Preference Falsification: How Social Conformity as an Interdependent, Recursive, and
Multilevel Process Corrupts Public Knowledge

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Abstract

Throughout life, people often misrepresent their preferences to maintain social harmony, yet the cumulative effects of individual acts of conformity on society are largely underexplored. This phenomenon is captured by the economic theoretical framework of Preference Falsification, which describes why people misrepresent their preferences in the face of social pressures, and how misrepresentation accumulates to broader misunderstandings that can fuel political polarization. We first describe why the current political climate may foster motivations to misrepresent preferences, as individuals are increasingly strongly identified with their political groups and siloed into like-minded communities with strong pressures to conform to group norms. Next, we adopt a psychological lens to understand Preference Falsification at different levels of analysis: (1) at the individual level, to examine how failures in cognitive empathy and statistical learning facilitate social conformity that gives rise to falsification, and (2) at the collective level, to examine how misrepresented preferences propagate across social relationships and structures. Our goal is to advance theory by demonstrating that Preference Falsification provides a generative framework that describes how various micro-level phenomena related to social influence can propagate across social structures and corrupt public knowledge. Ultimately, we argue that PF limits access to accurate and truthful information, which fuels misinformation and poses a barrier to social change.

Keywords: Preference Falsification; Deception; Impression Management; Political Polarization; Social Conformity; Information Processing Biases

Introduction

Partisans increasingly disagree about basic political facts on topics ranging from the state of the economy (Bisgaard & Slothuus, 2018), health care policy (Berinsky, 2017), global warming (Druckman & McGrath, 2019), to the outcome of the 2020 presidential election (Mehta, 2020). These fundamental disagreements increase polarization and lead to social and political gridlock, both of which have harmful effects on a functioning democracy. Partisan divides may be due, in part, to partisan identities being more fundamental to people's experiences of who they are (i.e., social sorting; Mason, 2018; Mason & Wronski, 2018) and who they interact with both in-person (i.e., partisan segregation; Brown & Enos, 2021; Lang & Pearson-Merkowitz, 2015) and online (Cinelli et al., 2021; Mosleh et al., 2021). Consequently, partisans are not only increasingly exposed to different sources of information (Pew Research Center, 2020), but are also motivated to process information differently (Gaines et al., 2007; Kraft et al., 2015). Together, these factors are theorized to play a key role in the escalation of affective polarization (Iyengar et al., 2012, 2019; Iyengar & Krupenkin, 2018; West & Iyengar, 2020), or feelings of political animosity and social tension. To the extent that people disagree about basic facts due to polarization and partisan segregation, people may also face increasing social pressures to self-censor or conform to group norms, thereby discouraging potential dissenters and suppressing the expression of honest preferences, a recursive process that may further drive polarization.

There is growing evidence that social pressures are especially salient and prevalent today, as evidenced by inter-party bias and affective polarization (Iyengar et al., 2019; Pew Research Center, 2017; West & Iyengar, 2020). Rank-and-file partisans now hold such critical views of opposing party members that they try to avoid social interactions with out-party members (Huber

& Malhotra, 2017; Iyengar et al., 2012). Indeed, outgroup hate surpassed ingroup love in predicting voting behavior in the 2020 presidential election (Finkel et al., 2020). These trends further entrench partisan divides and constrain communication between individuals of opposing parties, elevating the perceived discomfort of interacting with individuals from the opposing group. One underexplored consequence of this social tension is that individuals may feel that being truthful is too costly, and may thus deceive others about their preferences simply to “get along.” Recent evidence suggests that rising rates of self-censorship in the U.S. correspond with rises in affective polarization (Gibson & Sutherland, 2020). For instance, roughly 40% of Americans state that they do not feel comfortable disclosing their views publicly (Gibson & Sutherland, 2020)—a roughly three-fold increase since the 1950’s. Moreover, a recent poll found that 65% of college students agreed that the climate on their college campus prevented them saying things they believe, a 7% increase from the previous year (Skikma, 2020). Altogether, accumulating evidence suggests that in the current social and political climate, being honest may not be perceived as the optimal choice.

If polarization-induced social pressures motivate people to self-censor or conform (Bartal, 2017), this may contribute to collective misunderstandings and dissatisfaction with the status quo. In fact, people have more shared private preferences than what they perceive to be shared with others, producing an inflated impression of disagreement over specific issues (Ahler & Sood, 2018; Fiorina & Abrams, 2008; Waytz et al., 2019). Individual acts of conformity may propagate across individuals within a social structure, and consequently blur the lines between what people *truly* prefer and what people *claim* to prefer merely to conform. In turn, this corruption of public knowledge accumulates to exacerbate the very social pressures that initiated the individual acts of conformity in the first place. This phenomenon is described by the

economic theoretical framework of Preference Falsification (PF), which describes what happens when people explicitly misrepresent their private preferences (i.e., what they truly prefer) due to perceived social pressures, such that people's public preferences (i.e., what they express) are inconsistent with their private preferences (Kuran, 1997).

