The Motivated Fluidity of Lay Theories of Change

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People encounter an almost overwhelming quantity of information about human behavior and the social world everyday. Despite this information overload, humans are markedly adept at finding signal in the noise, interpreting the inputs in their complex environments in a way that both simplifies and makes meaning. People use a variety of shortcuts or heuristics to make sense of these stimuli (Tversky & Kahneman, 1974); they also access a range of lay theories about the nature of humans, natural processes, and how the world works. Lay theories are sometimes referred to as naïve or folk theories acknowledging humans as naïve scientists attempting to make sense of a complex world (Heider, 1958; Kelly, 1955). These lay beliefs are also commonly called implicit theories in part due to the recognition that these beliefs often operate at an automatic rather than conscious level—people have assumptions, largely unexamined, about the world around them which guide their judgments, but which have rarely been articulated in careful detail or bolstered with rational argument. These implicit theories provide a lens through which people see the world and can shape their understanding of behavior, actions, and decisions in powerful ways.

This volume explores a wide range of these lay beliefs and articulates the many ways they can influence human thought, behavior and choice. To a large extent, these literatures tend to focus on how lay theories affect people's responses, either by examining individual differences in people's lay beliefs or by directly manipulating or creating the lay belief people hold. We will review only a small portion of this literature to paint a general picture of this approach. We focus primarily on one kind of implicit theory: people's beliefs about the fixed or malleable nature of

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human characteristics (Dweck, 2012), and extend our analysis to related theories regarding the mutability of groups and of social mobility. The central goal of this chapter, however, is to ask a slightly different question: are people's implicit theories chronic and stable over time, or do they shift in systematic ways? What leads people to adopt or endorse different lay theories at different times? We suggest that one set of important but unexplored factors pertains to people's current goals and identity needs. There may be times when people gravitate to one lay theory or another because a particular worldview will best help them to arrive at a particular, desired conclusion. We outline the emerging research examining, how people may shift their lay theories about the malleability of personal attributes in systematic ways when particular goals are activated. Although we focus primarily on these individual-level shifts in person lay theories, we will also consider how similar processes may play out in other domains in which competing lay theories of mutability have different implications for human behavior. Because, the literature on motivated adoption of implicit theories is limited, we will often make speculative connections that are not thoroughly tested. Our hope is to prompt additional research and theory in this area of study.

One of the implicit theories that have been studied extensively pertains to people's beliefs about the fundamentally fixed or malleable nature of human attributes (Dweck, 2012). Dweck describes entity theorists as believing that attributes are fixed and stable—people have a certain level of a given attribute or ability, and this level is relatively enduring. For instance, an entity theorist would strongly agree with the statement: "*Everyone is a certain kind of person, and there is not much that can be done to really change that*." In contrast, incremental theorists are described as holding the conviction that people's attributes are inherently malleable with time and effort. For instance, an incremental theorist would strongly agree with the statement: "*People can change even their most basic qualities*." These lay beliefs are often described in dichotomous terms (incremental and entity theorists), and for ease of communication we sometimes use these terms. Importantly though, people's actual views may fall anywhere on a continuum (typically a 6-point scale from Strongly Agree to Strongly Disagree). Further, although we sometimes will discuss incremental and entity theorists in general terms, in fact people hold different lay theories across domains (Dweck, Chiu, & Hong, 1995a). Someone may believe that morality is malleable but that intelligence is quite fixed. Some domains may be more closely associated than others, but in general, domain-specific lay theories will more accurately predict people's perceptions and choices (e.g., Chiu, Hong, & Dweck, 1997a; Ward & Wilson, 2015).

Why do these lay theories matter? There is considerable evidence that these theories guide person perception and stereotyping (e.g., Hong, Levy, & Chiu, 2001; Levy, Chiu, & Hong, 2006; Levy, Stroessner, & Dweck, 1998; Molden & Dweck, 2006), goal-pursuit and achievement (e.g., Burnette, Pollack, & Hoyt, 2010; Dweck & Leggett, 1988; Hong, Chiu, Dweck, Lin, & Wan, 1999), interpersonal relations and aggression (e.g., Kammrath & Dweck, 2006; Rattan & Georgeac, this volume; Yeager, Trzesniewski, & Dweck, 2013), and intergroup judgments (Jayaratne et al., 2006; Rattan, Savani, Naidu, & Dweck, 2012) among others. Specific phenomena

investigated vary across domains, but in general, implicit theories account for how people process complex social information. For instance, students who are incremental theorists are more likely to respond proactively to failure by seeking strategies for improvement, whereas entity theorists are less likely to select ameliorative strategies (Yeager & Dweck, 2012). Likewise, incremental theorists are more likely to approach conflict constructively (Kammrath & Dweck, 2006), and even attempt to change prejudiced attitudes (Rattan & Dweck, 2010) compared to entity theorists who belief such efforts would be futile if the interaction partner is unlikely to change.

It is less clear—though often hotly debated—which theory is more "correct" in reality. For instance, there is evidence for the hereditary nature of some temperaments, attitudes, and abilities (Harris, Vernon, Olson, & Jang, 1999). There is evidence that genetics may inhibit efforts at weight control (Bradfield et al., 2012; Burnette & Finkel, 2012). At the same time, evidence that people can change goes well beyond the inspirational stories of underdogs finding their way to success (Gladwell, 2013). Epigenetic research demonstrates the power of context and choice to determine how genetic factors are expressed (Sasaki, LeClair, West, & Kim, 2016), evidence shows how practice can change not only performance but the brain (Kelly & Garavan, 2005), and a great deal of social psychological research demonstrates the power of personal belief (Lou & Noels, 2016) and the situation to shape behavior over and above chronic dispositions (Reis, 2008). In short, there is plenty of evidence out there in the world for a reasonable person to draw on and conclude that attributes are quite malleable; there is also no shortage of evidence supporting the view that attributes are rather fixed. Beyond the world of research, Western cultural wisdom also contains mixed messages about the stable or dynamic nature of attributes. Proverbs have relegated thieves and leopards to a fate of perpetual sameness,[1] yet other wisdom purports that the "the only thing that is constant is change" (commonly attributed to Heraclitus). Although research evidence and folk wisdom often do not provide a singular answer to the question of which theory is more "correct," evidence suggests that people tend to have an opinion. In surveys, about 80% of participants tend to report leaning more toward either an entity or an incremental viewpoint (Plaks, Levy & Dweck, 2009), with a relatively equal proportion endorsing each of the diverging viewpoints (Dweck, 2012).

