

**An Ecology of Meaning:
An Integrative Framework for Understanding Human Motivations**

Steven J. Heine¹, Dunigan P. Folk¹, Kate W. Guan¹, Rachele Benjamin¹, J. Miranda Bahng¹, and

Travis Proulx²

¹ University of British Columbia

² Cardiff University

Abstract

In this article, we consider how motivations for meaning and meaning in life can integrate much of human thought and behavior. We defend the following claims: Humans evolved to be motivated to share meanings with each other. These shared meanings accumulate to form a shared reality which constitute the cultures within which people live. Living in such ecologies of meaning requires that people learn to master these meanings in order to successfully pursue their basic needs. These shared cultural meanings get internalized into networks of meanings that form a key component of people's selves. People depend upon meanings in their lives so much that they are motivated to defend these meanings. People's motivations to defend meanings help them to strive to lead meaningful lives. In sum, we argue that many different aspects of human psychology can be integrated and better understood when they are considered in terms of people's motivations for meaning.

Humans possess a complex suite of different psychological motivations. To name a few, people have motivations for certainty (e.g., Kruglanski & Webster, 1996; McGregor et al., 2001), belongingness (e.g., Baumeister & Leary, 1995), self-esteem (e.g., Steele, 1988; Tesser, 2000), symbolic immortality (e.g., Solomon et al., 1991), and to justify the status quo (e.g., Jost, 2020; Lerner, 1980). These motivations have largely been treated as independent of each other, as the field has tended to focus on only one of these motivations at a time. We propose instead that all of these motivations share something in common. They all reflect human's motivation for meaning (Heine et al., 2006; Proulx et al., 2012; cf., Jonas et al., 2014).

In the 1950s, Jerome Bruner, one of the architects of the cognitive revolution, endeavored to establish "meaning as the central concept of psychology" (Bruner, 1990). We share Bruner's perspective and propose that the motivation for meaning is central to the human experience. Much of human thought and behavior can be better understood when it is considered through the framework of meaning, which can integrate many apparently distinct phenomena. Below we present a consideration of motivations for meaning and meaning in life. We suggest that humans evolved to be motivated to share meanings with each other, and these shared meanings ultimately form a shared reality within which they live. Living in such an ecology of shared meanings requires that people need to master these meanings in order to pursue their most fundamental needs. Moreover, we argue that the shared meanings that make up human cultures get internalized into people's selves, and ultimately come to connect individuals with their cultures. We propose that people depend so much on the meanings in their lives that they need to defend these meanings whenever they are threatened. Last, we suggest that these motivations to defend meanings can also be seen to characterize the ways that people strive to ensure that they

are leading meaningful lives. An understanding of human's motivations for meaning can help to integrate many different aspects of human psychology.

What is Meaning?

The study of meaning in psychology has largely taken place within two overlapping literatures. The first focuses on humans' motivations for *meaning* (sometimes termed denotative meaning, or general meaning; Baumeister & Landau, 2018), defined as the expected relations and connections that people perceive between different concepts, ideas, or notions. Research in this vein has looked at how people form and maintain a sense that things in the world are connected in coherent ways. The second body of research focuses on a related, but distinct, concept: motivations for *meaning in life* (sometimes termed existential meaning; Baumeister & Landau, 2018). Meaning in life captures people's sense that their lives as a whole make sense, matter, and are oriented towards worthwhile goals (see Hicks & King, 2021, for a review). In this literature, the term "meaning" is used to denote something "significant, relevant, consequential, worthwhile, or humanly important" (McAdams, 2020, p.41). In this article we'll use the terms *meaning* and *meaning in life* to capture these respective concepts.

Though researchers tend to focus on only one of these concepts at a time, we propose that humans' motivation towards meaning in life shares much overlap with their motivation towards developing basic meaning structures more generally. In particular, we propose that the pursuit of meaning in life is an outgrowth of the basic pursuit of meaning, and that meaning in life represents basic connected meanings in the specific context of humans' teleological goals of value, significance, and purpose (Proulx & Heine, 2006). We therefore argue that some of the ways that people seek to maintain a sense of meaning in life involve similar psychological processes with how they maintain a sense of basic meaning more broadly (Heine et al., 2006).

Below, we first outline formal definitions for meaning, before outlining how the field conceptualizes meaning in life.

Defining Meaning

Many scholars share similar perspectives on what is meaning, though they sometimes emphasize different aspects. Most like our conceptualization, Baumeister (1991) influentially defined meaning as a “mental representation of possible relationships among things, events, and relationships”; meaning is what “*connects* things” (p.15). Many other scholars have offered similar perspectives: Steger (2012) described meaning as a web of connections. Hicks and colleagues (2010) define meaning as the perceived coherence among stimuli (Hicks et al., 2010); Heintzelman and King (2014) refer to it as the detection of reliable associations in the environment. And more recently, Baumeister and colleagues define it as the nonphysical connection and potential organization of the world (Baumeister & Landau, 2018; Baumeister & von Hippel, 2020). The common idea running through these definitions is that meaning is ultimately about connected ideas.

Humans possess and maintain many complex networks of connected ideas; the psychological literature often refers to these networks with such terms as schemas, paradigms, mental models, frames, worldviews, and narratives. The *meaning maintenance model* posits that these associative networks are *meaning frameworks* that humans use to understand themselves and the worlds around them (Heine et al., 2006). These frameworks organize expectations, complex ideas, and the significance of different memories into clear, patterned stores of information that people instinctively draw upon everyday as they move through the world.

Consider, say, the basic meaning framework that an American might hold about “Thanksgiving.” One explicitly and implicitly thinks of the many ideas and expectations related

to the holiday: It falls on a Thursday in November; it occasions a large dinner with specific foods like turkey and cranberry sauce; it celebrates a harvest; it originates in a historical event involving Puritan settlers and Native Americans; it ought to be celebrated with one's closest friends and family; it tends to elicit expressions of thanks; it will likely involve some degree of planning; it is a time for watching football, and a prelude to some shopping discounts. If one wanted to convey the meaning of Thanksgiving, they would likely want to convey many of these ideas, as well as how they connect together. This meaning framework would also guide how perceivers interpret others' actions: If a close family member decided to skip dinner in favor of staying home alone, this simple action would be seen as more bothersome if it were to fall on Thanksgiving.

Defining Meaning in Life

Existential meaning, or meaning in life, can be distinguished from the concept of meaning as expected mental relations, and is typically taken to refer to people's subjective sense that they are living worthwhile, significant lives. However, until recently, there had been little consensus on how to define it (see George and Park, 2016; Hicks & King, 2009; Martela & Steger, 2016). Rather than offering an explicit definition, researchers largely relied on people's intuitions about what gives their lives meaning, resulting in a situation where there were seemingly as many definitions of meaning in life as there were studies investigating it (e.g., Antonovsky, 1993; Crumbaugh, 1977; Crumbaugh & Maholick 1964; Ryff, 1989).

The Meaning in Life Questionnaire created by Steger et al. (2006) (MLQ) offered a reliable way to measure this concept, and it has since become the most widely used measure (Brandstätter et al., 2012; King & Hicks, 2021). With items like "My life has a clear sense of purpose," "I am always searching for something that makes my life feel significant," and "I

understand my life's meaning," participants can self-report the degree to which they feel their lives are meaningful. Research using the MLQ subsequently revealed that there are three different components of meaning in life, which together have been proposed to make up a tripartite conceptualization of meaning in life (e.g., George & Park, 2016; Heintzelman & King, 2014; Martela & Steger, 2016). These include feeling a sense of purpose in life (purpose), believing one's life has value (significance/ mattering), and feeling that one's life makes sense (coherence). Each of the three are psychometrically distinct, yet each contribute in independent ways to people's global sense of meaning in life (e.g., Costin & Vignoles, 2020; George & Park, 2017; Krause & Hawyard, 2014). We review each of these three components below.