While psychological research has independently examined phenomena related to social conformity (e.g., impression management, social desirability bias, social influence), how people acquire and use social information (e.g., cognitive empathy, statistical learning), and other related phenomena, it has not yet integrated them to understand how individual acts of falsification can accumulate to corrupt publicly available information, and how this fuels collective misunderstanding. Here, we build on the theoretical framework of PF by synthesizing related areas of psychological research in order to understand the processes that underlie PF and how they propagate across social structures. We characterize PF as an *interdependent*, *recursive*, and *multilevel* process, by which acts of conformity by one individual may incentivize acts of conformity by other individuals (i.e. *interdependent*), which may lead to misinformation being expressed across individuals and social groups within a society (i.e. *recursive*), and ultimately manifest in a corruption of available information and widespread endorsement of unpopular positions (i.e. *multilevel*).

This framework produces several important predictions and implications: (1) PF predicts widespread public support for preferences that are otherwise privately unsupported by individuals (or vice versa: public opposition for preferences that are otherwise privately supported), which stifles potential change (Kuran, 1987). From this perspective, the status quo persists not only due to self-censorship, but also because people conform to the status quo out of fear of social repercussions (i.e., Preference Falsification). This may then discourage people from

considering possible alternatives, as the status quo shapes people's expectations of what is possible. Thus, although individuals may privately prefer outcomes different from the status quo, they may publicly express preferences that sustain it and in doing so stifle potential social change (i.e., collective conservatism; Kuran, 1987). (2) PF predicts larger differences in public preferences between groups, and smaller differences in public preferences within groups (Boyd & Richerson, 1985; Henrich & Boyd, 1998). This provides one mechanism for polarization that thereby increases the perceived costs of expressing preferences that deviate from one's group (Kuran, 1997; also see Figure 1 for a theoretical representation of how PF can promote and sustain polarization). (3) PF predicts how dissent and honest expression among ostensibly minority groups can ignite unanticipated social movements, via the propagation of public preferences that were previously falsified (Kuran, 1998). Honest expression of private preferences can provide a shock to the social structure by changing societal pressures and exposing previously hidden dissent, such that the perceived costs to expressing particular public preferences become attenuated. Taken together, PF can help to explain how social and political policies that may not be representative of the population are upheld due to the perceived costs of deviating from group norms, and conversely, how individual dissenters can catalyze change by igniting social movements that reduce the social pressures to conform.

Figure 1. Theoretical density distribution of private and public preferences in a polarized context, in which people engage in collective conservatism. Private preferences are more moderate and uniformly distributed than public preferences, and deviate from collective outcomes engendered by public preferences. However, people express public preferences that do not satisfy their own interests, out of fear of social repercussions, and thus remain attached to the status quo of their political or social groups. This further elicits and reinforces social pressures to conform to polarized public preferences, perpetuating an unsatisfactory status quo that stifles dissent and social change, otherwise known as collective conservatism. Conceptually adapted from Kuran (1997).

Next, we describe three separate yet largely interconnected processes that describe how PF propagates across individuals to corrupt publicly available knowledge (see Figure 2). First, individual acts of social conformity can accumulate to shape the information that is available to others. At the same time, how individuals infer what others privately prefer (i.e., empathic accuracy) and process public information around them (i.e., statistical learning), shapes perceptions of popularity, and the likelihood that new preferences will be adopted. Finally, social conformity can propagate across social structures to shape individual decision-making and macro-level belief systems based on the information available in the environment.

Social Conformity

Central to the PF framework is the notion that people may be reluctant to disclose private preferences that are perceived as deviating from group norms due to reputational concerns. Specifically, people may express public preferences that align with the perceived preferences of others in order to accumulate potential rewards (e.g., gaining social connections) or avoid potential costs (e.g., losing social status) (see Tamir & Hughes, 2018). However, social costs and rewards are not the only reasons that may cause people to conform.

Research in psychology has examined some of the ways that social norms influence people's behavior. Solomon Asch (1940) characterized the influence of social norms on individual behavior, and found that individuals made incorrect perceptual decisions when faced with incorrect information expressed by confederates also completing the task. Did participants assume that their eyes were deceiving them, and the rest of the group was correct? Or did participants nominate the incorrect answer because they feared disapproval from the group? Research would later delineate *informational conformity* as a motivation to acquire accurate representations of reality and *normative conformity* as a motivation to achieve the approval of others and preserve social relations (Deutsch & Gerard, 1955; Toelch & Dolan, 2015). Social conformity is thus driven by motives to *conform for information* and *conform for social approval*.

