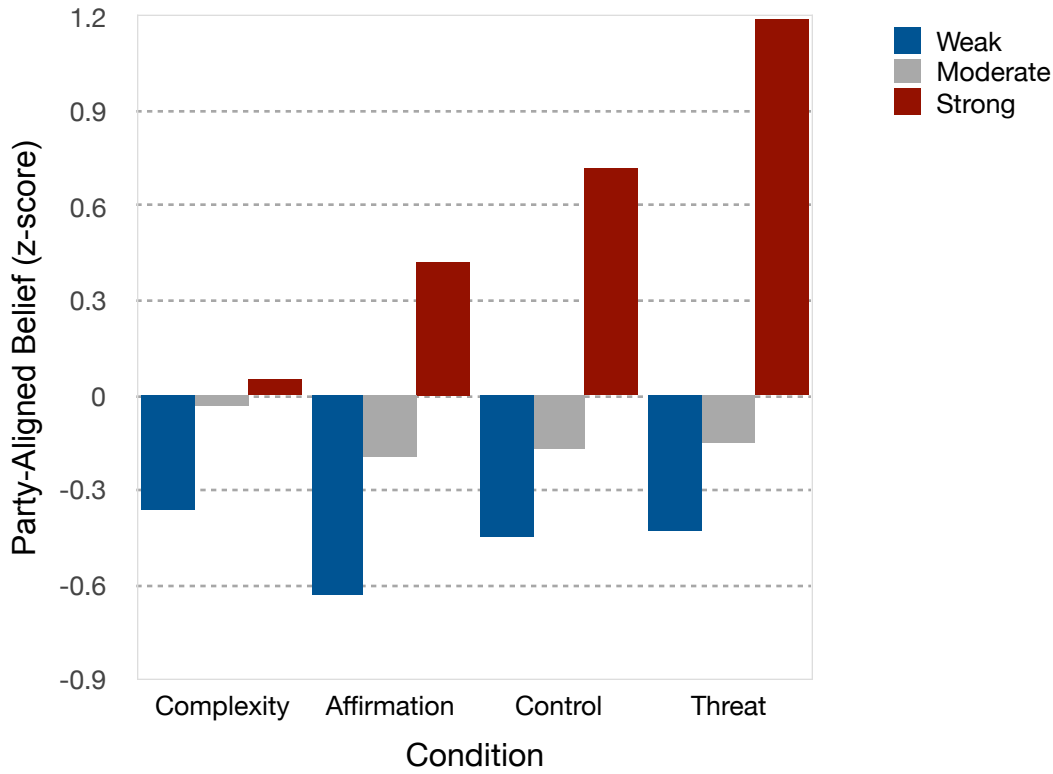


Figure 1. Party-aligned belief by condition and strength of affiliation — Mining Spill

Table 1.3.  
Selective Exposure (z-score) by Condition and Strength of Affiliation — Mining spill

	<i>Strong</i>	<i>Weak</i>
Complexity	$M = -.32, SE = .22$	$M = .26, SE = .15$
Affirmation	$M = .07, SE = .23$	$M = -.19, SE = .16$
Threat	$M = .21, SE = .20$	$M = -.14, SE = .15$
Control	$M = .49, SE = .25$	$M = -.11, SE = .15$

## Study 2 - Biofuels Context

Table 2.1

*Party-Aligned Benefit-Risk Perception by Condition and Strength of Affiliation — Biofuels*

	<i>Strong</i>	<i>Weak</i>
Complexity	$M = 1.39, SE = .23$	$M = .91, SE = .23$
Affirmation	$M = 1.77, SE = .24$	$M = .66, SE = .26$
Threat	$M = 1.42, SE = .22$	$M = .64, SE = .21$
Control	$M = 1.84, SE = .22$	$M = .68, SE = .25$

Table 2.2

*Party-Aligned Benefit-Risk Perception by Condition and PSID Strength — Biofuels*

	<i>Strong</i>	<i>Weak</i>
Complexity	$M = 1.30, SE = .30$	$M = 1.10, SE = .20$
Affirmation	$M = 1.47, SE = .33$	$M = 1.15, SE = .21$
Threat	$M = 1.92, SE = .29$	$M = .67, SE = .18$
Control	$M = 1.70, SE = .31$	$M = 1.17, SE = .20$