Purpose. An appreciation of the role of purpose in psychology was arguably launched by the work of the existentialist psychiatrist, Victor Frankl (1959), in his memoirs about his experiences in concentration camps during the second world war. Frankl noted that what seemed to distinguish those who somehow survived the unimaginable horrors in the camps from those who did not survive was that the survivors were able to maintain a sense of purpose, and he argued that purpose was necessary for human flourishing. To Frankl, the concept of purpose largely consisted of what people lived their lives for. Building on these ideas, Ryff (1989, pg. 72) similarly suggested the core component of purpose was having "goals in life and a sense of directedness." McKnight and Kashdan (2009, p. 242) provided a slightly grander definition of purpose, arguing that purpose is a "central, self-organizing life aim that organizes and stimulates goals, manages behaviors, and provides a sense of meaning." In line with these definitions, popular measures of purpose in life have focused on the extent to which people have specific goals driving their behavior; for example, they include items such as: "I have certain life goals that compel me to keep going" (George & Park, 2016), and "I have a sense of direction and

purpose in my life” (Ryff, 1989). By these accounts, someone high in purpose has a clear idea of the goals and direction they are striving towards in their life, while someone lacking purpose would feel aimless as if nothing in their future is worthwhile.

Significance. A sense of significance reflects one’s belief of the value of their life in the universe as a whole. As such, an individual high in a sense of significance would feel their life has some greater significance beyond their immediate surroundings, whereas someone low in significance would feel that they are not relevant to the world at large (George & Park, 2016). In line with this, researchers attempting to measure people’s sense of significance have used items such as, “Even considering how big the universe is, I can say that my life matters”, and “Whether my life ever existed matters even in the grand scheme of the universe,” (Costin & Vignoles, 2020; George & Park, 2017). Martela and Steger (2016) likewise conceptualized significance as the “worthwhileness and value of one’s life” (p. 535). Importantly, our sense of significance—as assessed in the meaning in life literature—is distinct from whether or not we believe we matter in specific domains of our lives (George & Park, 2016).

Significance has received the least attention of the three components of meaning in life (George & Park, 2014; George & Park, 2016; Martela & Steger, 2016), which is curious as it is more strongly related to meaning in life than the other two components of the tripartite model (Costin & Vignoles, 2020). To the extent that a sense of significance has been the focus of empirical research, it is often due to the construct’s close relationship to eudamonia: a condition in which one is living well and fully realizing their potential (Martela & Steger, 2016; Steger, 2013; Waterman, 1993). Feeling that one’s life is significant has also been found to be protective of a myriad of negative outcomes such as suicidal thoughts and attempts (Heisel & Flett, 2004; Kleiman & Beaver, 2014). Significance is an indirect focus of terror management theory (e.g.,

Greenberg et al., 1986), as a core aspect of that theory is that it posits that human behavior is often in the service of obtaining a “sense of enduring significance” (Greenberg & Arndt, 2012, pg. 403) towards the goal of achieving symbolic immortality. Significance also seems to be the aspect of a meaningful life that is most strongly predicted by religiosity (Folk et al., 2022). These findings suggest that the teleological connections that people form in their lives are especially likely to make people feel that their lives matter more in the grand scheme of things.

Coherence. Coherence is the feeling that one’s life and life experiences tend to make sense (George & Park, 2016). Prototypical items that assess coherence include: “Looking at my life as a whole, things seem clear to me,” and “my life makes sense” (Costin & Vignoles, 2020; George & Park, 2017). Steger (2012) defines coherence as the “connections, understandings, and interpretations that help us comprehend our experience” (p.65). This definition closely resembles the definition of meaning frameworks put forth by Heine and colleagues (2006) who defined meaning frameworks as “mental representations of expected relationships among people, places, objects and ideas.” Empirical measures designed to assess coherence, however, have tended to focus less on the coherence of people’s low-level meaning associations, and more on the extent to which their self-narrative makes sense to them.

The Motivation for Meaning in Life

There are many aspects of our daily lives that predict who experiences more meaning in life (for a review see King & Hicks, 2021). One predictor of feeling meaning in life is the extent to which one feels positive emotions in general (King et al., 2006; Miao & Gan, 2019). Indeed, there is such a high degree of overlap between positive feelings and more “eudaimonic” meaning in life, that some researchers have discussed whether there is a point in trying to distinguish between them (e.g., Kashdan et al., 2008). However, despite this high degree of overlap, the two

are empirically distinguishable, and research finds that after controlling for each other, the residual is predicted by a number of different things. For example, happiness (but not meaning) is predicted by satisfying needs and wants, whereas meaning (but not happiness) is predicted by identity concerns (Baumeister et al., 2013).

Another reliable predictor of meaning in life is the quality of one's social relations (e.g., Hicks & King, 2009; Martela et al., 2018). Anthropologists describe humans as an ultrasocial species (e.g., Richerson & Boyd, 2005; Tomasello, 2014), and people have a clear need to belong (Baumeister & Leary, 1995). It is perhaps not surprising then, that people's lives feel more meaningful when they feel connected with their significant others. Being a parent, for instance, is associated with the feeling that one's life is meaningful (Baumeister et al., 2013). Indeed, one survey asked people from 17 countries to nominate what provides their lives with the most meaning and the most common answer was "family and children" (Silver et al., 2021). Incidentally, that this is the case even though parenting can sometimes negatively predict happiness (Kahneman et al., 2004), further suggests that meaning in life and positive affect are distinct. On the other end of the spectrum, people who are feeling lonely and out of touch with their relations tend to feel less meaning in life (Hicks, Schlegel, & King, 2010; Mwilambwe-Tshilobo et al., 2019).

Meaning in life also increases when people feel their current lives are integrated with their pasts and futures (George & Park, 2016; McAdams & Olson, 2010). This is especially evident in research on nostalgia, as nostalgic memories tend to ground people's present selves, and the trajectories that they're on, with the experiences of their past (Routledge, 2015). Much research finds that nostalgic memories are existentially grounding and are reliably associated with feelings of meaning in life (Routledge et al., 2011; Sedikides & Wildschut, 2018). Indeed,

people are more likely to turn to nostalgic memories when they are feeling that their lives are particularly low in meaning, when they are bored, or when they are feeling lonely (Sedikides et al., 2018; Van Tilburg et al., 2013). The effectiveness of nostalgia in eliciting greater meaningfulness again reflects a key distinction between happiness and meaning: Happiness is achieved by living in the moment, but feelings of meaning in life are more evident when people take a broader perspective of their lives across time (Baumeister et al., 2013).

Finally, religiosity is a particularly strong predictor of meaning in life (e.g., Hood et al., 2018; Stroope et al., 2013). Religiosity can connect people to teleological values that transcend their quotidian concerns. The key role of religiosity for meaning in life is evident in the finding that citizens of poorer nations have higher levels of meaning in life than citizens of richer countries, and that this difference is accounted for by the higher levels of religiosity in poor nations (Oishi & Diener, 2014). One explanation for the relationship between religiosity and meaning in life is that religiosity may allow individuals to see greater significance in their suffering (Frankl, 1959; Oishi & Diener, 2014; Prinzing et al., 2021; Stephens et al., 2012). Religions may also provide a sense of meaning through the structure they impose on a seemingly random and chaotic world (Hood et al., 2018; Laurin & Kay, 2017; Paloutzian & Park, 2005; Park & Edmonson, 2012), and through beliefs in the immortality of the soul (Becker, 1973; Laurin & Kay, 2017). It is perhaps because of the kinds of teleological meanings that are imparted by religions that enables religions to help to assuage people's anxieties (Inzlicht et al., 2009). The meaning-boosting properties of religious beliefs do not need to stem from a formal religion, as people who tend to score higher on measures of spirituality also report having more meaning in life (Krok, 2015). Spirituality and religion provide people with a worldview that aids them in making sense of the events around them, and it is possible that it is the sense-making

aspects of spirituality and religiosity that are what links them to meaning in life. However, it is not the case that just any kind of worldview makes one's life feel more meaningful. For example, while a faith in science can offer an explanation for the events in the world, a faith in science tends to be negatively associated with meaning in life, even among scientists (Folk et al., 2022). This distinction between a faith in science and religiosity suggests that meaning in life may be enhanced when people feel that their lives are connected to teleological concerns.