Conforming for information

How do social norms influence people's perceptions of what preferences are most adaptive, and in turn what preferences they feel that they *should* publicly express? People value being correct (Satterthwaite et al., 2012), and often engage in motivated reasoning to achieve an accurate representation of reality (Kunda, 1990; Nir, 2011). As a result, people may use the public preferences of others to inform what they should publicly express (Mannes et al., 2012).

Several factors moderate the extent to which people discount their private preferences and conform to the expressed preferences of those around them in service of their accuracy goals. For instance, people are more likely to defer to surrounding preferences and the “wisdom-of-crowds” when their private preferences are weakly held (Banerjee, 1992; Mason et al., 2007). Moreover, people are more likely to conform to the preferences of experts (i.e., the expert effect), or to the preferences expressed or thought to be held by a majority (i.e., the majority effect: Moussaïd et al., 2013). Finally, people are more likely to discount their private preferences when elites signal what should be publicly endorsed (Barber & Pope, 2019; Pannico, 2020; Tappin, 2020). Conforming for information thus gives rise to PF and a perpetuation of the status quo in which available, majority preferences are accepted as being the most popular, and thereby the most accurate or true.

Conforming for social approval

How do people regulate their public preferences in order to protect their reputation and maintain social connections? Signaling Theory describes how animals engage in behaviors to manipulate and influence the behaviors of other animals (Krebs & Dawkins, 1984). Humans exhibit similar behaviors (McAndrew, 2002; Miller, 2007), and send signals of their value as coalition members, friends, or mates (D. M. Buss, 2009).

Extending from this innate drive to signal to others and maintain social relations, extensive research on self-presentational strategies and impression management demonstrates that people regulate their public preferences for a variety of reasons due to reputational concerns (e.g., Baumeister, 1982; Goffman, 1959; Leary & Kowalski, 1990; Schlenker & Weigold, 1992; Schlenker & Wowra, 2003). For example, people present themselves differently to others based on the aspects of themselves they hope to communicate (e.g., Leary, 1993; Schlenker &

Weigold, 1992) in order to improve or protect their social standing (e.g., Buss & Briggs, 1984; Leary & Kowalski, 1990; Schlenker et al., 1980). The motivation to gain social approval prevails even over people's self-interest, such that people may conform even when it is self-destructive, such as engaging in substance use (Leary et al., 1994; Martin & Leary, 1999; Sharp & Getz, 1996). This may lead people to support policies that may disadvantage them in order to fit in with others.

In separate but related work, Self-Categorization Theory (Turner et al., 1987; Turner & Reynolds, 2011) describes how identification with a social group can influence how people self-express. For instance, people will describe themselves in terms of a salient identity (Onorato & Turner, 2004), and this may contribute to partisans actively supporting demonstrably false claims in order to praise their own group or criticize another (i.e., partisan cheerleading; Bullock et al., 2015; Peterson & Iyengar, 2021). Importantly, the extent to which people become deindividuated and define themselves by prototypical ingroup characteristics (or conversely, reject prototypical outgroup characteristics) bears important implications for social influence (Turner, 1991), extremism (Hogg, 2014), and group polarization (Hogg et al., 1990). People may be so motivated to see themselves as similar to their group that they will assimilate normative ingroup attributes, even at the cost of self-derogation (Latrofa et al., 2009). From this perspective, social identities provide a rich source of value and meaning for individuals, and people may incorporate into their own identity the attributes that are perceived to be group prototypical. Thus, people conform not only out of obligation due to social pressure or to manage others' impressions, but also due to a desire to affiliate with one's group (Spears, 2011).

Importantly, when a person misrepresents their preferences to preserve social relations, or assimilates prototypical group characteristics to satisfy their desire to belong to their social

group, it contaminates publicly available knowledge by perpetuating a status quo that may be misaligned with an individual's private preferences. PF expands the potentially self-destructive outcomes associated with individual acts of conformity from the individual to the collective, where conformity across many individuals accumulates to corrupt public information and perpetuate the status quo.

How information processing biases can distort perceptions of popularity

How do people infer what others prefer and estimate the popularity of those preferences? In order to infer the popularity of a preference, an individual must gather information by accurately representing the contents of others' minds (i.e., empathic accuracy), while also creating estimates of what most people believe (i.e., statistical learning). Importantly, research finds systematic information processing biases in both empathic processing (e.g., Fourie et al., 2017) and statistical learning (e.g., Derreumaux et al., in press; Fiedler, 2000), which can distort perceived popularity. We highlight how information processing biases exacerbate PF, and contribute to broad misunderstanding that fuel polarization and political divides.