We will make no claims about which theory tends to be more accurate (other than to say that "both" may often be the right answer). Regardless of accuracy, there is compelling evidence that the lay theory someone endorses about change can powerfully predict motivation, perception, and decisions. However, despite the large number of studies demonstrating meaningful consequences of implicit theories of malleability, it is unclear just how stable these theories are and what factors might influence a person's dominant lay belief. First, how temporally stable are lay theories of change? We can answer this question in a few ways: by considering the

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[1]*Once a thief, always a thief*; *a leopard cannot change its spots*.

temporal stability of person theories, by considering how *malleable* lay theories are when presented with persuasive information, or by considering how they might change in response to specific experiences or contexts. We consider each in turn.

Temporal Stability of Implicit Theories

First, there is a general tendency to describe lay theories as relatively stable, chronic individual differences, implying that beliefs would remain quite consistent over time. There is some evidence supporting this contention: Dweck et al. (1995a) reported a test–retest reliability of 0.82 over 2 weeks on the 3-item Implicit Person Theory measure, and Levy et al. (1998) reported 0.82 over a week and 0.71 over 4 weeks for an 8-item measure. However, Poon and Koehler (2008) pointed out that the chronic, stable nature of implicit person theories is typically assumed rather than tested, and most often is measured either at the same time as dependent measures of interest or within a couple of weeks' time. Poon and Koehler examined stability over longer time periods, and found that the test–retest reliability declined considerably by 10 weeks out, down to 0.28. Further, they emphasized that contemporaneous measures of lay theories were strong predictors of relevant dependent variables Specifically, in their research, implicit theories (measured contemporaneously) predicted intertrait inferences; entity theorists were more likely than incremental theorists to make inferences about a person's traits (e.g., *warm*) after learning that the person possessed a related trait (e.g., *sensitive*). However, when the lay theory measure was taken weeks earlier, it failed to consistently predict these same inferences, suggesting meaningful change in lay theories over time. Indeed, in a follow-up study they found that after 8 weeks, only about 60% of participants fell into the same entity or incremental theory category as they had at Time 1. As Poon and Koehler speculate, this temporal instability is worth noting when considering the chronic effects of implicit theories, that scores at any given moment are likely to involve "(a) one's chronic theory accessibility, as researchers have long assumed, but also (b) one's temporary theory accessibility triggered by naturally unfolding, idiosyncratic cues or experiences in everyday life" (Poon & Koehler, 2008, p. 975). Their conclusions emphasized the importance of their findings for research planning, as an earlier measure of lay theories might not adequately predict a later measure of outcomes. However, it led us to wonder about what kinds of day-to-day, idiosyncratic experiences may play a role in altering implicit theories. Were these fluctuations random, or systematic and explainable? In other research, Poon and Koehler (2006) describe implicit theories of change and stability as knowledge-activation frameworks: People likely possess knowledge of both lay theories, and may endorse different theories at different times as a result of the knowledge that has been become accessible in a given situation. They demonstrated that people readily shifted their theories after engaging in tasks designed to prompt them to search their memory for evidence of one theory or the other. For instance, people accessed malleability folk knowledge when asked to read a biography and

account for why the individual changed dramatically through life; they accessed entity knowledge when they explained a biography of someone who remained unchanged. Similarly, they activated knowledge consistent with different lay theories when asked to provide examples reflecting proverbs, such as "*You cannot teach an old dog new tricks*" or "*Experience is the best teacher*." Further, the theory activated in the moment predicted subsequent unrelated trait judgments, demonstrating that people will make decisions and judgments on the basis of whatever theory is activated. They argue that stimuli akin to these kinds of experiences (person judgments, exposure to folk wisdom) are likely to occur in everyday life, accounting for some of the natural variation in people's implicit theories over time. We concur, and speculate that people may vary in their implicit theory temporal stability in part depending on the contexts they find themselves in—it may be that some people find themselves (and select) circumstances that offer more evidence for stability on a day-to-day basis; others might encounter (or choose) environments illustrating change.

Experimental Malleability of Implicit Theories

There is no shortage of evidence that chronic implicit person theories can be changed. Indeed, the standard approach to establishing the causal effect of implicit theories is to (at least temporarily) experimentally manipulate the theory people hold. Most often, these theories are altered by presenting people with persuasive information, frequently in the form of a (bogus) research article that makes a strong case for either an entity or incremental understanding of a particular attribute (e.g., Chiu, Dweck, Tong, & Fu, 1997b; Hong et al., 1999; Levy, Stroessner, & Dweck, 1998; Molden, Plaks, & Dweck, 2006; Nussbaum & Dweck, 2008). This kind of overt persuasive argumentation bolstered by (ostensible) evidence appears to be quite effective at temporarily altering implicit theories and corresponding responses. In other research, researchers have attempted to alter these implicit theories longer term (Aronson, Fried, & Good, 2002; Blackwell, Trzesniewski, & Dweck, 2007). Because of their long-term focus, the researchers only attempted to shift people toward a more incremental view and not an entity one, given the preponderance of evidence suggests that an incremental theory offers more benefits. In longitudinal research, Yeager et al. (2013) focused on developing an incremental person theory in 9th grade students with the hypothesis that they would be less likely to attribute hostile intent behind ambiguous behaviors. Yeager et al. began by asking high school teachers to deliver a lecture about the malleability of the brain, bolstered by further scientific evidence and communication from peers 2 weeks later. Students were also asked to write notes to future classmates describing what they had learned. The control condition followed the same procedure but read about the malleability of athletic ability. Eight months later, they found that those in the experimental condition maintained an incremental perspective to a greater degree, and as expected, attributed less hostile intent than those participants in the control

condition. This provides some evidence that implicit theories may not just fluctuate but change directionally over time: in this case the shift was prompted by an initial set of persuasive communications but presumably was maintained by the way people came to actively process their environments (attending to and retrieving different information, interpreting incoming data through a particular lens, behaving in ways that would tend to confirm their existing theory). It is conceivable, then, that other real-world experiences may systematically prompt people to actively question, reassess, and possibly shift their lay theories in ways that would then tend to self-reinforce over time.

What Other Factors Affect Implicit Theories of Change and Stability?