Table 2.3

*Party-Aligned Conspiracy by Condition and Strength of Affiliation — Biofuels*

	<i>Strong</i>	<i>Weak</i>
Complexity	$M = .71, SE = .12$	$M = .56, SE = .13$
Affirmation	$M = .99, SE = .13$	$M = .44, SE = .14$
Threat	$M = .89, SE = .12$	$M = .37, SE = .12$
Control	$M = 1.16, SE = .12$	$M = .48, SE = .21$

Table 2.4  
*Party-Aligned Conspiracy by Condition and PSID — Biofuels*

	<i>Strong</i>	<i>Weak</i>
Complexity	$M = .63, SE = .17$	$M = .64, SE = .11$
Affirmation	$M = 1.01, SE = .18$	$M = .62, SE = .11$
Threat	$M = 1.04, SE = .16$	$M = .46, SE = .10$
Control	$M = 1.17, SE = .17$	$M = .73, SE = .11$

Table 2.5  
*Dual Endorsement by Condition and Strength of Affiliation — Biofuels*

	<i>Strong</i>	<i>Weak</i>
Complexity	$M = .33, SE = .05$	$M = .16, SE = .05$
Affirmation	$M = .19, SE = .05$	$M = .18, SE = .05$
Threat	$M = .18, SE = .04$	$M = .25, SE = .04$
Control	$M = .11, SE = .05$	$M = .23, SE = .05$

Table 2.6  
*Dual Endorsement by Condition and PSID — Biofuels*

	<i>Strong</i>	<i>Weak</i>
Complexity	$M = .39, SE = .06$	$M = .19, SE = .04$
Affirmation	$M = .29, SE = .07$	$M = .14, SE = .04$
Threat	$M = .16, SE = .06$	$M = .23, SE = .04$
Control	$M = .12, SE = .06$	$M = .19, SE = .04$

Table 2.7  
*Selective Exposure Means and Standard Errors for Condition by Strength of Affiliation*

	<i>Strong</i>	<i>Weak</i>
Complexity	$M = .13, SE = .11$	$M = .18, SE = .12$
Affirmation	$M = .28, SE = .12$	$M = -.02, SE = .13$
Threat	$M = .27, SE = .11$	$M = .20, SE = .10$
Control	$M = .23, SE = .11$	$M = .36, SE = .12$

Table 2.8  
*Pairwise Comparisons of Manipulations on Selective Exposure — Biofuels*

Pair	Mean difference	95% CI	SE	<i>p</i>
Complexity vs. threat	-.16	-.39 to .08	.12	.19
Complexity vs. control	-.19	-.44 to .05	.13	.12
Affirmation vs. threat	-.16	-.41 to .09	.20	.20
Affirmation vs. control	-.20	-.45 to .06	.13	.13

*Note: Partisan SID as moderator*

Table 2.9  
*Selective Exposure Means and Standard Errors for Condition by PSID — Biofuels*

	<i>Strong</i>	<i>Weak</i>
Complexity	$M = .16, SE = .15$	$M = .15, SE = .10$
Affirmation	$M = .18, SE = .16$	$M = .12, SE = .10$
Threat	$M = .49, SE = .14$	$M = .14, SE = .09$
Control	$M = .50, SE = .15$	$M = .20, SE = .10$

Table 2.10  
*Pairwise Comparisons of Manipulations on Network Density (Centered) — Biofuels*

Pair	Mean difference	95% CI	SE	<i>p</i>
Complexity vs. threat	-.03	-.22 to .15	.09	.715
Complexity vs. control	-.29	-.48 to -.09	.10	.004
Affirmation vs. threat	-.08	-.11 to .27	.10	.401
Affirmation vs. control	-.17	-.37 to .03	.10	.099

Table 2.11  
*Amplified Density Means and Standard Errors by Condition — Biofuels*