Failures in inferring other people's preferences

How accurately do people infer the mental states of others when they are covert and private? Empathic accuracy, or the ability to accurately infer what someone else is thinking and feeling (Ickes, 1993), is a necessary social competency for avoiding misunderstandings and effectively navigating social situations. When people publicly misrepresent their preferences, it becomes challenging to accurately parse authentic from inauthentic expressions of preferences. In this way, PF may reduce empathic accuracy, leading people to interpret falsified preferences as authentic preferences.

Certain features of the social environment can up- or downregulate empathic processing (Zaki, 2014). One such feature is the salience of group boundaries (Cikara et al., 2011). For instance, a host of research generalizing across a variety of intergroup boundaries, including political (Mitchell et al., 2006; Moore-Berg et al., 2020) ethnic/racial (e.g., (Avenanti et al., 2010; Leyens et al., 2000), social (Cikara & Van Bavel, 2014; Harris & Fiske, 2007), even novel, arbitrarily-defined groups (Leyens et al., 2000), finds that empathy decreases for outgroup members compared to ingroup members. In some contexts, even mere cooperation with outgroup members requires greater effort and cognitive control than cooperation with ingroup members (Hughes et al., 2017). Moreover, outgroup suffering and misfortune can even elicit positive emotional reactions (i.e., *schadenfreude*;(Cikara et al., 2011, 2011; Hein et al., 2011), suggesting that failures in empathic processing may be further driven by outgroup animosity. For instance, a sizable portion of Americans preferred to vote for a candidate who promised to pass policies that “disproportionately harm” opposing party members (Webster et al., 2021). Remarkably, group-motivations permeate even lower-level visual perception (Hughes & Zaki, 2015; Leong et al., 2019), including the perception of outgroup members as more homogenous (Hughes et al., 2019) and greater encoding of arbitrary ingroup faces (Ratner et al., 2014), reflecting the reach of group-based motivations on not only our explicit preferences and behaviors, but also our perceptions. Clearly, our ability to understand others’ mental states and preferences can fall apart across group boundaries.

One factor that contributes to intergroup failures in empathic accuracy is how individuals experience and represent their own social identities. Partisan identities have increasingly become superordinate to— and aligned with— other social identities, such that an individual’s partisan identity likely reflects their other social identities (e.g., race/ethnicity, sexual orientation,

religion), rendering them more subjectively homogenous and exclusive (i.e., social sorting; Mason, 2018; Mason & Wronski, 2018). From a social identity perspective, greater subjective overlap between one's social identities is associated with greater prejudicial attitudes towards outgroup members and fewer attitudes favoring inclusiveness and universalism (Miller et al., 2009; Schwartz, 1992). Given that political identities are increasingly less complex and more overlapping with other identities, this *intragroup* process may be facilitating *intergroup* animosity between political parties.

Understanding how PF contributes to empathic failures in political and other intergroup contexts may help to explain escalating affective polarization (Iyengar et al., 2019). If people are more motivated to understand the mental states and preferences of ingroup relative to outgroup members, this may manifest in the private preferences of ingroup members and public preferences of outgroup members exerting an undue influence on what one publicly expresses. People may be able to more accurately infer the private preferences of ingroup members, even when they falsify their preferences, due to being more attuned to their internal mental states. However, people may instead default to the prototypical, stereotypical, or falsified public preferences of outgroup members as characteristic of their true preferences due to failures in detecting their internal mental states. Although people tend to underestimate the situational determinants of behavior (Ross et al., 1977), such as the influence of social pressure on the preferences people express, people may be more effective at detecting when public preferences are inauthentic due to social pressure for fellow ingroup members than for outgroup members. As a result, failures in empathic accuracy may give rise to biased estimates of preferences at the population-level, such as biased perceptions of aggregate support or popularity, as a function of group membership.

Biases in statistical learning of social information

How do people learn about the public preferences of others? Statistical learning refers to the process of forming expectations about the underlying regularities of behavior in order to predict outcomes in one's social environment (Monroy et al., 2017; Park et al., 2020; Ruffman et al., 2012) and to determine social decisions and behaviors (Lockwood et al., 2020). Importantly, the social experiences and outcomes that people learn about in a given moment are often constrained by motivational (e.g., (Elder et al., in press; Hughes et al., 2017; Kappes & Sharot, 2019) and contextual or environmental factors (e.g., Fiedler, 2000; Hupbach et al., 2008; Tversky & Simonson, 1993), potentially giving rise to estimates that are not representative of the population. If people fail to account for the fact that their experiences are not representative, they may then reach biased conclusions, such as believing that an opinion is more popular than it is in reality. PF may thus have detrimental effects on statistical learning by corrupting the publicly available information that people use to inform their own preferences.