We have evidence that implicit theories may not be especially temporally stable over time and that experimental manipulations can change them. Presumably, though, these implicit theories are shaped by other factors in people's environments as well. Understanding these mechanisms may give us clues to how these theories originate in the first place. We know that implicit theories can be subtly altered by the kind of feedback provided by parents and teachers (Gunderson et al., 2013; Mueller & Dweck, 1998): for instance, dispositional praise for achievements ("You're so smart!") may seem affirming, but may foster an entity theory in children who come to think of intelligence as a trait they possess. However, when these children encounter failure, they may then be more likely to attribute it to a lack of capacity. Children who are instead praised for the effort that went into achievement ("You must have worked very hard on that—good job!") are likely to tie success to hard work, and will be more inclined to view failure as a challenge to surmount with greater effort or different strategy (Dweck, Hong, & Chiu, 1993). These effects are meaningful especially given that parental praise in early childhood predicted children's motivational frameworks several years later (Gunderson et al., 2013)— and given that Mueller and Dweck (1998) report that a majority of parents believe it is important to praise ability following success to help children feel smart. This observation—that parents may offer counterproductive feedback because of an intuition that it may bolster self-esteem—offers an interesting insight that leads us to our next consideration. We know that self-image protection, maintenance, and enhancement processes can play a powerful role in how people actively process information, and that, in many instances, people are highly motivated to view themselves in a favorable light (Baumeister, 1998; Sedikides, 1993; Wood, Giordano-Beech, Taylor, Michela, & Gaus, 1994). Parents' intuition that praising children's innate abilities gives self-esteem a boost is far from baseless. Indeed, adults tend to fall into the same pattern of attribution when accounting for their own performance: research on the self-serving bias documents how people are much more likely to attribute their successes to dispositional factors (like their ability)

than their failures, which they are more likely to attribute to external causes (Campbell & Sedikides, 1999). At least one reason for this self-serving bias appears to be self-esteem maintenance (Shepperd, Malone, & Sweeny, 2008).

Motivated Fluidity of Lay Theories?

The parallel between lay theories of change and the self-serving bias suggests another mechanism by which implicit theories may shift over time. We know that people are active processors of the information available to them, and that often their processing is shaped by dominant motivations or goals. As theories of motivated reasoning suggest (e.g., Kunda, 1990; Pyszczynski & Greenberg, 1987; Taber & Lodge, 2006), people often begin the process of reasoning with a preferred conclusion already in sight. They also sometimes adopt different perspectives or principles to allow them to support the conclusion they most want to draw. We reasoned, then, that people may sometimes be motivated to shift their implicit theories to help them support their preferred conclusions. Imagine both Sarah and Alice got back grades on their math test. Sarah got an A, Alice got a D. For both women, math is relevant to their self-image. If both were then asked to consider whether intelligence is fixed or malleable, how might they each respond? Alice would have reason to gravitate toward an incremental theory, hoping that this grade does not seal her fate as a poor math student. Consistent with a knowledge-activation framework (Dweck, Chiu, & Hong, 1995b; Poon & Koehler, 2006) she may activate her existing knowledge around malleability, remembering instances where she has observed significant improvement in performance, and tell herself this is the kind of skill that can be mastered with hard work. Sarah, on the other hand, would not have this same motivation: she did very well on the test. She might congratulate herself by reminding herself how math ability is quite stable, so her performance likely heralds an enduring career of success. In this example, we suspect that Alice's motivation, after a threatening failure, may be stronger than Sarah's is after success, but both patterns would be largely consistent with a motive to protect or maintain self-esteem.

Although this kind of motivated fluidity seemed highly plausible in light of the existing literature, evidence for it seemed missing from our scan of the literature on Dweck's implicit theories. This prompted us to investigate these questions across a variety of contexts (Leith et al., 2014). We began by reasoning that people might be particularly likely to actively regulate their acceptance of these theories in response to particular types of situational goals. In particular, we thought that shifting lay theories would have its strongest intuitive appeal when people are faced with information about the self or others *over time* (Peetz & Wilson, 2008). That is, when people consider an individual's past attributes or behaviors, they must decide how it informs their present character. Likewise, people have to make judgments about whether past or current outcomes predict a person's future outcomes. In each of these cases, the lay theory one selects and applies to a given set of temporally

extended events can transform the conclusion. An entity theory suggests that past attributes reflect current character and, in turn, predicts similar future outcomes; an incremental theory presumes that people may have changes since the past point in time, and may likewise change in the future (Peetz & Wilson, 2014; Ross & Wilson, 2002). For instance, a past moral failure viewed in light of entity theory is likely to be seen as evidence of an enduring lack of trustworthiness, but through an incremental lens the same failure seems either irrelevant (since morality is changeable) or as information that can help foster growth. This argument is consistent with Kunda's (1990) and Pyszczynski & Greenberg's (1987) thinking about motivated reasoning, in which they argue that people cannot just believe whatever they want to believe in any moment, but rather they hold to an illusion of objectivity by engaging in a process of reasoning that involves the differential recruitment of knowledge, theories, and beliefs. More recent research supports this premise: people will appeal to different beliefs, convictions, and principles to support the conclusion they most prefer (e.g., Jost, Pelham, Sheldon, & Sullivan, 2003; Knowles & Ditto, 2012; Kunda, 1987; Schumaker & Slep, 2004; Skitka, Bauman, & Mullen, 2008; Tesser, 2001).

To test these ideas, we designed a series of experiments that fit the criteria we identified (Leith et al., 2014): Situations where people would be motivated to reach a particular directional goal (protecting the self, family, or important others) in which temporal information would be interpreted differently depending on the implicit theory: in other words, situations where being an entity theorist or an incremental theorists would lead to different conclusions on the basis of the same evidence. Next, we describe the evidence that endorsement of lay theories can be shaped by both self-image goals and other perception goals.

How Self-image Goals May Shape Implicit Theories of Stability and Change

We began by investigating contexts most directly connected to people's personal self-view, relying on the assumption that people would often be inclined to protect their self-view from threat (Leith et al., 2014). We created several situations in which people would have to face threatening information about the self: in two studies, we delivered a failure or success experience (feedback about poor/good performance on a test), and in another, we asked people to recall a personal memory representing a past social failure or success. In each of these cases, people were more likely to endorse an incremental theory about the nature of the attribute in question after encountering threatening rather than flattering information. That is, after getting a poor score on a test, people were more inclined to believe that ability was changeable with time and effort, whereas after success people were more willing to entertain the notion that these attributes were fixed and enduring.