The Adaptiveness of Meaning in Life

People have a motivation to pursue a meaningful life, and we can see evidence for this motivation when we consider the psychological costs that people face when they feel that their lives are not sufficiently meaningful (for reviews see King et al, 2016; Steger, 2012). In particular, people who lack a coherent worldview—who feel their lives don't make sense and are incoherent—are more likely to experience psychological distress (e.g., Park, 2010; Silver & Updegraff, 2013). For example, Janoff-Bulman (1992) argues that victims of traumatic life events often experience a “double dose of anxiety,” where they suffer both from the trauma of the event itself, and from the way that the event undermines their meaning frameworks. When people are unable to derive a sense of meaning from a traumatic life event, they are more likely to suffer from distress (e.g., Davis et al., 1995), be at risk for depression (e.g., Coleman & Neimeyer, 2010) and other psychological ailments such as post-traumatic stress disorder (e.g., Updegraff et al., 2008). Importantly, when people are able to derive meaning from these traumatic events, and can integrate them into their lives, they typically show evidence of increased recovery (e.g., Davis et al., 1998; Pennebaker & Beall, 1986; Silver et al., 1983).

Conversely, there are many benefits that come with feeling a greater sense of meaning in life. Across the lifespan, greater meaningfulness is associated with increased happiness, life

satisfaction, self-esteem, and optimism, and decreased levels of depression, negative affect, and repetitive negative thinking (Ostafin & Proulx, 2020; Steger et al., 2006, 2009). People with greater levels of meaning in life fare better in the face of daily stressors (Ostafin, Papenfuss, & Vervaeke, in press; Park & Baumeister, 2017), and are less vulnerable to suicidal ideation (Kleiman & Beaver, 2013; Klonsky & May, 2015). On the other hand, *searching* for meaning in life is associated with less life satisfaction and happiness, and is positively related to depression and negative affect (Steger et al., 2009).

In addition, feeling that one's life has purpose has been found to be critical for maintaining well-being. Research finds that purpose in life is associated with lower levels of mortality (Alimuijiang et al., 2019) and cognitive decline in the elderly (Kim et al., 2019), and increased positive affect in middle-aged adults (Hill et al., 2020). Feelings of purpose also appear to buffer individuals against the negative effects of daily stressors (Hill et al., 2018). Having a sense of purpose in life is also associated with higher household income (Hill et al., 2016) and higher levels of physical activity (Hooker & Masters, 2016). However, it's not just having a sense of purpose that matters, but the kinds of purposes that one maintains can predict various aspects of one's well-being (e.g., Emmons, 1986; Emmons & King, 1988; Roberts & Robins, 2000). Folk and Heine (2022) identified 3 main categories of purpose that people commonly endorse which influence people's well-being and meaning in life: self-cultivation, service, and advancing. *Self-cultivation* is the most commonly endorsed category, and it reflects an internal focus and an orientation towards nurturing the self. Existing measures of global purpose most resemble self-cultivation, compared to the other two categories (e.g., George & Park, 2016; Ryff, 1989). Self-cultivation is associated with more liberal values, and is the purpose category that most reliably predicts various measures of well-being. *Service* is the next most commonly

endorsed purpose category, and it reflects an external focus and a concern with making contributions towards others. People whose sense of purpose is focused on service tend to have more conservative values, are older, and have more meaning in life. The third purpose category, *Advancing*, reflects a concern about getting ahead in the world. It is associated with conservative values, lower degrees of well-being, and a search for meaning in life.

Overall, people who feel that their lives are more meaningful tend to fare better in many respects. This suggests that people are motivated to pursue meaning in their lives and they suffer a variety of consequences when they fail to achieve this. In these respects, it might be more appropriate to refer to people's motivations for meaning in life as a full-fledged need (e.g., Park & George, 2020). Those who are unable to find much meaning in their lives tend to experience lower physical and mental well-being.

Coherence Underpins Meaning in Life

Above, we reviewed the importance of the tripartite components of meaning in life for people's sense of well-being and flourishing. Though all three facets of meaningfulness—purpose, significance, and coherence—contribute independently to a global sense of meaningfulness (George & Park, 2017; Krause & Hayward, 2014), much research has focused on the necessity of coherence to the experience of meaning in life (e.g., Heintzelman et al., 2013; King & Hicks, 2021; Martela & Steger, 2016). In many ways, coherence seems to lie at the foundation of a meaningful life. Heintzelman et al. (2013) propose that a sense of coherence is a necessary requirement for feelings of purpose and significance to arise; that is, our motivations to make sense of things is ultimately what links the different aspects of the tripartite model. People are not only seeking coherence in their understandings of the world around them, but they also want coherence in their goals and strivings (purpose) and their understanding of themselves

and in their relations to a broader context (significance). That is, a person can only feel that their life matters and has purpose if they feel they can make sense of things.

This perspective suggests that people's desires for existential meaning share something in common with their desires for basic, denotative, meaning more generally; both types of meaning are based upon the same foundation of a drive for coherence. That is, we can think of people's desire for existential meaning along the same lines of their desire to possess basic, coherent, and connected meaning frameworks. When people seek meaning in life, they are really seeking out coherence in their understanding of their lives, and applying this need for coherence to the more abstract and teleological questions they have about why they are here and how they fit into the large-scale human drama unfolding around them. Coherence relies on sense-making, which means meaning in life would not be possible without a more general desire for meaning. In this way, the study of meaning in life shares much in common with the study of motivations for lower-level meaning, although measures of coherence in the former field have tended to focus less on the coherence of people's low-level meaning associations, and more on the extent to which their self-narrative makes sense to them. Below we elaborate on the key role that motivations for meaning have with respect to the ways that humans make sense of their worlds.

Human's Motivation for Meaning

We propose that coherence also underpins a more general need for meaning in one's experiences, which also serves the more ultimate and evolved function of making sense of one's environment. This is a perspective shared in part by some other meaning in life scholars, who have also proposed that the coherence underlying a sense of meaning in life is rooted in the more general cognitive experience of meaning as the detection of associations and relatedness (e.g., Heintzelman et al., 2013). Similarly, we suggest that the basis for finding coherence in one's

own life is rooted in the same cognitive apparatus that allows people to make sense of the world more generally. People wish to hold coherent and connected ideas, perceptions, and expectations about anything and everything they come across, and it is distressing when they cannot (Heine et al., 2006; Heintzelman & King, 2014; Proulx et al., 2012).

Because general meaning underlies the more abstract and teleological connections that relate to feelings of meaning in life, understanding the development of humans' motivation for meaning in general can help make sense of humans' motivations for existential meaning. We also propose that much of human psychology can be better understood by considering it from the perspective of our motivations to find meaning, and we outline how this is so in the sections below.

The notion that people understand the world through meaning frameworks has received much theoretical and empirical support, albeit under different names. For example, Piaget (1960) used the term "schema" to describe the associations that children learn about the world around them; Bruner preferred the word "paradigm" (Bruner & Postman, 1949), as did Kuhn (1962) in his descriptions of the organizing frameworks that scientists depend upon. Janoff-Bulman (1992) referred to "assumptive worlds" as the term to capture the way that people understand the unfolding of events in their lives, whereas terror management theory used the word "worldview" (Solomon et al., 1991). Others have emphasized how these associations unfold in particular temporal orders and have used words such as "script" (e.g., Nelson, 1981) or "narrative" (e.g., McAdams, 2001) to describe how these relations are linked across time. All of these different terms reflect the ways that people understand the world around them in terms of networks of expected associations.