One influential factor that can shape the perceived popularity of a preference is the frequency with which people are exposed to evidence that confirms or disconfirms it (i.e. “the illusory truth effect;” (Fazio et al., 2015). For instance, repeated exposure to a preference can make it feel more popular (Pennycook et al., 2018), partly because the increased exposure makes a preference feel more true. Because people are increasingly siloed in like-minded communities (Brown & Enos, 2021; Lang & Pearson-Merkowitz, 2015), preferences will become biased (i.e., not representative of the population) by more frequent exposure to a subset of preferences relative to all available options (Derreumaux et al., in press). As a result, a person may come to overestimate the popularity of an opinion simply because it is most frequently expressed in their social network (Lee et al., 2019; Lerman et al., 2016). Conversely, reduced exposure to a

preference can make it feel less popular. For example, contexts where the majority of people misunderstand each other due to falsification (e.g., pluralistic ignorance; Miller & McFarland, 1987, 1991; D. Miller & Morrison, 2009; Prentice & Miller, 1993) make it more difficult to assess the popularity of a preference. People may underestimate the extent to which others misrepresent their private preferences due to social pressures. As a result, perceptions of popularity will be biased towards publicly expressed preferences, and this will be exacerbated if people underestimate situational determinants of other people's behaviors (Ross et al., 1977), such as neglecting to consider that these public preferences may not represent people's private preferences. To the extent that people falsify en masse, this will only further contribute to– and may magnify– errors in people's ability to accurately estimate the true popularity of a preference.

Figure 2. A conceptual path diagram illustrating the corruption of public information at different levels of analysis as a function of Preferences Falsification. Social conformity at the individual level (denoted in blue) distorts public information (denoted in peach). Information processing biases (i.e., statistical learning and failures in empathic accuracy; denoted in yellow) during the

encoding of public information further distorts perceptions of popularity which increases or decreases pressures to conform. Finally, the social structures (denoted in orange) through which information propagates (denoted in grey) influences what information people are exposed to. Thus, PF ignites a process by which each individual act of conformity distorts public information, propagating across social structures and blurring the lines between what is popular and what is supported merely to conform.

Corruption of Information at the Collective Level

One consequence of individual acts of PF is that they may accumulate to distort perceptions of public opinion. Misperceptions of aggregate private preferences – generated from aggregate individual-level falsifications – may further exacerbate PF. Moreover, the social costs of expressing private preferences may be magnified due to widespread misrepresentation and misunderstanding regarding consensus. Conversely, individual acts of honest expression can have the opposite effect, by aligning private and public preferences to produce public preferences that are representative of the population. In turn, this may catalyze further honest expression through the tempering of social costs associated with a particular preference. Thus, the manifestation of PF on the macro-level represents the interaction of the *social structures that shape social influence* and the *propagation of public preferences*.

Social structures shape social influence

How does the structure of social relationships contribute to how influential public preferences are? An individual's position within a social network can shape how they receive and distribute information. Network analytic metrics can provide insight into the propagation of information at different levels of granularity. At a broad level, people may organize into communities within a larger network, and more frequent communication within these groups can lead to pockets of people that develop similar views (e.g., (Festinger et al., 1950; Katz & Lazarsfeld, 1955). At an individual level, how densely an individual is connected within a community (i.e., high in constraint, “closure”) or between communities (i.e., high in

betweenness, “broker”) can inform how they distribute and receive others’ public preferences.

Some individuals may not integrate a diverse range of information, but may be highly insulated and connected among individuals of a specific preference (i.e., closure), whereas other individuals may integrate a diverse range of preferences and act as a bridge between groups of people and preferences (i.e., broker; Burt et al., 2013). An enclosed individual may feel greater social pressures to falsify, as densely connected networks maintain norms by facilitating social sanctions among individuals with many mutual friends (Burt, 2001; Granovetter, 1992).

Conversely, influential individuals in social networks are more resistant to social pressures (Aral & Walker, 2012) as a diversity of relations may serve as a buffer against potential reputational costs. Additionally, while enclosed individuals may have limited knowledge of alternative opinions, brokers are exposed to a diversity of opinions (Aral & Van Alstyne, 2011) and may thus be less susceptible to endorsing options that are inaccurately perceived as popular. Beyond exposure to opinions, brokers are also important to the spread of information (Burt, 1999; Katz & Lazarsfeld, 1955), and may play an integral role in propagating honest disclosures and the updating of public preferences among others. Thus, people’s susceptibility to falsification or their influence over social change may be conditional upon the structure of their social relations.