In the first study we conducted (Leith et al., 2014, Study 1), we not only manipulated the outcome (success/failure following a bogus cognitive ability test), but also independently attempted to manipulate people's lay theories about the ability itself (describing the cognitive skill as highly malleable or quite fixed). This second manipulation mirrors the typical experimental interventions in the literature (e.g., Plaks & Stecher, 2007) and might be expected to alter people's dominant implicit theory on the basis of the information provided. We found evidence for both processes—a significant main effect revealed that the implicit theories manipulation did shift people's theory endorsement; people also endorsed incremental theories more strongly after failure than after success. Notably, an interaction also emerged, revealing that the implicit theory manipulation was effective in the success condition, but not in the failure condition. When unthreatened, people were willing to temporarily adopt whatever theory they learned about. However, after a threat (failure on a task reflecting their ability), people who were given persuasive information that the attribute was fixed were unconvinced by that argument—they endorsed a more incremental theory despite being presented evidence to the contrary. We speculate that this set of findings not only offers evidence that people may actively shift their dominant theory in situations when a particular perspective would help them to reach a desired conclusion, but also offers a caution to researchers seeking to alter lay theories—people may be more receptive to persuasive communication about the malleable or fixed nature of attributes when they do not have a motivation to be skeptical about that viewpoint (Taber & Lodge, 2006).

Although the finding across these studies suggests that people may actively shift toward a view of change or stability that supports their preferred interpretation of the evidence at hand, the fact that people support a more incremental view after failure than success does not in itself provide solid evidence that the effect is motivated. There are other possible reasons people might come to this conclusion—for instance, if an individual believes themselves to be highly competent in the threatened domain, then one piece of failure evidence might seem puzzling—they may conclude for more rational than motivated reasons that the attribute must be changeable given their fluctuating performance. We cannot rule out this process as among those that produce shifts in lay theories—indeed, it is quite likely. However, we did include more direct tests of the motivated nature of lay theory shifting. For instance, in one study (Leith et al., 2014, Study 3) we asked people to consider their own past failure or those of an acquaintance. People shifted their implicit theories only when considering personal outcomes, and not the outcomes of another individual whom they would have less inclination to protect. Of course, there are a host of differences between how we process information about self versus others—we have different amounts of information as well as different motivations. So, in a complementary approach (Leith et al., Study 2), we gave all participants self-relevant feedback (success or failure), but varied how meaningful the feedback seemed. Everyone completed a judgment task framed as a measure of "social perceptiveness." The "thin-slice" person judgment task was engaging to participants, but entirely bogus. Participants were told that they performed exceedingly

well or poorly on the task. Then we attempted to alter the degree to which this feedback would be threatening. We described the test as a well-validated measure of consequential ability to one group of participants, and as a test that was still under development and unvalidated to another group. Those who had reason to believe the test was legitimate shifted their lay theories, and those who had an easy way to disregard the results as illegitimate did not. This evidence converges to suggest that at least one reason people's implicit theories may shift over time is due to the esteem-threatening experiences in their day-to-day lives that can be better incorporated into a positive self-view by shifting to an incremental lay theory.

The findings from Leith et al. (2014) were further supported by additional emerging research. Steimer and Mata (2016) asked people to list their strengths and weaknesses and to rate how likely those qualities were to change. Participants in their study professed a belief that only their own weaknesses were likely to change, but their own strengths were stable. This suggests that people can potentially hold both implicit theories virtually simultaneously, and simply view them as applying to different dimensions of identity. Is this perception motivated by self-goals, or do people hold a general theory that there are forces maintaining people's strengths and encouraging change on weaknesses? Although people shifted their beliefs about malleability when it came to *personal* weaknesses, participants viewed both the strengths and weaknesses of *other* individuals as relatively stable. This entity theory of others held even when the participant was told that the other person was motivated to change their weaknesses.[2]

Steimer and Mata (2016)'s findings are generally consistent with earlier research demonstrating how gifted students think about the malleability of their academic skills. Ziegler and Stoeger (2010) report that very successful students held both theories of change concurrently: successes were viewed through an entity lens, whereas failures and ability deficits elicited an incremental viewpoint. The authors interpreted these findings in terms of domain-specificity (success and failure as different domains) even though in many cases both were held for the same skill domain (e.g., math). Their findings are also consistent with a motivated fluidity account. To the extent that this fluidity is a particular feature of successful individuals, it also suggests that this flexibility in adopting various lay theories may serve more than self-esteem needs—it is possible that it also provides an adaptive

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[2]However, it is also possible that people do not even hold the same implicit theories about self and others, although the general person scale seems able to predict both personal and other judgments. Some recent research developed a self-theories version of the implicit theories scale based on the recognition that people might have one belief about how malleable intelligence is in general, and a different view of their own personal intelligence. On average, people reported that they themselves were more malleable than others, and self-theories were a better predictor of students' own personal academic motivation and responses (De Castella & Byrne, 2015). Likewise, Aneeta Rattan and colleagues demonstrated that people may not apply the same theory of mutability to all people or groups. People who believe that the capacity for improvement is universal are more likely to support policies that promote equal opportunity, while those who believe that only some people have the capacity to become highly intelligent are less inclined to support such measures (Rattan & Georgeac, this volume; Rattan, Savani, Naidu, & Dweck, 2012).

advantage by shifting people to an incremental (high-effort, improvement-focused) mindset at times of failure, which is when this lay theory is particularly important. In an academic domain, it is possible that successful individuals subtly shift toward a belief in their stable, enduring skills to build confidence when doing well, but readily switch to a belief in mutability and improvement when they encounter setbacks.

One thing, we have noted across the relatively few existing studies is that there is a considerably stronger tendency to shift to an incremental theory when failure is encountered than to shift to an entity theory when focused on a personal success (Leith et al., 2014; Steimer & Mata, 2016). Theoretically, this is consistent with the view that people are more likely to respond in a motivated manner when faced with threat. It may be that when outcomes are favorable to the self, there is no motive to recruit information that selectively supports a particular conclusion: an individual can enjoy a success whether they believe that the capacity is fixed or changeable. Nonetheless, we suspect that under certain conditions, people may be especially motivated to shift toward an entity perspective following success. This intuition is consistent with the belief of parents that praising ability is beneficial for self-esteem (Mueller & Dweck, 1998), and reflected in people's tendency to attribute positive (but not negative) personal outcomes to dispositional qualities (Campbell & Sedikides, 1999). There is something gratifying about the idea that one's successes come from within, and reflect some enduring set of qualities that can be counted on to continue panning out in the future. We suspect that these self-esteem benefits are at least part of the reason people so readily shift their implicit theories when provided with praise about their abilities (Mueller & Dweck, 1998)—it feels good. However, an overreliance on this entity perspective quickly becomes counterproductive if it shifts people away from mastery toward performance goals, and prompts helpless responses to failure (Hong et al., 1999). We offer some speculations regarding who may be most likely to actively shift their lay theories toward an entity perspective after encountering success.