		95 % CI
Complexity	<i>M</i> = .43, <i>SE</i> = .25	-.06 to .92
Affirmation	<i>M</i> = .67, <i>SE</i> = .27	.15 to 1.20
Threat	<i>M</i> = .36, <i>SE</i> = .23	-.08 to .80
Control	<i>M</i> = 1.29, <i>SE</i> = .25	.80 to 1.79

Table 2.12  
*Pairwise Comparisons of Manipulations on Amplified Density — Biofuels*

Pair	Mean difference	95% CI	SE	<i>p</i>
Complexity vs. threat	.07	-.96 to .48	.34	.838
Complexity vs. control	-.86	-1.56 to -.17	.36	.016
Affirmation vs. threat	.31	-.38 to 1.0	.35	.372
Affirmation vs. control	-.62	-1.34 to .10	.37	.093

### Study 3 - Gene Editing Context

Table 3.1  
Group-Aligned Benefit-Risk Perception by Condition — Gene Editing

		95 % CI
Complexity	$M = .27, SE = .24$	-.20 to .74
Affirmation	$M = .78, SE = .23$	.32 to 1.24
Threat	$M = .07, SE = .24$	-.40 to .53
Control	$M = .82, SE = .21$	.42 to 1.23

Table 3.2  
Group-Aligned Benefit-Risk Perception by Condition and Strength of Affiliation — Gene Editing

	<i>Strong</i>	<i>Weak</i>
Complexity	$M = .99, SE = .29$	$M = -.46, SE = .38$
Affirmation	$M = 1.29, SE = .32$	$M = .27, SE = .34$
Threat	$M = .56, SE = .26$	$M = -.43, SE = .40$
Control	$M = 1.09, SE = .25$	$M = .56, SE = .32$