Propagation of public preferences

Can the public preferences of a minority of individuals have an undue influence on the outcomes of the broader society? How do public preferences among few individuals ignite recursive changes in public preferences among many individuals? PF ignites an interdependent process by which each additional individual who falsifies induces greater pressures on others to conform to the same opinion, also known as a bandwagon effect (Kuran, 1998; Leibenstein, 1950; see also *information cascades*: e.g., Anderson & Holt, 1997; Bikhchandani et al., 1992;

Ellis & Fender, 2011; Hung & Plott, 2001). Accordingly, people's ability to resist falsification may weaken as more of the population conforms to an opposing preference. This "tipping point" between one public preference over another is an *opinion threshold*, or the point at which an individual is indifferent between two preferences (Kuran, 1991, 1997). For example, if an individual is entirely indifferent between favoring or opposing a preference, but observes that the majority of the population endorses the preference, they may now be motivated to endorse the majority preference. For a preference with polarities A and B , if an individual expresses a public preference A , due to being weighted towards one side of the opinion threshold, this may catalyze further shifts in opinion thresholds that galvanize honest expression among proximal others with private preference A and will promote falsification among those with private preference B .

Much of the experimental evidence providing insight into how opinion thresholds may shift and propagate is drawn from simulation models such as agent-based modeling (ABM). ABM provides an analytic approach for describing how individual agents interact to produce macroscopic behavior, and how collective equilibria (i.e., static states) are achieved through individual behaviors (Turell, 2016). For example, ABM has been used to characterize the collective dynamics of opinion formation within interpersonal networks by modeling the tipping point by which one influential individual can shift public opinion in one direction or another (Lamberson, 2012), how a critical mass of easily influenced individuals can cascade to change public opinion (Watts & Dodds, 2007), or how extremist views can contribute to the emergence of political segregation in a society (Goldenberg et al., 2020). One ABM study revealed that PF may be greater in highly centralized, authoritarian societies in which there are fewer interactions with like-minded people and greater perceived costs for transgression. However, this study found that changes in PF can rapidly emerge through social interaction with like-minded people and

propagate to institutional revolution, highlighting the role of decentralized information and communication in giving rise to social change (Makowsky & Rubin, 2013). Simulation-based accounts such as this provide useful evidence into how individual behaviors that shift others past an indifference point (i.e., opinion threshold) can accumulate and catalyze larger shocks to equilibria, more colloquially known as social movements, or conversely how institutions and patterns of communication can promote and sustain falsification.

Synthesizing the Different Levels of Preference Falsification

Thus far, we have described the processes that contribute to PF at different levels, including (a) individual acts of PF through social conformity and impression management, (b) information-processing biases in how people learn about their own and other people's preferences, and (c) the propagation of public preferences that can corrupt public knowledge. PF is a useful framework for understanding how individual behaviors can accumulate to shape available information, which subsequently shapes macro-level outcomes.

Demonstrating the Phenomenon with Simulations

In order to demonstrate how the above processes aggregate to produce outcomes such as misinformation (defined here as aggregate public preferences that deviate from aggregate private preferences) and polarization (defined here as increasing differences in public preferences), we employed ABM, a method that is well-suited to describe interdependent, recursive, and multilevel phenomena (Jackson et al., 2017; Smaldino et al., 2015).

We simulated a population of individuals (i.e., agents) who would periodically interact with their group of friends, each of whom may or may not share the same private preferences as them. We set the population to initially express preferences honestly. We then introduced rules of falsification that allowed people to express public preferences that deviate from their private

preferences when they experience pressure from the majority preferences. This allowed us to examine the effect of falsification on the collective state of the population. For example, if the private preferences of agents in a population is evenly split between two options (i.e., is 50-50), then any deviation from 50-50 in the expressed public preferences of agents in the population would reflect that there is PF at the collective level, which contributes to broader polarization and misinformation. Within a given simulation, 500 agents, where each agent was connected to up to three other ‘friend’ agents (approximate average of two friends, given each agent had either one, two, or three friends) who they would consistently interact with. Each agent was randomly assigned a “support” or “oppose” private preference. At the beginning of a given simulation, the external, public preferences were assigned to be equivalent to private preferences, such that all agents were initially honest with no pressure to falsify. For a given simulation, we generated 5,000 timesteps. At each timestep, one of the 500 agents was randomly chosen as an “actor” that interacted with its friends. Friends conformed to the actor’s expressed preferences as a function of the “influence” at timestep i . The influence at timestep i was dictated by the proportion of total support for the current actor’s public preference across all agents in the population (e.g., if the actor expresses “support” and 76% of agents are expressing support at timestep i , the influence is 76%). Algorithmically, influence is the probability that the friends of the actor will conform to the actor’s expressed preference (e.g., if the actor expresses “support” and the influence is 76%, the agent’s friends are 76% likely to conform to “support”). At each timestep, we calculated the proportion of falsifiers (i.e., agents who’s expressed preferences are inconsistent with their private preferences) and the proportion of agents that publicly support or oppose the preference. Thus, at each time step we can examine how increasing proportions of falsification can give rise

to large-scale differences in public preferences, and public polarization on preferences that people may privately agree upon.