Our first speculation is based on the notion that some successes feel more fragile than others. Sometimes, we can see the clear path from our time and effort to a desirable outcome. In these cases, we may feel confident that we can control similar successful outcomes in the future, and an incremental theory might be just as gratifying as an entity theory, and there would be little motivation to shift the dominant theory. On the other hand, we sometimes encounter successes that we are not so confident we can reproduce. This may occur when hard work and outcome are not so obviously causally related; in other words when success is experienced as noncontingent on performance—a circumstance that leads people to self-handicap (Jones & Berglas, 1978). It may occur in those settings that tend to produce the "imposter syndrome," (possibly especially prevalent amongst high-achieving women, Clance & Imes, 1978) where people have difficulty taking credit for the accomplishments or kudos they have garnered and worry that outcomes were based on luck or some other circumstance not controlled by themselves. It may also occur when people's internal lack of confidence (low self-esteem, for instance) leads them to view positive outcomes as inconsistent with expectations. When people encounter

these successes but worry that they may be fleeting and out of their control, we reason that one response might be to shift to an entity theory in an effort to psychologically "stake a claim" to the abilities that presumably underlie their successes. We have no direct evidence that these conditions are especially likely to prompt motivated adoption of entity theories, though there is some correlational evidence that the experience of the imposter syndrome is linked to entity beliefs about capacity in women (Kumar & Jagacinski, 2006). We also reported some very preliminary observations about responses to success in Leith et al. (2014, Footnote 6). We wondered if the natural ups and downs of academic life might contribute to people's shifting lay theories over the course of a semester. We measured students' implicit theories (intelligence and general person) at the beginning of Fall semester, then followed up in the Winter semester (4–6 months later). We asked people to report at Time 2 on the outcomes they regarded as disappointments and successes. We found that students who reported a greater proportion of disappointments over the previous semester showed a slight tendency to become more incremental in their views, whereas students who reported a greater proportion of successes over the semester showed a significant shift toward an entity theory. We interpret these results with considerable caution due to a small sample size (N = 41) and the exploratory nature of the work, but suggest that the shift toward an entity theory among students (perhaps tenuous) experiences of greater success may reflect a desire to feel that their recent accomplishments will bode well for their future outcomes. Given that a strong entity theory appears to have considerable downsides for individuals' motivation and achievement (Burnette et al., 2010), we suggest that it is worthwhile to develop a better understanding of the factors that lead people to actively adopt these fixed beliefs.

Our second speculation pertains to how context may contribute to shifts toward either an incremental or entity mindset more generally, but where a particular set of risk factors for adopting too strong an entity theory may emerge. We suspect that many people go through life encountering a pretty robust mix of successes and failures: even those who work hard and demonstrate notable success are likely to take on bigger and bigger challenges, which sometimes will lead to setbacks and failures. However, some people are likely to find themselves in contexts where one type of outcome is especially likely to occur a majority of the time. For instance, gifted students may not only be at risk, as Dweck (2012) suggests, of being frequently praised for their intelligence, they are also likely to find themselves in situations where academic successes far outweigh failures, giving them few opportunities to incorporate failure and the capacity for improvement into their self-views and beliefs. One of this chapter's authors (Wilson) has noted this entity inclination not infrequently in incoming graduate students: often these students have had a preponderance of past experiences as the best and brightest scholars in their cohort. Graduate school offers even the most talented students a host of opportunities for setbacks and failures, which can initially be quite a shake-up for students' self-views. Wilson has taken to delivering informal incremental "interventions" at times of setback, hoping to "strike while the iron is hot" and trigger lay theory change when students may be especially motivated to shift.

Another context where entity implicit theories may be prompted is in children's sports. Children who demonstrate high performance at particular sports are often plucked out of recreational leagues and recruited for more elite teams. In some cases, the 'best of the best" are combined into teams that typically outcompete most others in their category. These kids may go seasons at a time without every encountering the experience of losing a game. Although the hard work of athletes and their coaches is a fundamental part of success even on these teams, the players on these "superteams" may come to think of their ability as inborn, and struggle once they find themselves moving up to a level of competition where they once again face losing. We speculate that some players who have been encouraged through experience to cultivate an entity view of athletic ability might be especially likely to worry that they "don't have what it takes" when they progress to the next level of athletic challenge. Indeed, in 2006, Carol Dweck was asked to develop a training intervention with the Blackburn Rovers, a soccer team in the United Kingdom's premium league (Krakovsky, 2007), when their coach expressed concern about how a "star is born not made" mentality was keeping very good players from reaching their full potential. These talented players were stuck in an entity mindset, believing that inborn ability would carry the day, and hence neglecting their rigorous training schedule. Dweck designed an intervention starting with the youngest and most impressionable players, fostering an incremental mindset to instill a belief in the value of effort and training.

How Person-Perception Goals May Shape Implicit Theories of Stability and Change

Although people arguably spend a good deal of time thinking about themselves, they also spend a significant proportion of their time observing, interacting with and perceiving others. Sometimes we simply want to get an accurate impression of a new person in order to predict our likely future interactions with them. However, in other cases, we have a vested interest in how information is processed about important others. We may interpret a close friend's foibles—say forgetting to return the clothing she borrowed—as endearing or accidental. Conversely, we might be inclined to view equally ambiguous actions of a disliked ex-spouse—say forgetting to update a scheduling conflict—as malicious and intentional. We thought that when individuals are invested in seeing particular others' temporally extended actions in either a favorable or unfavorable light, they may show an inclination to gravitate toward the implicit theory that supports the conclusion they prefer to draw. In other words, by activating an incremental theory, the best friend can always become more responsible the next time she borrows clothes; by adopting an entity theory we can assure ourselves that the ex-spouse will never change.

We suspect that these motives would play out for any kind of close relationship. In an initial test of these hypotheses, we focused on public figures for

whom participants would have a vested interest in either excusing or disparaging. We chose Canadian and American political figures who, over a period of years, represented their respective political party (Leith et al., 2014, Studies 4–6). For example, in the run-up to a Federal election taking place in Canada in 2011, we asked people about the Liberal candidate Michael Ignatieff and the Conservative candidate Stephen Harper. We presumed that people who affiliated with one of these political parties would be motivated to view their candidate in a favorable light and to view the opposing candidate less magnanimously. During this election, both candidates had taken some criticism for statements they had uttered years before, which now cast them in an unflattering light. For example, Ignatieff, often critiqued for insufficient patriotism, was quoted as having called the Canadian flag a "passing imitation of a beer label." Stephen Harper, critiqued for a lack of empathy, was quoted as having said "In terms of the unemployed, of which we have over a million-and-a half, I don't feel particularly bad for many of these people." We collected a set of unflattering past utterances by both candidates an average of 10 years prior, and randomly assigned liberal and conservative participants to read them. As we expected, people's beliefs about the changeable nature of these candidates was highly contingent on participants' political stripes. Conservatives were certain Harper was, at core, a changeable person but Ignatieff's qualities were hopelessly fixed. Liberals demonstrated precisely the same convictions—but about the opposite candidate. Further, believing the candidate was changeable mediated people's belief that these decade-old foibles were simply not relevant to their current judgment of the politician; an entity view, on the other hand, supported the belief that those past missteps were highly pertinent to judgments of political character today. Of course, the idiosyncratic wrongs of the two candidates were not easily comparable; in follow-up studies with greater experimental control we described candidates' political past as either poor or commendable (for instance, describing Barack Obama's time in Senate as earning him an overall A or C grade from a bipartisan review committee). After reading about a poor Senate record, Republicans viewed Obama as more fixed and unchangeable than did Democrats who viewed him as highly changeable. Republicans, on the other hand, saw Obama as far more changeable after success than they had seen him to be after failure.