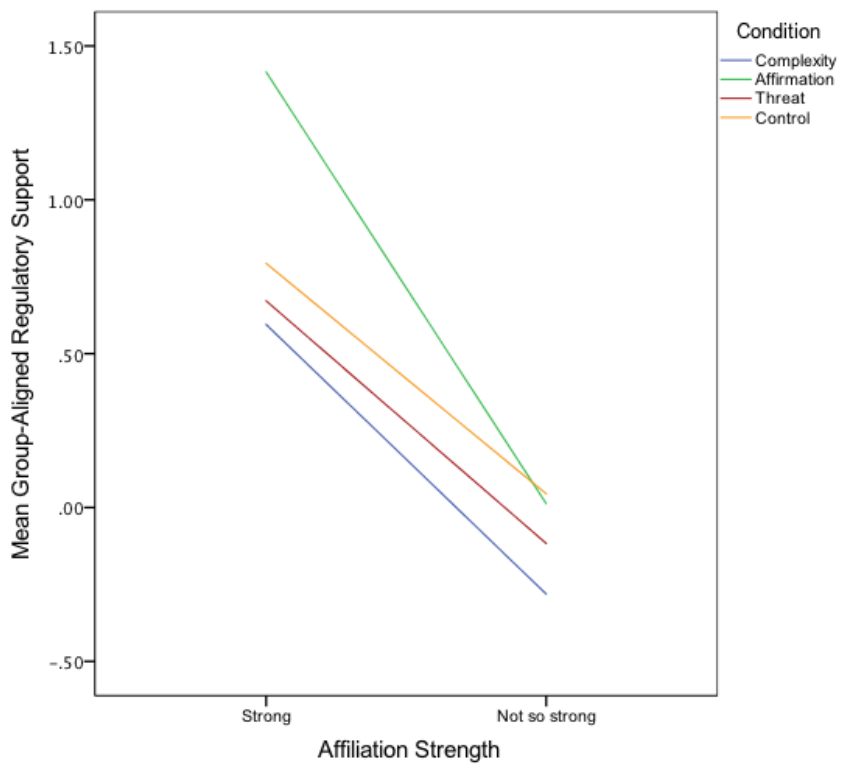


Figure 3.1. Group-Aligned Regulatory Support — Gene Editing

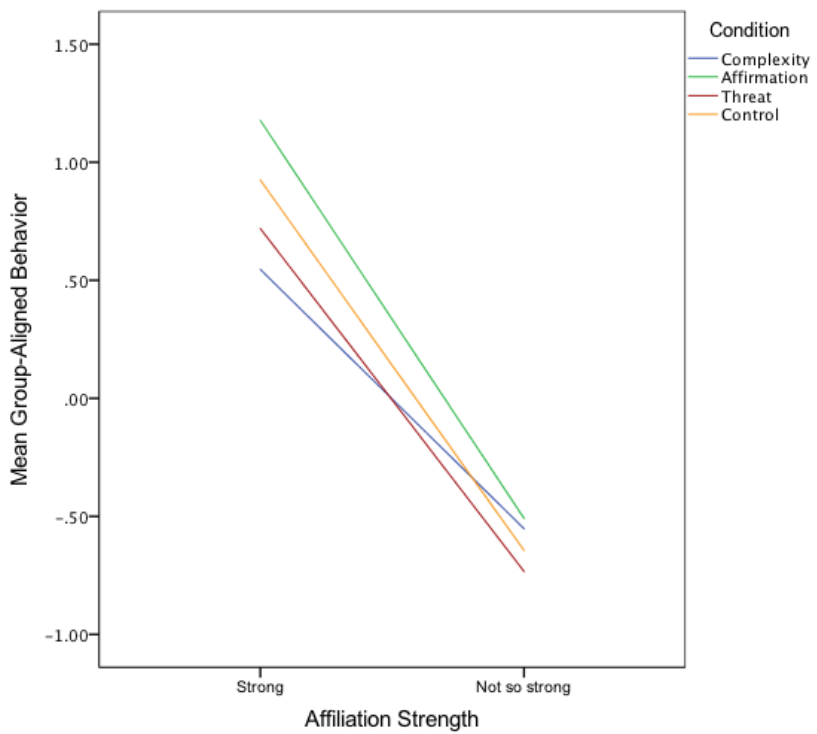


Figure 3.2. Group-Aligned Behavioral Support — Gene Editing

Table 3.3  
*Condition Means for Three Measurements of Conspiracy Endorsement — Gene editing*

	<i>Averaged Agreement</i>	<i>Dual-Endorse</i>	<i>Neither-Endorse</i>
Complexity	$M = 4.24, SE = .14$	$M = .26, SE = .05$	$M = .23, SE = .05$
Affirmation	$M = 4.05, SE = .14$	$M = .19, SE = .05$	$M = .27, SE = .05$
Threat	$M = 4.00, SE = .16$	$M = .13, SE = .05$	$M = .34, SE = .06$
Control	$M = 4.41, SE = .12$	$M = .22, SE = .04$	$M = .15, SE = .05$

Table 3.4  
*Selective Exposure by Condition and Strength of Affiliation — Gene editing*

	<i>Strong</i>	<i>Weak</i>
Complexity	$M = .53, SE = .14$	$M = -.25, SE = .18$
Affirmation	$M = .64, SE = .15$	$M = -.13, SE = .16$
Threat	$M = .41, SE = .12$	$M = .10, SE = .19$
Control	$M = .39, SE = .12$	$M = -.02, SE = .15$



Table 4.  
*Summary of Support for Hypotheses.*

	<i>Biofuels</i>	<i>Gene Editing</i>	<i>Mining Spill</i>
H1. Complexity reduces belief alignment	No	Yes	Yes
H2. Affirmation reduces belief alignment	No	No	No
H3. Complexity reduces behavior alignment	No	Mixed	—
H4. Affirmation reduces behavior alignment	No	No	—
H5. Complexity reduces conspiracy alignment	Yes	No	No
H6. Affirmation reduces conspiracy alignment	No	No	No
H7. Complexity increases generalized conspiracy	Yes	No	Yes
H8. Affirmation decreases generalized conspiracy	Yes	Yes	No
H9. Complexity reduces selective exposure	Marginal	No	Yes
RQ1. Affirmation reduces selective exposure?	No	No	No
H10. Complexity decreases density	Yes	No	—
H11. Complexity reduces homogeneity	No	No	—

## APPENDIX B STIMULI AND QUESTIONNAIRE

### Treatments (Randomized) Open-ended

#### **Social Identity Complexity Prime (Treatment 1):**

People are complex and belong to many different social groups at the same time. Which identities do you consider important in providing you with a sense of who you are? Select as many as you feel apply from the examples below, and please feel free to think of any others that matter to you. These are only some examples.