Humans start developing the meaning frameworks that they depend on early on in life. People form basic meanings beginning from infancy (Gweon & Schulz, 2011; Stahl & Feigenson, 2017), innately and automatically drawing connections between things in the environments, or things about themselves. This becomes more sophisticated throughout childhood, as children begin to use their prior beliefs to dictate their behaviors (e.g., Bonawitz et al., 2012). Other implicit mental models arise, helping people predict others' likely emotions (Thornton & Tamir, 2017), goals, thoughts, and personalities (Koster-Hale & Saxe, 2013), and even natural associations in the physical world (e.g., the connection between seasons; Heintzelman et al., 2013; Hicks et al., 2010).

We rely on these kinds of meaning frameworks to understand ourselves, our worlds, and our place within our worlds. Specifically, these frameworks help us organize and shortcut perception, by providing stores of pre-existing knowledge that we can use to understand new stimuli (Bartlett, 1932). They also affect how activities (Michaels et al., 2013), goals (Hirsch, 2013), relationships (Andersen & Klatzky, 1987; Collins & Read, 1990) and even objects are perceived (e.g., Balci et al., 2006; Bruner & Minturn, 1995). They allow us to predict likely outcomes of ours and others' actions (Clark, 2013), as we can draw on our assumptions of expected relations to predict how causes lead to effects.

In this way, meaning frameworks help people to decide on secure, beneficial routes of behavior (e.g., Grush, 2004; Richardson & Michaels, 2001). When individuals are able to identify and understand the settings, behaviors, and outcomes of actions around them, they are also better equipped to make beneficial decisions. And when people recognize that the world is in line with their expectations it feels good (Heintzelman & King, 2014), perhaps because this sense of meaning allows people to recognize that they are in a position to act effectively within

their environments. That is, the subjective feeling of meaning can be a signal that all is good and people can continue to act efficaciously. In general, when individuals detect meaning in their environments they experience pleasant affect (Heintzelman & King, 2010).

For meaning frameworks to fulfill all of the above functions, they must be intact and organized; in other words, coherent. However, anomalous and unexpected events can often precipitate a breakdown in these frameworks. For instance, learning that a beloved family member has engaged in a disgusting crime clashes with one's expectations and pre-existing beliefs about that individual; the associations and meanings one holds about that individual become incoherent (Guan & Heine, in press). Anomalous events clash with one's simulated expectations and signal a problem within them, leading people to feel anxious and uncertain (Proulx et al., 2012; Tullett et al., 2011, 2012).

Given the utility of these meaning frameworks, people are motivated to maintain the coherence of these ideas, and they are motivated to re-establish their meaning frameworks in response to encounters with experiences that don't make sense. Much research has explored the ways that people react in the face of violated expectations and feelings of meaninglessness (e.g., Heine et al., 2006; Jonas et al., 2014; Proulx & Heine, 2010; Proulx & Inzlicht, 2012). When people have successfully made meaning following an expectation-violating event, this is accompanied by the feeling of having "made sense" (e.g., Davis et al., 1998; Park, 2010; Wortman & Silver, 1987); a feeling of acceptance, growth, and peace. In summary, humans benefit from, and are motivated towards, making sense of their environment and the associations around them.

The Evolution of Meaning

How did humans become so dependent upon meaning? Humans' capacity and motivation to create meaning likely began with their basic ability to detect associations (e.g., Pontes et al., 2020). The ability of the brain to associate stimuli and responses, and to generalize past experiences to new ones, represented the origins of a capacity for meaning (Baumeister & von Hippel, 2020). This is also present in non-human animals (e.g., Tse et al., 2017; Peterson, 2012). There is evidence of such associative capacities in rats, for instance, who use associative memory representations to guide their behavior (Tse et al., 2017). Non-human animals also similarly exhibit reinforcement learning through prediction error; when new events are discrepant with past expectations, monkeys and rodents attend to these new events and use them to update their mental representations of likely outcomes (see Niv & Schoenbaum, 2008 for a review).

Indeed, to say that humans—and other non-human animals—are capable of associative learning (Rescorla, 1972, 1988, 2000) and classical conditioning (Domjan, 2005) is to say that they are capable of a basic form of meaning (Heintzelman & King, 2014). These simple associative capacities in humans evolved from those present in non-human animals into more sophisticated learning and memory processes (e.g., Thorndike, 1931). In addition to these basic learning processes, humans have evolved the ability to manage and categorize associations into larger frameworks of meaning, or schemas (Bartlett, 1932), and to hold multiple schemas at once. These associative networks comprised of humans' acquired knowledge, skills, and attitudes, developed from their existing experiences (Fernandez & Morris, 2018; Ghosh & Gilboa, 2014; Van Kestern et al., 2012). These different schemas were likely critical to humans' ability to learn new information and draw on generalizable past experiences, as schemas help with the stronger consolidation of new information (Fernandez & Morris, 2018; Van Kestern et al., 2012), and learning through integration of new experiences into existing knowledge

structures (for a review, see Alonso et al., 2012). As we describe below, the advanced ability to form and maintain more complex structures of meaning was integral to humans becoming a cultural species.

In the Animal Kingdom, Humans may be Uniquely Motivated to Share Meanings.

While non-human animals may be able to engage in associative learning, there are ways that humans seem to rely on meaning to a greater degree than do other species. Contrasting the meaning frameworks of humans with those of chimpanzees, with whom humans shared a common ancestor as recently as six million years ago (Suddendorf, 2013), may be informative for understanding what meaning allows humans to accomplish. Like humans, chimpanzees are a highly social species, so they are quite dependent upon one kind of meaning (social relations) in their lives (e.g., De Waal, 1982; Dunbar, 1993). Indeed, chimpanzees have evolved mental capacities (e.g., working memory, strategic competition) that rival those of humans for keeping track of a rapidly changing social world (Inoue & Matsuzawa, 2007; Martin et al., 2014). Chimpanzee intelligence is often referred to as Machiavellian, as they are especially attentive to how others around them can aid or threaten their own pursuit of their basic needs (e.g., Byrne & Whiten, 1988).

Although chimpanzees are highly social, they show little interest in what other conspecifics are thinking about (Engelman et al., 2012; Silk et al., 2005). This can be inferred from a key psychological difference between humans and chimpanzees: chimpanzees rarely engage in joint attention with others (e.g., Tomasello et al., 2005); that is, they are rarely jointly aware that they are attending to the same event. For the most part, chimpanzees interact with each other as independent agents, where they are each seeing their worlds largely from their own individual perspective. Because they rarely achieve joint attention with others, and largely lack

the ability to share their intentions, it is difficult for them to coordinate their behaviors with others (Tomasello, 2014b). Hence, chimpanzees are only able to achieve cooperation with others in limited situations (Cheney & Seyfarth, 1990; Tomasello et al., 2005; cf., Boesch, 1994).

In contrast, when humans interact with others they automatically engage in joint attention and they are quick to find a common ground, to orient their thoughts and speech towards their interlocutors in a way such that they are both perceiving and considering the same jointly perceived topic (Shytenberg, 2015; Warneken et al., 2006; Tomasello, 2014b). This synchronization of individual's minds plays a key role in human's abilities to construct more complex meaning frameworks; not only will individuals experience more meaning by being connected with a larger number of others, but once this common ground has been achieved people are in a position to share meanings with each other. The channels between individuals have been opened, and ideas can be shared and jointly built upon.