One shortcoming of these two previously described studies is that we measured a very specific lay theory—how changeable one particular politician was believed to be. This arguably diverges from the notion that lay theories guide more general information processing. In a follow-up study, we tested the logic more fully: we presented favorable or unfavorable information about politicians (this time Justin Trudeau and Stephen Harper in Canada), and then asked participants about their *general* person lay theories, such as "*People can do things differently sometimes, but the important parts of who they are can't really be changed.*" When given the opportunity to endorse a sweeping lay theory as it applies to people in general, political affiliation still guided which theory they were inclined to endorse. Participants who read about their favored candidates' foibles believed that *people in general* can change more than those who read about their candidate's accomplishments; the reverse was true for the opposing candidate.

Judging the relevance of the past for the present is an ambiguous task we are faced with in many spheres of life. For instance, Americans were recently faced with the question of whether Donald Trump's 2005 recording in which he bragged about kissing and groping women without their consent is reflective of who he is today. In an apology video, Trump said: "Anyone who knows me, knows these words don't reflect who I am." Rudy Giuliani, too, invoked an incremental view in an interview about this incident: "That was then and this is now. And he's gone through 14 months of running for president. And, as you know, running for president does something to you. It changes a lot of the way you look at things, it changes a lot of the way in which you behave." Reminded of his own past infidelities, Giuliani further endorsed a general theory of malleability, saying: "We believe that people in this country can change." (ABC News, 2016, Oct 9). In the same interview, Donna Brazile (Chair of the Democratic National Committee) countered: "This is not a changed man. This is who Donald Trump truly is." This kind of temporally extended judgment can be daunting: does that past action signify a lasting clue to a person's character? Has the person learned and grown from a past mistake, becoming even wiser and more trustworthy as a result? It makes sense that we would draw on our beliefs about the fundamental nature of people's change and stability to answer these questions. However, less obviously, we suggest that when we draw on these lay theories, *which* lay theory we choose to endorse at that moment may be plucked out of our array of beliefs because it will best help us to reach a particular conclusion. We have the experience of reasoning about the situation by drawing on our knowledge of typical human mutability, and may not be particularly aware—or concerned—that these mutability beliefs shift from one context to the next.

We have also begun to think about other contexts in which the dominant lay theory activated during a judgment can have meaningful consequences for other important outcomes. For example, judgments of the appropriate way to approach crime and punishment dependents deeply on one's beliefs about the possibility of rehabilitation. Not surprisingly, if an entity theorist espouses the view that "once a thief, always a thief," their judgment—and recommended punishment—of an offender may be considerably more harsh than an incremental theorist who believes any past transgressor can "turn over a new leaf." Indeed, Gervey, Chiu, Hong, and Dweck (1999) found that entity theorists were more likely to value principles of punishment over rehabilitation, while incremental theorists put more weight in rehabilitation over punishment. When lay theories are conceived as chronic individual differences, we might understand people's beliefs about the fundamental mutability of criminal offenders' moral status as a basic philosophical perspective which informs their views of crime and punishment. We wondered if lay theories may be subject to greater change that previously assumed even in these contexts. Again, we began with the premise that the context would have to prompt a motivation to shift one's lay theories to reach a desired conclusion. For example, Todd may have a punitive stance on criminals in general, believing that people's basic moral character never changes. However, in the event that his son is arrested, he might quickly begin to recruit knowledge of how changeable people's moral

foundations may be—that sometimes, people just need a second chance to learn from their mistakes.

We reasoned that a variety of motives could be relevant to judgments of crime: our judgments of loved ones might be clouded by generosity, and our assessments of outgroup members clouded by prejudice or mistrust. In Study 7 of Leith et al. (2014), we examined how people might shift their implicit theories of how changeable people are at their core after reading about a serious criminal offender (someone who had been convicted and served time for child sexual assault). We recognized that recidivism beliefs would be particularly high across the board for such a crime, so to increase variability in judgments, we described in detail evidence of the offender's rehabilitation. Next, we considered what kinds of factors would produce a motivated judgment in such a case. We reasoned that parents would be especially concerned about protecting their children, prompting additional vigilance when faced with this type of offender. We also reasoned that the physically "closer to home" the offender was seen to be, the more motivated people would be to protect their family. How might this vigilance be reflected in respondents' endorsement of implicit theories? We reasoned that the most threatened group (parents who considered a nearby offender) would be motivated to stay wary and keep their guard up by presuming that people do not change their basic qualities. This would allow them to remain mistrustful of the indications of rehabilitation and would support their opposition to the offender's placement. To test these ideas, we recruited parents and nonparents and asked them to consider the (hypothetical) case in which this offender, out on parole, requests relocation to a city 200 miles away from them, or relocation into the participants' own community. We then asked respondents whether people, in general, can change their core characteristics. The group of participants that we expected to be most threatened, thus motivated to shift their implicit theories, were parents who imagined the offender in their own community. As we expected, those respondents ignored evidence of rehabilitation and reported the strongest conviction that people simply cannot change their basic attributes. Of course, we recognize that there are evidence-based differences in the likely recidivism rates of different types of crimes, and we do not argue that this information is irrelevant. What we point out, however, is that information *other than* evidence can shape people's beliefs about the likelihood of mutability and therefore rehabilitation—a motivated process with highly consequential outcomes.

We have begun in recent research to investigate other contexts that might motivate shifts in lay theories of change and stability (Williams & Wilson, 2016). In keeping with our focus on crime and punishment, we wondered whether people—particularly those who are high in prejudice—might shift in their lay theories when judging criminals of different races. In an initial test of this hypothesis, we asked participants to read a news article about an offender who had committed a crime some time in the past. Race (Caucasian/African American) was subtly varied by using name (e.g., DeShawn vs. Bradley) as a cue. We found that people high (but not low) in prejudice toward African Americans were more likely to shift to an entity theory when they read about an African American offender, relative to when

the offender was depicted as White. These entity views again had consequences: they mediated harsher punishment recommendations for the crime.