Religious, e.g., Catholic, Christian, Jewish, Muslim, Agnostic, Atheist, Spiritual, etc.  
 Racial or ethnic, e.g., Black, White, Hispanic, Asian, Italian-American, etc.  
 Gender and sexuality, e.g., male, female, gay, straight, bisexual, trans, etc.  
 Political, e.g., Republican, Democrat, liberal, conservative, libertarian, etc.  
 Regional/geographic, e.g., Southern, Midwestern, Texan, Californian, Chicagoan, etc.  
 Education or class, e.g., college grad, HS grad, middle class, working class, etc.  
 Activist, e.g., environmentalist, union member, feminist, vegetarian, etc.  
 Occupational, e.g., nurse, teacher, student, athlete, lawyer, farmer, veteran, etc.  
 Family, e.g., mother, father, grandfather, daughter, uncle, etc.  
 Some other identity

Please take a few minutes to briefly describe how each identity you selected applies to you and what it means to you.

#### **Self-Affirmation Prime (Treatment 2):**

Below is a list of values, some of which may be important to you, some of which may be unimportant. Looking at this list, please select the value that is MOST important to you.

Family relationships  
 Friendships  
 Romantic relationships  
 Work/career  
 Education/personal growth  
 Recreation/leisure/sport  
 Spirituality/religion  
 Community/citizenship  
 Health

Take a few minutes to think about this value and how this value has influenced your past behaviors or attitudes and how you use this value in your everyday life – at work, at home, with friends, or in dealing with strangers. Please take a few minutes to write a short statement about

why this value is important to you. If you can, try to recall and write about specific occasions on which this value determined what you did.

### **Identity Threat Prime (Treatment 3):**

#### **[Biofuels context]**

Some voters are concerned that the principles that underlie their party affiliations are being threatened by current policies. What about you? When you make political decisions, how important is it to protect your party's principles?

#### **[Gene Editing context]**

Some people are concerned that the principles that underlie their religious affiliations are being threatened by current policies. What about you? When you make decisions, how important is it to protect your religion's principles?

#### **Control:**

Please take a few minutes to list everything you've had to eat or drink in the last 48 hours.

### **Manipulation Checks (randomized order)**

#### **Affirmation**

Answering the last question made me: (5-pt agree/disagree)

Think about positive aspects of myself

Focus my attention on who I am

Aware of things I value about myself

Think about things personally important to me

Think about my values

#### **Complexity**

How many important different identities do you feel you have? (1 not many —9 very many)

#### **Mood**

The following describe my current mood (0-3)

happy/ elated/sad/depressed

How do you feel about yourself (0 poorly — 6 extremely positive)

#### **Self Concept Clarity (5 pt. agree)**

My beliefs about myself conflict with one another.

I feel that I am not really the person that I appear to be.

My beliefs about myself seem to change.

If I were asked to describe my personality, my description might end up being different today compared to another day.

## Dependent Variables

### Context 2:

In this part of the study, we'd like you to think about a recent event in the news. A potential mandate for advanced biofuels production and consumption has led to debate in Congress. The differing claims of its supporters and opponents require careful interpretation.

### Context 3:

In this part of the study, we'd like you to think about a recent event in the news. Scientists have discovered a new method that allows them to "edit" genetic material. Groups are divided on the potential impacts of this technology, however, and their claims require careful interpretation.

### Network:

Out of all the people you know, who would you choose to discuss this issue with?  
List up to 5 people's initials in the spaces below. You do not need to name 5.

Person 1 \_\_ ; Person 2 \_\_ ; Person 3 \_\_ ; Person 4 \_\_ ; Person 5 \_\_

Next we'd like to know about the relationships among these people.

How well does Person 1 know Person 2? [Etc]

Not at all (Strangers)

A little (Acquaintances)

A lot (Close relationship)

(Context 1)

In terms of your political views, how similar is Person 1 to you?

In terms of your political views, how similar is Person 2 to you?

In terms of your political views, how similar is Person 3 to you?

In terms of your political views, how similar is Person 4 to you?