There are a couple of adaptations that have facilitated humans' ability to engage in joint attention. First, humans have a white sclera that surrounds their irises. Indeed, they are the only species out of over 200 species of primates that has a white sclera (Kobayashi & Kohshima, 2001). Since the time that we shared a common ancestor with chimpanzees our sclera have evolved to be whiter, and the shape of our eyes have also changed to make more of our sclera visible. Having white sclera makes it easier for humans to detect the gaze of others in comparison to chimpanzees, so we have an easier time assessing what others are considering (Kano et al., in press). That our scleras evolved to be this way suggests that it was adaptive for our ancestors to have their gazes made visible to others.

A second key adaptation that has facilitated humans' ability to achieve joint attention is humans' ability to use another kind of meaning: symbolic meanings, where certain words,

gestures, and more recently, written symbols, can stand for something else (Deacon, 1997). The closest that chimpanzees have to using symbolic meanings is their use of gestures (Hobaiter & Byrne, 2014). Having language greatly advances the degree to which humans can effectively communicate and share meanings with each other. First, language facilitates human's abilities to achieve joint attention in the first place; people can direct others' attention towards a common ground. Second, language provides a means by which humans can share their thoughts with others. It allows them to understand and share their inner states (see Higgins & Pittman, 2008). With language we can more precisely communicate what we are thinking in a way that can be understood by others.

While the adaptations of white scleras and language ability may have facilitated the ability for humans to share meanings with each other, it is also noteworthy just how motivated humans are to share meanings with each other. Indeed, a significant proportion of human conversations, approximately 30-40%, are dominated by individuals sharing their experiences with each other (Dunbar et al., 1997; Emler, 1994; Tamir & Mitchell, 2012). Social media technologies also seem designed to facilitate the sharing of experiences, as one study found that up to 80% of messages on Twitter convey an individual's experiences (Naaman et al., 2010). People share so many of their experiences because it feels good to do so: one fMRI study found that when people were sharing experiences with others there was increased activation in the reward centers of the brain (Tamir & Mitchell, 2012). These good feelings suggest that it may have been adaptive for people to share their feelings with others, perhaps because people benefit when others have a better understanding of what they are thinking. Being so motivated to share experiences with each other would seem to facilitate the ability for humans to achieve common ground.

In contrast, chimpanzees have little desire to share their own perspective with each other. Chimpanzees do use gestures to communicate, however, these are almost exclusively used to request actions from others, such as “groom me,” rather than communicating their experiences (Baumeister & von Hippel, 2020; Hobaiter & Byrne, 2014). Likewise, while some lab-reared chimpanzees have been taught quite extensive vocabularies from human sign languages, they also use these almost exclusively for requests, such as “give apple” (Lyn et al., 2011; Terrace, 1979, 2005). In contrast to humans, chimpanzees seem to have relatively little motivation, and little ability, to share meanings with each other. As we elaborate below, humans’ more pronounced motivation to share meanings with each other has an important consequence: it leads to our species living in environments of shared meanings.

Humans Live in Ecologies of Meaning

Humans are able and motivated to learn, and share, each other’s inner experiences. These tendencies over time have resulted in humans accumulating meanings (Tomasello et al., 1993). Humans have not only accumulated meanings within interpersonal relationships, but meanings have also accumulated among groups of people who have shared a regular interactional space. These meanings, across different human groups and cultures, have accumulated into edifices of shared meanings that created shared realities (Baumeister, 2022; Bourdieu, 1977; Chiu et al., 2010; Higgins, 2019). These shared realities make up the complex cultures we all participate in.

Human cultures are vast frameworks of meanings that are shared among their members and may differ from the meanings that are shared by members of different cultures (Ricart-Huguet & Paluck, in press). These shared meanings lead to the creation of norms that can guide people’s behaviors. It is not just up to individuals to decide what are appropriate behaviors; rather, the shared meanings in a given cultural context plays a large role in determining what is

viewed as appropriate. Humans have cultural norms that dictate what is appropriate for how people dress, for what they eat, for whom they can marry, for how they should interact with strangers, for what kinds of religious beliefs and practices they maintain, for how they strive to attract and maintain mates, and so on (Heine, 2020). These norms largely determine which behaviors are valued, which are tolerated, which are encouraged, and which are shunned. Moreover, as many key cultural meanings are conveyed through local religions (Cohen, 2009; White et al., 2021), these norms can also be linked to teleological concerns such as value, significance, and purpose. People implicitly contrast how they are doing against these norms; they provide the basis by which people can come to evaluate their lives to determine whether their actions are appropriate and good. Ultimately, then, we suggest that people's existential concerns about whether they are leading a good life are a byproduct of the emergence of cultural norms.

However, humans are not unique in having cultures. Indeed, cultural learning has been observed in a wide swath of species, including species of birds, fish, and mammals (e.g., Lachlan et al., 1998; Lefebvre & Giraldeau, 1994; Whitehead & Rendell, 2015). In particular, returning to the contrast of humans and chimpanzees, much research has identified cultural learning among chimpanzees (Goodall, 1973; Whiten et al., 2021). Nonetheless, the degree of cultural information that is shared among chimpanzees is a far cry from that among humans. Indeed, the most extensive survey of cultural behaviors among chimpanzee populations finds only 7 behaviors that reliably distinguish different populations of chimpanzees, and another 32 behaviors that are occasionally observed among some chimpanzees (Whiten et al., 1999). In contrast, for humans, virtually all behaviors are shaped by cultural learning, and many of these are known by almost all members of a given culture (see Heine, 2020, for a review). Moreover,

the cultural meanings that humans share accumulate over time, and become increasingly complex and sophisticated (Tomasello et al., 1993; Henrich, 2016), whereas there is only scant evidence for cultural accumulation among chimpanzees (Whiten, 2017). Things get exponentially more complicated when you consider that humans live in an ecology of shared meanings that have been accumulating across generations. Indeed, culture plays such a large role in human behavior that it has been proposed that our species is the product of gene-culture co-evolution, in which we depend upon cultural evolution to solve many adaptive challenges, and our genome has been evolving in response to those cultural changes (Beja-Pereira et al., 2003; Henrich, 2016; Laland et al., 2010).

Human cultures emerge from the sharing of information within social networks (e.g., Jacobs & Campbell, 1961; Latane, 1996; Richerson & Boyd, 2005). These cultures can emerge remarkably quickly. For example, one study investigated the emergence of subcultures among students living in separate residence halls at the University of Northern Iowa. After only three months of living together, the different residence halls had developed different cultures in terms of how they viewed a set of attitude items (Cullum & Harton, 2007; also see Ricart-Huguet & Paluck, in press). The notion that culture emerges from people's social networks, and the fact that every individual belongs to many varied social networks, suggests that people belong to multiple nested cultures that correspond to their various social networks. Hence, people belong to cultures that correspond to their country, region, ethnicity, sexual orientation, religion, occupational groups, socioeconomic status, generations, and so on (Christakis & Fowler, 2009; Cohen, 2009; Heine, 2020). The norms that guide people's behaviors are a product of the respective cultures that they have been socialized in, and the particular context that they are in at a given moment (cf., Hong et al., 2000).