Does Motivation Guide the Adoption of Other Lay Theories of Mutability?

Although Carol Dweck's research on personal beliefs about the mutability of attributes has received widespread attention, these are not the only lay theories about the dynamic or fixed nature of human attributes. We point to two other sets of lay theories that, amongst other features, contain assumptions about immutability or change. One closely linked literature focuses on genetic essentialism and the belief that various characteristics, behaviors or conditions are genetically determined (Dar-Nimrod & Heine, 2011; Haslam, this volume). The other set of beliefs that share features of an incremental theory refers to people's understanding of how society functions: beliefs in social mobility, meritocracy, and the "American Dream" (e.g., Kraus & Tan, 2015).

Genetic Theories

Like entity theorists, people who believe that an attribute is genetically determined tend to view outcomes as more immutable. Although genetic essentialism carries with it other beliefs as well (e.g., about etiology), the mutability beliefs overlap very closely with Dweck's approach to implicit theories. For instance, believing intelligence or body size is genetically determined is akin to having an entity theory of intelligence or weight. However, the literature on genetic essentialism has been more explicitly grounded in public and scientific discussion and debate around topics such as intergroup differences and social inequality, whereas the implicit theories literature has been characterized as occurring in more of a "social vacuum" (Jayaratne et al., 2006).

   People vary, for example, in their belief that racial or sex characteristics are genetic (and hence, group characteristics are immutable), fuelling a debate about whether unequal group outcomes are due to inherent factors or due to social context and opportunity (Jayaratne et al., 2006). Jayaratne and colleagues reported that genetic accounts of racial differences tends to be linked to higher levels of racial prejudice, though from the correlational design it cannot be established whether genetic theories foster racism or whether racism motivates endorsement of genetic theories. The authors suggest that the process is likely bidirectional, strongly pointing to a genetic lay theory as a "legitimizing myth" that has historically justified prejudice and discriminatory practices. At the same time, they note that genetic lay theories may become prevalent for non-motivated reasons—for

instance, the rise of genomics and behavioral genetic research—which can influence or reinforce people's entity beliefs about groups.

It is also the case that politically conservative (and upper class) individuals are more likely to endorse the genetic roots of racial and class differences (Kraus & Keltner, 2013; Suhay & Jayaratne, 2013), a process that the authors suggest may also be motivated (see also Hegarty & Golden, 2008). Suhay and Jayaratne suggest that with various causal attributions available in media and public discourse, individuals can "pick and choose" the explanations that best allow them to support their ideological and social position. These divergent explanations of group differences are also reflected in the media: conservative newspapers contain more biological explanations for sex differences than more liberal newspapers (Brescoll & LaFrance, 2004). The authors argue that this difference in emphasis of one causal theory or another allows conservatives to recruit the ideological underpinning that justify the status quo, while allowing liberals to identify sociocultural explanations to support a desire to change the existing system. The belief that group differences are inborn also appears to increase when people are threatened, supporting a motivated account. For example, people are often motivated to justify the system in which they live, even when it produces injustices. Activating system-justification motives increases people's endorsement of an essentialist and immutable view of sex differences (Brescoll, Uhlmann, & Newman, 2013; Morton, Postmes, Haslam, & Hornsey, 2009). Similarly, Morton, Hornsey and Postmes (2009) found that prejudiced people appeal to an essentialist view of race when the outcome would exclude an outgroup, but de-essentialize race when the outcome would exclude their ingroup.

Suhay and Jayaratne (2013) also demonstrate the striking flexibility of people's endorsement of genetic lay theories. Although conservatives invoke genetic accounts for perceived race or class differences (e.g., intelligence, aggression, etc.) more than liberals, liberals, and conservatives do not differ in their genetic explanations for these same characteristics as possessed by *individuals*. Further, the endorsement of genetics flips when providing an account for a different stigmatized group: gay men and lesbians. Here, liberals are more apt to argue that people are born with a particular sexual orientation (because emphasizing lack of choice and inability to change delegitimizes moral approbation), and conservatives are more likely to point to context, upbringing, and "lifestyle choice." Much of the documented link between genetic attributions and prejudice has been correlational, hence, there has been debate about whether a belief that homosexuality is innate drives acceptance (Brewer, 2008), or whether, instead, increasing societal acceptance of gay rights has motivated supporters to adopt a genetic view (Lewis, 2009). Recent research offers some support for a motivated reasoning account: people are more likely to be influenced by information that supports the causal attribution (genetic or environmental) that aligns with their political viewpoints (Morin-Chassé, Suhay, & Jayaratne, 2014; Suhay & Garretson, 2015). In other word, their ideology appears to influence the lay theory they adopt more than their lay theory affects their ideology. Once again, we do not claim to assess the validity of any given theory of nature versus nurture—some are almost certainly more

correct than others. We instead highlight how the availability of both lay theories in public discourse allows people to choose the viewpoint that best justifies their values or prejudices.

Implicit Theories of Social Mobility

Western—and perhaps especially American—society remains highly committed to notions of social mobility and meritocracy, even as conditions of increasing inequality have made this belief less and less a reality (Hacker & Pierson, 2010; Kraus & Tan, 2015; Piketty, 2014). Obama (2012) characterized the American Dream—which he believed was under siege—as "the basic American promise that if you worked hard, you could do well enough to raise a family, own a home, send your kids to college, and put a little away for retirement." The American dream has at its core the very incremental idea that by working hard and applying sufficient effort, anyone can get ahead. When we consider this societal-level myth rather than the individual incremental beliefs that Dweck (2012) so strongly recommends, some of the pitfalls of an overly incremental theory become evident. There is evidence that belief in meritocracy and social mobility can increase people's tolerance of societal inequality (Larsen, 2016; Manza & Brooks, 2016; Shariff, Wiwad, & Aknin, 2016), and that strong meritocracy beliefs lead people to overlook the fact that, at least in American society, inequality of opportunity limits the degree to which meritocracy can fairly allocate outcomes (Hacker, 2006). The American Dream has been implicated in why people may vote for policies that work against their own interest—for example, why working-class people would support tax cuts going disproportionately to the wealthy. Belief in the equalizing power of hard work, lower socioeconomic status (SES) individuals can justify a system that has prevented them from realizing their ever-extolled American Dream. Given, the puzzlingly ways in which these beliefs work against people's own interests, we suspected that there may be strong motivations to cling to an incremental belief in social mobility despite evidence to the contrary.