In terms of your political views, how similar is Person 5 to you?

(Context 2)

In terms of your religious views, how similar is Person 1 to you?

In terms of your religious views, how similar is Person 2 to you?

In terms of your religious views, how similar is Person 3 to you?

In terms of your religious views, how similar is Person 4 to you?

In terms of your religious views, how similar is Person 5 to you?

### Media Choice:

Please select which news stories you would like to read on this issue:

### Context 2

Why we need to support advanced biofuels NOW

Disputing the math and science behind the Biofuels Center's claims

The truth about biofuels: Reality bites

It's Economics 101: Roll Back the Biofuel Mandate

Study: biofuels fail to fulfill expectations

Biofuels commercially viable

Report: Energy efficiency of biofuels continues to improve

Supporting New Fuel Technology Worth the Effort

### Context 3

Project Reason: 'There's tremendous promise in this powerful technology'

Why humanists say gene editing research must not be stopped

The morality of gene editing — It's not about scripture, it's about saving lives

The gene-editing technique religious critics say crosses ethical boundaries

Genetic editing — The dangers of playing God

Center for Religion, Ethics and Social Policy: 'Gene editing is public safety threat'

### **Beliefs (News Article):**

Please read the following news article about the controversy.

(Context 2)

Lawmakers are debating a new measure to increase the nation's production and consumption of advanced biofuels, but Democrats and Republicans are sharply divided. The new mandate would replace an older one intended to increase ethanol consumption, instead focusing on a newer generation of plant-based fuels.

Advanced biofuels refer to plant-based fuels made from inputs other than corn, such as agricultural residue, switch grass, and woody biomass. Republicans say biofuels pose a number of economic risks — such as increasing fuel prices, and causing food costs to rise because they alter current land usage patterns. They also say such a mandate would place an unfair restriction on industry.

Democrats counter this assessment, arguing that a biofuels mandate would create jobs while strengthening the economy. "This mandate would also reduce America's dependence on foreign oil," said Rep. James Wallace, a Democrat from Washington.

Lawmakers have also lobbed conspiracy claims against the opposing party and their motives in the debate.

“It comes down to this,” said Rep. Jim Bridenstine, an Oklahoma Republican. “Are we lining the pockets of the friends of the biofuels industry?”

Asked whether he was suggesting a misappropriation of funds, Bridenstine did not back off. “We are not elected to sign off on wasteful projects or schemes to enrich certain individuals under the ‘Green’ banner,” he said.

Democrats vigorously denounced these claims.

Wallace expressed disbelief at the claims of misappropriation and backscratching. “This is a smear tactic. If any politicians are acting on the behalf of a lobby, it is the Republicans and the oil lobby,” she said. “Biofuels represent a threat to our dependence on fossil fuels.”

Economics aside, Republicans oppose the mandate because they say it reduces the quality of life of those living near such operations. “Biofuels enterprises also impair our conservation efforts, threatening existing species,” said Mark Secchi, a Republican representing a southern Illinois district.

Democrats dispute that too. “Not only have Republicans never cared about environmental degradation caused by oil extraction, but the environmental impact of advanced biofuels is a net gain. These biofuels burn cleaner than oil and cause less damage to the environment. The case is clear,” said John Garamendi, a Democrat from California.

Rate your agreement: 7 pt

advanced biofuels are less damaging to the environment than petroleum-based fuels

advanced biofuels burn cleaner than regular gasoline.

advanced biofuels will have negative environmental impacts

advanced biofuels production will threaten plants and wildlife.

advanced biofuels will increase fuel costs

advanced biofuels production will lead to an increase in the price of food

advanced biofuels production will create more jobs

developing domestic advanced biofuels will help strengthen the U.S. economy

advanced biofuels plants reduce the quality of life in surrounding communities

government mandates to use more advanced biofuels put unfair restrictions on the U.S. industries

increasing production of advanced biofuels will reduce our dependence on foreign oil

In supporting advanced biofuels, the Democrats have likely been bought off by the renewable energy lobby.

In opposing advanced biofuels, the Republicans have likely been bought off by the oil lobby.