People's lives are enveloped by the various cultures that they belong to, and virtually everything that they do is wrapped up with innumerable cultural meanings. These cultures that people participate in can vary tremendously between each other (Heine, 2020). At the same time, however, people everywhere share a similar set of basic needs in order to survive and prosper. For example, Kenrick and colleagues (2010) maintain that humans everywhere share similar needs for physiological resources, self-protection, belongingness, status, mate acquisition and retention, and parenting. These basic human needs are largely similar to the needs of chimpanzees, with the exception that chimpanzees don't form pair-bonds, and thus don't engage in mate-guarding, and the fathers aren't involved in parenting. However, a key difference between the two species is that humans depend on their cultures in order to satisfy these basic needs. This means that humans, unlike chimpanzees, can pursue their basic needs in rather dramatically different ways between cultures. For example, marriage can be seen as a cultural universal (Brown, 1991), however, the practice of marriage varies tremendously between societies. The list of different marriage practices includes arranged marriages, marriages to cousins, marriages to children, polygynous marriages, polyandrous marriages, or same-sex marriages (Norenzayan & Heine, 2005). Hence, while people in all cultures pursue their mating needs in particular ways that align with their local cultural norms, across cultures the actual cultural meanings associated with mating can be hugely variable. Given that people go about satisfying their basic needs in culturally-determined ways, it would seem that thriving in a culture depends on learning the local cultural meanings. The ability of humans to organize the meanings they encounter into complex knowledge structures surely afforded humans' abilities to manage cultural information and to pursue their basic needs. Those individuals who are

especially adept at acquiring and utilizing cultural meanings, would seem to be in a better position to satisfy their basic needs.

Humans Evolved a Self to Facilitate Engagement with Cultural Meanings

As we argue, human actions are wrapped up in many kinds of cultural meanings that they learn from their interactions with others. Humans do not just decide for themselves what is the best course of action in a given situation; rather, their cultural meaning frameworks determine what actions are collectively viewed as appropriate, valued, or shunned. As such, humans need to be able to engage with the local cultural meanings in order to most effectively pursue their basic needs; they need to have mastered the local cultural meanings such that they can use them in their efforts to take care of their basic needs and in their pursuit of a meaningful life. People would seem to fare best if these cultural meanings were easily accessible to them, such that their reflexive behaviors in a given situation were ones that were largely aligned with cultural norms. But how could the cultural meanings that humans are so dependent upon be made more accessible to them?

Baumeister et al. (2018) propose an answer to this question; they suggest that the human self evolved as a means to organize the various meanings that humans themselves are dependent on. By internalizing many of the shared meanings that constitute their cultures, these meanings should become more accessible, more organized and consolidated, and thus should facilitate their abilities to engage with their worlds in ways that align with local cultural meanings. A self that consists of such internalized cultural meanings would aid individuals by allowing them to act more quickly and consistently in ways that are in accordance with those meanings. Their reflexive response to a situation would be more likely to be aligned with local cultural meanings instead of being in opposition to them, and thus should be more likely to be successful. This

perspective suggests that the self is at the interface that connects individual people with their surrounding cultural matrices (Baumeister, 2022).

The notion that the self is what connects the individual to their surrounding culture fits well with the central tenet from cultural psychology, that culture and the self are mutually constituted (Markus & Kitayama, 2010; Shweder, 1990). This tenet states that cultures emerge from the interaction of different selves, and that, correspondingly, selves are shaped by those cultures. Much research supports this view, and has found that different kinds of cultural practices, and the meanings they incorporate, such as those that come from different modes of subsistence, different religions, and those associated with mitigating different kinds of ecological threats, ultimately come to shape the self-concept (e.g., Grossmann & Varnum, 2015; Henrich, 2020; Nisbett & Cohen, 1996; Talhelm et al., 2014). That is, people who live in different cultures are regularly being influenced by different kinds of cultural meanings, and these meanings come to shape their self-concepts. Moreover, because people participate in overlapping networks of cultures (e.g., national culture, ethnic culture, socioeconomic status, sexual orientation, etc.), their self-concepts are ultimately shaped by the meanings that are inherent in each of their different cultural matrices.

This perspective suggests that it may be most useful to conceive of the self as a meaning framework in itself. It importantly consists of shared meanings that the individual learns from their interactions with others in their social networks. So, individuals who are raised in a collectivist context tend to develop an interdependent self, in which their identity is seen as consisting largely of relationships with others, the roles that one has in those relationships, and the groups to which one belongs (Markus & Kitayama, 1991). The cultural meanings in collectivistic contexts encourage people to find ways that they can achieve a sense of

belongingness with others, so individuals tend to elaborate on those aspects of themselves that connect them with others in their ingroups (Kim & Markus, 1999; Kinias et al., 2014). Moreover, people with interdependent selves are more likely to consider others in terms of the relationship networks that they are part of, and to trust those with whom they share relationships (Iyengar & Lepper, 1999; Yamagishi & Yamagishi, 1994). In contrast, those who are raised in an individualistic context are more likely to develop an independent self, in which their identity is seen to rest on a set of internal psychological characteristics, such as personality traits, attitudes, and abilities (Markus & Kitayama, 1991). Cultural meanings that are more common in individualistic cultural contexts encourage people to identify ways that they are distinct from others, and people are motivated to view their collection of psychological attributes to be unique (Ishii et al., 2014; Kim & Markus, 1999). Likewise, in more individualistic cultures people learn to understand others by attending to their particular psychological attributes in an effort to find who they can trust (Henrich, 2020; Yamagishi & Yamagishi, 1994). The different ways that selves are shaped by individualistic and collectivistic cultural contexts facilitates individuals by allowing them to act in ways that are better aligned with those respective contexts.

We are contending that the self can be better understood as a meaning framework itself. As discussed above, one way in which the self can be seen to be like a meaning framework is by considering how the self is connected to various cultural meanings which ultimately come to shape the nature of the self. People's selves are connected to a second set of meanings: teleological concerns that provide their lives with a sense of value, significance, and purpose. These teleological connections are primarily experienced through the lens of people's cultures, which provide norms for what is considered good, valuable, and appropriate behavior, and they also dictate to people what kinds of purposes might underlie their actions. A key way that

cultures offer this kind of teleological guidance is through their religions. Religions are part of all human societies everywhere (Brown, 1991), although religions vary enormously in terms of the kinds or degree of moral guidance that they offer (see Norenzayan, 2013; Norenzayan et al., 2016). Through religious teachings people learn how their actions are connected to transcendent concerns that help provide them with a sense of significance and purpose.

A third way that the meanings that constitute the self can become more evident is when we consider the boundaries of the self. Psychologists have long recognized that the self extends far beyond the individual's body, and can better be considered as part of an extended self. For example, William James (1890, p. 291) emphasized this point when he declared that "a man's self is the sum total of all that he can call his, not only his body and his psychic powers, but his clothes and his house, his wife and children, his ancestors and friends, his reputation and works, his lands and horses, and yacht and bank-account." We can say that all of these relationships, accomplishments, and possessions make up the extended self because people tend to show similar kinds of psychological reactions towards their individual selves as they do towards the many facets of their extended selves. For example, consider what makes people feel proud or ashamed. People not only feel proud or ashamed when they behave in ways that surpass or fall short of expectations, but they have similar feelings towards the behaviors of their closest relations; we can feel proud or ashamed of our family members or close friends (e.g., Piff et al., 2012; Tracy & Robins, 2004). Likewise, people engage in rationalizations not only for their own behaviors, but also for the behaviors of their close relationships (Forbes & Stellar, 2022; Guan & Heine, in press; Norton et al., 2003). The self extends to include people's closest relationships, and people demonstrate similar emotional reactions to the behaviors of their individual selves as they do to those of their closest relations (Endo et al., 2000; Fincham et al., 1987; Heine &

Lehman, 1997). Furthermore, much research on social identity theory has demonstrated that people identify with their groups in ways that are highly similar to how they identify as individuals; this is true even for minimal groups that are artificially created in the context of an experiment (Falk et al., 2014; Tajfel & Turner, 1986). And, perhaps the most dramatic evidence of the extent to which the self extends beyond an individual's body is research on people's attitudes towards their possessions (Belk, 2013). For example, research on the endowment effect finds that people's views of their selves encompass even their possessions; people with more positive self-views have been found to ask for more money to sell their possessions than those who view their self less positively (Alexopoulos et al., 2015; Chatterjee et al., 2013; Maddux et al., 2010). These various lines of research on the extended self demonstrate that much of what people experience as the self includes whatever the individual is connected to (Markus, 1977; Markus & Wurf, 1987).