Kraus and Tan (2015) directly address this paradox in their work on social mobility. People tend to overestimate, in general, the likelihood of someone rising up in social class. This exaggerated belief in the American Dream myth may simply be due to the cultural prevalence of these ideas. However, Kraus and Tan also suggest that people may be motivated to cling to these beliefs. Specifically, when people were asked to estimate the social mobility of someone *similar to themselves*, belief in mobility increased significantly. Notably, belief in the malleable nature of social status may be self-serving for both the rich and poor; believing in the flexible nature of social classes allows rich people to justify their status as earned through hard work (Kraus, Davidai, & Nussbaum, 2015; Kraus & Keltner, 2013; Kraus & Tan, 2015). In turn, belief in mobility offers hope and alleviates threat for those less well off (Davidai & Gilovich, 2015). Justifying their system by believing in the power of hard work and the American dream allows for the reduction of dissonance

and the acceptance of blatant social inequality (Jost, Pelham, Sullivan, & Sheldon, 2003). Indeed, the authors theorized (and found) that low-income participants demonstrated a stronger belief in the legitimacy of social inequality and were more likely to support the statement that "large differences in pay are necessary to foster motivation and effort" (Jost et al., 2003). This finding is parallel to Leith et al.'s (2014) findings for individual failure experiences; low-income people who feel the sting of failure to rise in status may gravitate to the incremental view that it is still, nonetheless, possible. Paradoxically, the motivation to resolve this dissonance can cause those who suffer the most from these social inequalities to justify the status quo that keeps them in a low status position (Jost, Banaji, & Nosek, 2004).

The ardent—and perhaps motivated—belief in the link between hard work and success may also underlie a tendency to blame the poor for their own outcomes. If everyone can get ahead, why haven't they? As Du Monteil (2015) argues, "That's the whole idea of the American Dream: only those who work hard for it, are hungry for it, and don't give up in face of adversity are actually able to live it." The corollary assumption, of course, is that those who remain poor must just have not tried hard enough. This perception of the undeserving poor overlaps considerably with another lay belief: the conviction that the world is just and fair. Just World Theory posits that people are motivated to believe that the world is a just place, where people get what they deserve (Hafer & Bègue, 2005; Lerner, 1980). People with a stronger Belief in a Just World (BJW) are particularly likely to endorse both social mobility and meritocracy (Day & Fiske, 2016), a constellation of beliefs that would all allow them to conclude that the poor are to blame for their own fate. Researchers have also experimentally demonstrated that people make judgements reflective of a stronger BJW (e.g., rating the poor as less intelligent) after exposure to evidence of injustice and inequality in society (Kay, Jost, &, Young, 2005), presumably due to their system-justification motivation. In another study, Iatridis and Fousiani (2009) asked participants to read about a student with either high or low socioeconomic status (SES) who encountered either academic success or failure. Participants explained the high-SES student's success in terms of ability and the low-SES student's success as luck, whereas when they read about failure they thought the high-SES student had not exerted enough effort and the low-SES student did not have enough ability. Further, participants endorsed a higher BJW when the high-SES student succeeded and the low-SES student failed. Intriguingly, a meta-analysis by Malahy, Rubinlicht, and Kaiser (2009) examined whether actual levels of inequality observed in America between 1973 and 2006 were related to average levels of BJW identified from studies conducted during that time span which included the measure. They found that as income inequality in the USA has risen, so has Americans' endorsement that the world is just and that people get what they deserve. Malahy et al. interpret this pattern of BJW as potentially reflective a motivated, system-justifying response to the injustice inherent in an increasingly unequal society, and caution that the belief may inhibit empathy for the plight of the disadvantaged and decrease support for programs intended to redistribute or foster equality of opportunity.

Conclusions and Future Directions

We have considered a number of contexts in which people's assumptions about human and societal change may be more fluid than often supposed, and how the assumptions people adopt in a given context can underlie—almost invisibly—their consequential judgments about social policy, about other individuals, and about themselves. One particularly interesting—but insidious—aspect of people's beliefs about change is that they may often provide the foundation for people's subsequent judgments, yet the beliefs themselves go unexamined and undiscussed. Even when core assumptions about human change are expressed, it is difficult to definitively determine who is factually correct when it comes to the nature of human mutability. As a result, people may often be puzzled by those who offer strikingly divergent judgments of the same action, because they base their judgments on different purported "truths" about human nature.

The literature systematically examining motivated shifts in people's lay theories is still limited, and a goal of this chapter is to encourage further inquiry. First, we suggest that the relative impact of chronicity and fluidity is not well understood. People do appear to have chronic lay beliefs that guide their everyday information processing, sometimes leading them astray. However, we have identified a number of contexts where motivated reasoning likely influences the adoption of one theory or another. We do not yet know how much of human behavior is best represented by chronic differences in beliefs or by flexibly shifting assumptions. The mounting evidence of the fluidity of lay theories might even call into question the assumption of chronic individual differences—if people have knowledge of both theories and can activate one or the other depending on the context and their goals, then some evidence for chronic lay theories may actually be due to chronic contextual factors and motives. We are certainly not ready to disregard the notion that people tend to have a dominant theory that guides them in the absence of factors that could prompt them to change those views. Indeed, we suspect that there are also individual differences in the degree to which people fluidly shift from one theory to another. Some people may flexibly adopt the theory that best supports their preferred conclusions; others may find themselves stuck in a mindset that works against their interests in some contexts.

We call for further research examining these questions, as well as the downstream consequences of motivated shifts in lay theories. We argue that lay theories have meaningful real-world consequences; it may be that the consequences produced when people engage in motivated shifting may contribute to their longer term dominance of one theory or another. For instance, if, after failure, people adopt an incremental theory, they may persist at the task more effectively and actually improve. As a result, they will have accumulated evidence for malleability, which may in turn reinforce a chronic incremental mindset.

We also do not know whether a lay theory shift in one domain may influence subsequent judgments in another domain—for instance, if I shift to endorse an entity theory to impugn a political candidate whose past actions I still revile, might I

subsequently be stuck with that entity theory if asked to make judgments another candidate—or about a downstream outcome such as crime and punishment? Some of these questions also reflect a lack of precision in our knowledge of the mechanism (what cognitive process leads people's lay theories to shift) and in people's level of awareness of these shifts (are people conscious of shifting theories when they do it?). We suggest that answers to these questions will not only contribute to the new area of inquiry regarding the fluidity of lay beliefs, but also build a more nuanced understanding of the ways that individuals actively construct their more chronic beliefs over time.

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