We implemented two variants of the model-- (1) a “conformity” model which proceeds exactly as above, and (2) an “elite cues” model which proceeds as above, except an “elite” agent expresses a preference to an audience of 250 agents, at varying levels of influence (from .1 to .9) at the 2000th and 4000th timesteps. The former model reflects the extent to which individual acts of conformity in interpersonal interactions can aggregate to produce public preferences that are inconsistent with private preferences – thus generating misinformation in public disclosures – and public preferences that become increasingly polarized (see Figure 3A). The latter model reflects how “elite” cues (e.g., politicians, media pundits) with many connections and greater influence can propagate and exacerbate levels of misinformation and polarization (see Figure 3B). Together, the models illustrate the emergence of collective misunderstanding via falsification. Specifically, how individual acts of falsification will escalate between-group differences in public preferences despite equivalent private preferences. Moreover, while polarization may escalate via individual falsifications, influential elite cues serve to exacerbate differences in public preferences. Note that without elite cues exerting an influence, misinformation plateaus at about 30% misinformation in the population, but with elite cues exerting an influence, misinformation becomes greater and group differences become larger. Together, they provide evidence that misinformation and polarization naturally emerge in social systems where conformity is a function of popularity (i.e., majority support) and social pressure. We argue that psychological research has largely focused on individual interactions (i.e., the individual agents’ interactions with one to three friends at timestep i), but has not fully

considered how these individual acts of conformity can accumulate to macro-level phenomena (i.e., dynamic, aggregate changes in group polarization and misinformation).

Figure 3. Simulations depicting how individual-level falsifications aggregate to a collective states of misinformation and polarization. The ground truth for people’s private preferences is 50% oppose and 50% support, such that any deviation from 50% represents collective outcomes that are unrepresentative of private desires. The solid line and dotted line represent different public preferences (e.g., oppose or supporting preferences). On the x-axis is time representing the timesteps each agent falsifies or tells truth. On the y-axis is support (proportion of agents expressing support for one public preference or another) and misinformation (proportion of agents expressing public preference inconsistent with private preference). (A) “Conformity” model by which the quantity of people falsifying influences whether a given agent will falsify. (B) An auxiliary component is added for this “elite cues” model by which an elite agent’s expressed public preference affects 250 random agents at varying levels of influence. The different colors represent different levels of influence.

We generated these simulations to highlight potential avenues for future empirical research, such as how social conformity cascades to shape later acts of conformity that maximize between-group differences and minimize within-group differences (Boyd & Richerson, 1985; Henrich & Boyd, 1998), thereby promoting broader misinformation and polarization (Panizza et al., 2021). A real-world psychological investigation that parallels the simulations described above may involve a multi-modal approach to social conformity and polarization, by which researchers track the daily behaviors of individuals (e.g., via experience sampling) and track the private and public preferences in a larger social network longitudinally to assess how individual conformity-based behaviors change outcomes in a social system. For example, might individual acts of falsification propagate outwards to influence others to abandon their private preferences, leading a social network to adhere to public preferences and outcomes they privately do not support? More generally, simulation-based evidence of the theory provides tangible predictions for empirical psychological studies to test, such as the extent to which vocal elites at an acute point in time may shape falsification behaviors or the extent to which conforming individuals exert social influence on the falsified preferences of large groups.

Implications

Decades of research in psychology has examined the individual-level antecedents and outcomes of social influence, highlighting the myriad factors that underlie people's motivation to conform. At the same time, cognitive models of information processing demonstrate robust biases in how people access and process the information available to them. We synthesize these findings to position them within the framework of PF, which describes how social conformity at the individual level can catalyze and propagate across social structures to corrupt public information. Specifically, we argue that social pressures aggravated by affective polarization

contribute to greater and more frequent social conformity. Moreover, information processing biases elicited by the current political climate may constrain inferences of others' preferences and distort perceptions of popularity. Therefore, falsification on an individual level can catalyze an interdependent process by which each act of falsification induces greater pressures on others to conform to the status quo, regardless of the underlying distribution of private preferences (see Figure 1). In a context where people misrepresent their private preferences, and access to accurate information is stifled by information processing biases and misinformation, PF can thrive. Our goal is to demonstrate that PF provides a unifying framework to account for the interplay between various psychological phenomena related to individual acts of social conformity— and critically— how falsification en masse can cascade to produce broad misunderstanding that fuels partisan tension.