We suggest that to best understand the self it is critical to understand the meanings that make it up. The self is connected to local cultural meanings that dictate what are the appropriate and valued ways to behave, and these meanings come to be internalized as an individual develops. Likewise, the extended self is based on all of the aspects that are connected to the individual, including their relationships, groups, possessions, places, and the events that have occurred in their lives. In this way, we suggest that the self is experienced as a network of meanings that connect the individual to the meanings in their cultures and to all of the aspects of their lives.

People Function Better when Their Selves are Aligned with Their Cultures

We are proposing that the self is a network of meanings that is shaped by the meanings of the cultural context that the individual is situated in. Evidence for this claim can be seen in two

literatures that have explored the extent to which people's selves are aligned with their cultures: the literatures on cultural fit and on acculturation.

First, it is important to emphasize that although selves are shaped by the cultural meanings that they are exposed to, there is still of course much individual variability in terms of people's selves within every culture. Everyone is a unique individual, and within cultures people differ from each other in terms of their life experiences, their genomes, and the different set of subcultures that they belong to. Because of this variability, some individual's selves are likely more closely aligned with the dominant cultural meanings in a given context than are others; such individuals are said to have better "fit" within their cultures (e.g., De Leersnyder et al., 2014; Götz et al., 2018). If the self is functional because it affords individuals access to cultural meanings, selves that fit more closely with the dominant culture should be able to act more efficaciously. Those individuals who fit in better with their cultures should experience more positive outcomes as their default habits and behaviors should largely be aligned with the ways that their culture encourages. Recently, a growing literature on cultural fit has explored the benefits of having a self that is aligned with one's culture.

When people have better fit with their cultures their habitual ways of behaving and thinking tend to resonate with others from their cultures. There are a variety of different kinds of fit that have been explored in research, such as emotional fit (De Leersnyder et al., 2014, 2015), personality-fit (Bleidorn et al., 2016; Fulmer et al., 2010; Götz et al., 2018), religious fit (Ebert et al., 2020), political fit (Stavrova et al, 2016), and cultural fit (Levine et al., 2016; Lu, 2006). A common finding across these studies is that individuals who are a better fit with their surrounding culture benefit from more positive psychological outcomes. For example, people who fit in better with their cultures or sub-cultures tend to have healthier diets (Levine et al.,

2016), live longer (Ebert et al., 2020), have fewer relationship problems (Friedman et al., 2010), have higher self-esteem (Bleidorn et al., 2016), and have greater emotional (De Leersnyder et al., 2015; De Leersnyder et al., 2014), relational (Jokela et al., 2015), and subjective well-being (Fulmer et al., 2010; Gloria et al., 2005; Götz et al., 2018; Lu, 2006; Stavrova et al., 2016). Having one's self fit in well with the surrounding culturally-shared meanings is generally associated with positive outcomes. This common finding underscores the ways that the self is shaped by cultural meanings and the costs that the individual experiences when the meanings between the self and the cultural context are not well aligned.

The literature on acculturation also demonstrates the importance of having the meanings of one's self be aligned with the meanings of their culture. This literature targets the experiences of people when they migrate from one cultural context to the next. Typically, after migrants have moved to a new culture, their selves, shaped by the cultural meanings of their heritage cultures, are now at odds with the cultural meanings of their host culture (Berry & Annis, 1974; Furnham & Bochner, 1986; Ward, 1996). The typical experience of migration is that early on one experiences various difficulties that are often referred to as "culture shock" (Ward et al., 2001), and their physical and mental well-being suffers. The process of acculturation is one of psychological adjustment, as the self is shaped by the cultural meanings of the host culture, where with gradually increasing fit comes improved well-being (Oberg, 1960; Ward et al., 2001). Moreover, some key evidence that this culture shock is the result of a mismatch between selves and cultures is that the degree of this culture shock is predicted by the discrepancy between migrants' selves and their cultures. One of the most reliable findings in the acculturation literature is that migrants from cultures that are more distant from their host culture experience more challenges to their well-being than those from cultures that are more similar (Babiker et al.,

1980; Berry & Annis, 1974; Furnham & Bochner, 1982; Heine, 2020; Ward & Kennedy, 1995). Likewise, migrants whose personalities are a better fit with the host culture also experience fewer threats to their well-being during the acculturation process (Armes & Ward, 1989; Cross, 1995; De Leersnyder et al., 2014; Searle & Ward, 1990). We propose that the acculturation process can be better understood from the perspective of a mismatch in the meanings between cultures and selves.

Humans are Motivated to Defend their Meanings

As we have argued, humans are a species that is ultimately dependent upon meanings; people have selves that are built upon meaning frameworks, and they live in ecologies of shared meanings that are manifest in their cultures. This dependence on meanings would seem to put humans in a vulnerable position because, often, the meanings that they rely upon may become threatened. For example, if one's meaning framework suggests that people get what they deserve, and they accordingly try to act in prosocial, and therefore potentially rewarding, ways, imagine the conundrum they find themselves in when they see bad behavior get rewarded or good behavior punished (e.g., Furnham, 2003; Lerner, 1980). Such situations seem to call into question the individual's expectation that the world is just, leaving that individual unsure how to act in the future.

We have proposed that it is adaptive for humans to make sense of their environments and their selves, to understand the meanings that underlie their worlds and their place within it (cf., Baumeister & Von Hippel, 2020; King & Hicks, 2021). We suggest that this is why it tends to feel good when the world appears in line with people's expectations (Heintzleman & King, 2014); feeling a sense of meaning allows people to recognize that they are in a position to act efficaciously within their environments. On the other hand, when things do not make sense,

people are in a quandary as they are unsure what is happening around them, and thus do not know what is an appropriate way to behave. These events indicate that the simulations people rely on are not in accordance with external reality. When the world stops to make sense, an individual would seem to be unable to know how to act efficaciously, and would remain somewhat paralyzed. We propose there are proximate mechanisms that have evolved to alert the individual when things are no longer making any sense.

A variety of perspectives on meaning threats converge on the idea that uncertain or anomalous events produce anxious arousal (Heine et al., 2006; Kay et al., 2010; McGregor et al., 2010, and further, threats to meaning elicit behaviors aimed at reducing this arousal (Heine et al., 2006; Jonas et al., 2014; Proulx & Inzlicht, 2012). These actions are considered palliative because they make an individual feel better about the anomaly, but they do not resolve the source of the threat itself (Harmon-Jones et al., 2009; Proulx et al., 2012; Randles et al., 2013). Different lines of research provide convergent evidence that the neural substrates associated with anomalies are the dorsal anterior cingulate cortex (dACC) and anterior insula (AI; for an overview, see Proulx et al., 2012). In turn, these substrates interact with the locus cereoeus norepinephrine system (LC-NE; Aston-Jones & Cohen, 2005) which increases arousal and refocuses attention in the wake of apparent inconsistencies (Proulx et al., 2017). Indirect measures of LC-NE activation, such as pupillary dilation, indicate that the magnitude of inconsistency arousal predicts the degree of meaning accommodation that people engage in following experiences that violate expectations (Slegers et al., 2021).

Together, these and other neural substrates have been proposed to form a salience network whose purpose is alerting humans to the unexpected, so that they can respond appropriately to it (e.g., Menon & Uddin, 2010; Seeley, 2019; Seeley et al., 2007; Uddin, 2014).