Rate your agreement: 7 pt

I support federal funding for advanced biofuels

I support state funding for advanced biofuels

I support government subsidies for advanced biofuels research

I support the production of advanced biofuels

I support the use of advanced biofuels

Advanced biofuels are good for society

(Context 3)

Religious and secular groups have squared off on the controversial science of gene editing.

Thanks to a technique called CRISPR-Cas9, scientists can now easily, and with increasing precision, modify genes through the genetic analog of a computer's "find and replace" function. This method can be applied in both human and non-human organisms.

But debate about both the science and its morality have just begun.

Religious leaders such as Phillip Potter of the World Council of Churches say there's too much at risk with this new technology, and are calling for a ban on testing. In a statement made in January, Potter said "Genome editing with current technology could have unpredictable effects on future generations. This makes it dangerous and unacceptable. The CRISPR method also has been shown to cut the genome at unintended sites, making it unsafe in the present."

Kevin Appleby of the United States Conference of Catholic Bishops, added that the technology poses "environmental and security risks, including the extinction of species that could be brought about by a single modified organism."

Humanist and secular organizations contest the religious community's claims. Said James Murphy of the Secular Coalition for America: "The actual moral action is that we pursue this research now. People are suffering, and we can help them. We've been held back long enough. CRISPR is safe, precise, and reliable. With this science we can eliminate birth defects and debilitating genetic diseases like hemophilia and cystic fibrosis."

"This technology can help us understand how embryos develop, and therefore the mysteries of miscarriage and infertility. We can reduce the massive burden of chronic diseases like diabetes and cancer, and ultimately delay the aging process."

Some religious leaders, though, have suggested that this research is a step in a process leading to 'designer babies' and consumer eugenics, premeditated by secular groups such as SCA.

Murphy responded by attacking the council's motives: "Religious organizations oppose this research because they want to maintain their control over human reproductive rights and practices, as they always have."

Mark your agreement with the following statements. (7-pt)

How much BENEFIT do you believe XXX poses to human health, safety, or prosperity?

1. Gene editing's potential to eliminate birth defects and genetic disorders.
2. Gene editing enhancing our understanding of how embryos develop
3. Gene editing's potential to reduce deaths from chronic diseases, such as cancer and diabetes.
4. Gene editing's potential to delay the aging process.

How much RISK do you believe XXX poses to human health, safety, or prosperity?

1. Gene editing's unpredictable effects on future generations.
2. Mis-targeted application of gene editing in individuals using current techniques.
3. Environmental risks of gene editing, such as the extinction of insect species.

Please rate your agreement with the following statements:

1. CRISPR is safe.
2. CRISPR is highly precise.
3. Religious organizations oppose this research because they want to maintain their control over human reproductive rights and practices.
4. This research is a step in a process leading to 'designer babies' and consumer eugenics, premeditated by secular groups.

### **Behavioral DVs:**

Please select the position closest to your own:

1. Use of CRISPR should be banned.
2. Use of CRISPR should be allowed, but heavily regulated.
3. Use of CRISPR should be fully supported.
1. If the conditions were appropriate, I would undergo a CRISPR procedure to address a life threatening medical ;;
2. condition.
3. If the conditions were appropriate, I would approve of a family member or close friend undergoing a CRISPR procedure to address a life threatening medical condition.
4. I believe other people should be allowed to undergo the CRISPR procedure to address a life threatening medical condition.



## Demographics/Controls

What's your ZIP code?

What is your age?

What is your gender?

What is your race: African-American/Black; Asian; Hispanic/Latino; Native American; White; More Than One; None of These

Education: Some high school/High school grad/Some college/Bachelor's or Associate's/some graduate school/Graduate degree

When it comes to economic issues, do you consider yourself..7pt, Very liberal/Very conservative

When it comes to social issues, do you consider yourself...7pt, Very liberal/Very conservative

What is your political party affiliation, if any? (Democratic/Republican/Independent)

How strong is that affiliation? (Strong/not very strong)

If you answered independent, which do you feel closer to? (Democrats/Republicans/Neither)

How interested are you in politics generally? 1-7

How familiar were you with this issue from the news 1-7

How interested are you in the following topics:

politics

science

economy

religion

environment

health

## Identity Measures

### Context 2

How important is being a Democrat/Republican/Independent to you?