Growing political antipathy and animosity in the U.S. has increased social pressures to align with one party over another. Just as a Republican constituent may feel that their individual vote has no influence on election outcomes in a Democrat voting state, people may be disincentivized from sharing their private preferences in socially repressive environments in which their private preferences are perceived as unfavorable (Kuran, 1997). Nonetheless, when individuals privately express opinions free from social pressures, such as through voting, they can aggregate to elect projected underdog politicians (e.g., Trump's 2016 election) or to support ostensibly unpopular political policies (Kuran, 1987, 1988). In an age of misinformation, it is often difficult for an individual to distinguish between the honest and dishonest preferences of others, as doing so requires active cognitive processing and reflection (Pennycook & Rand, 2019). When people cannot detect dishonest preferences, and instead default to the public preferences of individuals within their network, this perpetuates norms that may not accurately

represent the preferences of the majority (Kuran, 1988). Indeed, falsification on a large-scale may contribute to measurement error in polling (Pew Research Center, 2020), reflecting a discrepancy between the public's reported (i.e., public) preferences and their true (i.e., private) preferences. While individuals may distort the information available to others and exacerbate social pressures when they falsify, specific individuals and groups also contribute to falsification by actively spreading (mis)information that garners public attention and in turn increases social pressures.

In an interconnected, media-driven society, where social media platforms can encompass dozens, to thousands, to millions of people, any individual can exert an influence on others via their public preferences. The vast reach of these modern social networks now enables single individuals and small groups of people to leverage social pressure to enact their goals. Vocal minorities (e.g., pressure groups, social movements) that actively attempt to influence people's beliefs by increasing the strength and perceived support for particular issues can produce both positive (e.g., civil rights movements) and negative (e.g., extremist hate movements) outcomes. These groups exert their influence by rewarding the expression of particular preferences (e.g., by socially including supporters) and punishing the expression of others (e.g., by shaming dissenters). By doing so, minority groups can either create an illusion that group opinions are larger and more favored than they truly are (Schwalbe et al., 2020; Xifra, 2016), or they can provide alternative possible viewpoints that thereby change norms surrounding acceptability and social sanction (Kuran, 1997). Depending on the status quo and the nature of the change, the social pressure exerted by minority groups can be either valuable or harmful to societal outcomes. For instance, social pressure from minority groups can provide a necessary catalyst for change towards previously unpopular egalitarian perspectives. However, social pressure may

also promote the escalation of insidious hateful perspectives, misinformation, or discourage honest dialogue. Therefore, it is not the act of falsification per se that leads to positive or negative change, but rather the norms that are instilled or upheld by social pressure, as shifts in social pressures can often lend itself to the elevation of previously discounted voices and the catalyzation of social movements.

To the extent that we are dependent on one another for information, if falsification prevails en masse, people are operating on inaccurate information (Bar-Tal, 2017). As such, PF may help to explain declines in social capital and civic engagement in the U.S. due to political apathy and social distrust (Putnam, 2000), creating a barrier for positive social change. Importantly, outlining potential solutions and proposing interventions aimed at mitigating PF is beyond the scope of the current work. Instead, our goal is to demonstrate how overlapping and related areas of psychological science can help shed light on this complex phenomenon, with the goal of spurring future work. A deeper understanding of PF can offer insights into the antecedents and consequences of polarization and socially repressive contexts, and how these consequences may lead to outcomes inconsistent with the public will. Conversely, it can also shed light on how individual acts of honesty can ignite a social movement of dissenters by signaling support to others who previously falsified (e.g., Black Lives Matter, Me Too, Tea Party). Ultimately, we argue that people should strive to have access to the most accurate information, and that PF limits access to accurate information. As such, we should strive to attenuate PF, at the least, to enhance the quality of available information.

This theoretical framework sheds light on how voicing an opinion can lead to social and political change and how decisions to falsify can lead to collective misunderstanding. We do not propose that all forms of PF lead to negative outcomes, however, and note the function of

prosocial white lies in facilitating social cohesion and integrating social networks (Iñiguez et al., 2014). Rather, we argue that reducing PF on average may promote more accurate information about the values and beliefs of others. One potential outcome of having more accurate information about the views of others, especially those from opposing coalitions, is that it may reduce affective polarization as people learn that their own and others' views are more closely aligned than they may have realized, and allowing the expression of more compromising public preferences (Ahler & Sood, 2018; Fiorina & Abrams, 2008). PF, which sustains the status quo (Kuran, 1987, 1988), stifles open and honest dialogue and represents a significant barrier to social change, as potential dissenters who may spur social change conceal their preferences out of fear of sanction. Reducing PF may thus engender open and honest dialogue, and promote social change that aligns political and social policies with the wants and needs of the majority.

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