How well does the term Democrat/Republican/Independent describe you?" (Extremely, Very, Not very, Not at all)

When talking about [Democrats/Republicans/Independents], how often do you use "we instead of "they"?"

(All, most, some, rarely, never)

To what extent do you think of yourself as being a [Democrat/ Republican/Independent]?

A great deal, somewhat, very little, not at all

In the past have year, have you:

Worked for or volunteered for your party?

Attended a protest or rally?

Contributed money to your party?

Displayed party signs, stickers, pins, clothing, etc?

Made social media posts about your party or their stance on an issue?

Context 3

What is your religious affiliation, if any?

Catholic, Protestant, Other Christian, Non Christian Faiths (Muslim, Jewish, Hindu, etc) Atheist or Agnostic.

How strong is that affiliation? (Strong/not very strong)

How often do you attend religious services

never 2 3 4 5 weekly

Which of the following comes closest to describing your feelings about the Bible

the Bible is actual word of God

the Bible is the Word of God but not everything in it should be taken literally

The Bible is a book written by men and is not the word of God

Whether or not you attend services, do you consider religion to be an important part of your life, or not?

Yes/No

Would you say your religious beliefs provide some guidance in your day-to-day living, quite a bit of guidance, or a great deal of guidance?

How important is being a member of your religion to you?

How well does the term [eg Catholic, Christian, atheist, agnostic] describe you?

4pt Extremely, Very, Not very, Not at all

When talking about [your religious group], how often do you use “we instead of “they”?

All, most, some, rarely, never

To what extent do you think of yourself as being a [catholic, christian, atheist etc]?

A great deal, somewhat, very little, not at all

Behavioral scales.

In the past year, have you:

Worked for or volunteered for your group?

Attended a protest or rally with your group?

Contributed money to your group?

Displayed group signs, stickers, pins, clothing, etc?

Made social media posts about your group or their stance on an issue?

## APPENDIX C PRETEST FACTOR LOADING

### Biofuels Headline Slant Factor Loading

Headline	1	2
Supporting New Fuel Technology Worth the Effort	0.807	
Report: Energy efficiency of biofuels continues to improve	0.806	
Why we need to support advanced biofuels NOW	0.753	
Disputing the math and science behind the biofuels mandate		0.785
It's Economics 101: Roll Back the Biofuel Mandate		0.707
Study: biofuels fail to fulfil expectations		0.558

Principal Component analysis  
Oblimin with Kaiser Normalization

### Gene Editing Slant Factor Loading

Headline	1	2
... The dangers of playing God	0.917	
... 'Gene editing is public safety threat'	0.903	
... religious critics say cross ethical boundaries	0.859	
Why humanists say...		0.755
The morality of gene editing...		0.700
Project Reason: 'There's tremendous...'		0.511

Principal Component analysis  
Oblimin with Kaiser Normalization

**Biofuels conspiracy belief factor loading**

<b>Belief</b>	Component 1	2	3
oil dependence	0.941		
cleaner burning	0.895		
less environmental damage	0.891		
economic strength	0.889		
create jobs	0.885		
threaten wildlife		0.880	
negative environmental		0.820	
fuel costs		0.816	
quality of life		0.785	
increase food costs		0.766	
unfair restrictions		0.684	
Republicans acting for oil lobby			0.913
Democrats acting for biofuels lobby			0.869

Principal Component analysis  
Oblimin with Kaiser Normalization

**Gene editing conspiracy belief factor loading**

<b>Belief</b>	Component 1	2
cure chronic disease	0.884	
prevent birth defects	0.875	
understand embryos	0.873	
unpredictable effects	0.870	
“cure” aging	0.843	
mistargeting damage	0.706	
extinction of species	0.630	
Religious groups control of reproduction		0.817
Secular groups seeking consumer eugenics		0.768

Principal Component analysis  
Oblimin with Kaiser Normalization

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Veenstra, AS, Lyons, BA, & Degim, A. (Forthcoming). "Intraparty Hostility: Social Identity, Sub-Identity, and the Hostile Media Effect in a Contested Primary," *Journal of Political Marketing*.

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