The salience network identifies when an event that is encountered requires further processing; when it is triggered, the brain shifts from its default-mode network to a more vigilant state that can begin to address whatever problem it has identified (Ham et al., 2013; Sridharan, Levitin, & Menon, 2008). This network could be triggered by errors in performance on cognitive tasks (e.g., Randles et al., 2016), infrequent events (Legrain et al., 2003), physical or social pain (e.g., Eisenberger et al., 2003), and even the experience of general surprise (e.g., Egner, 2011). In addition to these low-level conflicts, there are also many more complex social and cognitive events that activate this network: perceiving and empathizing with the pain of others (Immordino-Yang et al., 2009), being socially evaluated (Perini et al., 2018), experiencing post-decision cognitive dissonance (van Veen et al., 2009), and even contemplating one's own death (Quirin et al., 2012). In sum, anomalous events appear to trigger arousal of the salience network, which motivates people to take appropriate action to address the anomaly.

We suggest that the desire to palliate arousal of this network manifests as efforts to re-establish a general feeling that things make sense (Heine et al., 2006). There are a few ways that people typically accomplish this. At the outset, people often defend their previous meanings by trying to interpret the new unexpected information in ways that align with their previous meaning framework. Bruner & Postman (1949) demonstrated this in an early experiment using playing cards with reversed colors (e.g., a six of spades that is red rather than black). They found that participants typically did not notice the unusual colors, and instead reported "seeing" the cards in ways that match their expectations. As another example, an individual who believes the world is fair, upon witnessing an injustice, may try to reassure themselves that the innocent victim did something to deserve their fate (e.g., Lerner & Simmons, 1966; Van den Bos & Maas, 2009), thereby never really interpreting the event as unjust.

This strategy of defending one's existing meanings through reinterpretation of threats is known as *assimilation* (Piaget, 1960; Janoff-Bulman, 1992). A drawback of assimilation is that it is usually not entirely effective; in Bruner and Postman's (1949) study, for instance, some participants seemed quite unsettled by the discrepancy in expectations even when they hadn't consciously noticed them. There is often a limit to how much of their reality people can assimilate (e.g., Kunda, 1990), and in many cases, it isn't adaptive or even possible to fully ignore the threat. In cases when people cannot or should not properly assimilate an anomaly they may instead turn to another common strategy: *accommodation* (Piaget, 1960). Here, people may react to an anomaly by revising their original meaning framework such that it can account for the unexpected observations. For instance, when someone finds themselves in a situation that does not make sense, such as just having agreed to write an essay arguing for a tuition increase at their university, they may revise their beliefs such that they come to have a more favorable attitude towards tuition increases than they did before (e.g., Pittman, 1975; Randles et al., 2015). As a palliative strategy, however, a key drawback of accommodation is that it is often a lengthy and difficult process. For example, when scientists learn of findings that contradict their theories, it can take sometimes decades before revised explanatory theories—or meaning frameworks—are developed and accepted (Kuhn, 1962).

These two strategies of assimilation and accommodation are common to a number of theories that consider how people respond to events that they can't make sense of (e.g., Janoff-Bulman, 1992; Park & Folkman, 1997; Thompson & Janigan, 1988). However, because assimilation is often not complete, and people may often not have the resources available to accommodate their existing beliefs, people may turn to a third strategy to resolve an anomaly: they may instead affirm alternative meaning frameworks through the process of fluid

compensation (Heine et al., 2006; Proulx & Inzlicht, 2012). Various kinds of meaning violations have been found to prompt these kinds of affirmation efforts, such as perceptual or syntactical anomalies (Proulx & Heine, 2008; Randles et al., 2011), experiences with cognitive dissonance (Randles et al., 2015), enduring tragic life events (Randles et al., 2017), or engaging with surreal arts and literature (Proulx et al., 2010; Randles et al., 2013). Following meaning violations, people may compensate by more strongly endorsing their moral belief frameworks (Greenberg et al., 1986), their religious beliefs (Kay et al., 2009), their planned goals (McGregor, 2007), or beliefs about themselves (e.g., Knowles et al., 2009). More broadly, the theme of affirming unrelated meaning frameworks emerges in a variety of other theoretical perspectives, including self-affirmation, certainty threats, belongingness threats, terror management theory, system justification theory, and cognitive dissonance theory (for reviews see Heine et al., 2006; Proulx & Heine, 2010). For example, following a threat to their self-esteem participants tend to show a heightened intergroup bias, demonstrating how people may affirm their belongingness following an unrelated threat (Hogg & Sunderland, 1991). However, a drawback of affirmation is that it does not repair the anomaly that was detected; rather, people's attempts to restore meaning is considered palliative because it resolves the disturbing arousal, but only for the time being. Those who affirm may return to make efforts to accommodate the meaning threat at a later time. Though affirming alternative frameworks does not itself solve the problematic anomaly, reminders of other coherent meaning frameworks can be reassuring that one's beliefs are consistent where it really matters, allowing the arousal from the other framework's threat to be dispelled.

In sum, people depend upon their meaning frameworks in order to thrive in their cultural environments, so they are vulnerable when those meanings get threatened. Upon encountering

something that undermines their understanding of the world, people turn to a variety of defensive strategies to regain a sense of meaning. We suggest that these myriad ways of defending meaning frameworks reveal the workings of a broader sense-making system; a psychological system that is motivated to retain and salvage a workable sense of meaning—much like the psychological immune system (Gilbert et al., 1998). All of these strategies function to dispel the bothersome arousal and return the individual to a state where things appear to make sense, leaving the individual in the position to act effectively again.

Maintaining Meaning vs. Maintaining Meaning in Life

Above we have reviewed the two overlapping literatures on motivations for meaning and motivations for meaning in life. While these literatures have often been treated as somewhat distinct, we propose that people's motivations for meaning and meaning in life share much in common, and that the ways that people make meaning relates in some key ways to how they make meaning in their lives. Below we describe some of the commonalities between these two overlapping motivations.

First, as noted, the literatures on meaning and meaning in life both point to the critical role that coherence plays in people's meaning frameworks. People do not seem to be able to function well when they are unable to feel a sense of consistency and coherence in their beliefs. When people experience a violation of their expectations, they are experiencing incoherence within their meaning frameworks; their schemas lead to a particular expectation, yet their actual experiences are at odds with this expectation, creating a sense of incoherence, which then leads people to turn to various efforts to regain a sense of meaning (see Heine et al., 2006, for a review). Likewise, when people feel that their own lives are incoherent, they are less likely to feel that their lives are meaningful (e.g., Heintzelman et al., 2013; King & Hicks, 2021; Martela

& Steger, 2016). People's efforts to find coherence in the meanings around them reflect their motivations to make sense of things, and people can't make sense of their lives unless they can make sense of what is happening around them.

Second, we note that there is overlap between motivations for meaning and meaning in life in that people respond similarly to threats to general meaning and to existential meaning. Several studies have found that people respond with meaning-boosting efforts to violations of basic expectations, such as experiencing perceptual anomalies (e.g., playing cards with reverse-colored decks; Randles et al., 2018; or witnessing a transmogrifying experimenter; Proulx & Heine, 2008) and syntactical anomalies (Randles et al., 2011), as well as existential threats, such as reflecting on their mortality (Proulx & Heine, 2008), experiencing cognitive dissonance (Randles et al., 2015), and considering the incoherence in their self-concept (Proulx & Heine, 2009). People respond in highly similar ways to the exact same dependent measures, and often within the same study.

We observe parallels in people's efforts to boost meaning in their lives following threats to general meaning, and threats to meaning in life. For example, research on nostalgia shows that people experience more meaning in their lives when they have engaged in nostalgic reflections (Routledge, 2015; Sedikides et al., 2018). Reflecting on one's past life seems to provide people with a sense of existential grounding, and it boosts their reported meaning in life. Tellingly, people are more likely to have nostalgic reflections precisely when they are experiencing less meaning in their lives. That is, people seem to respond to the feeling that their lives are low in meaning by engaging in defenses, such as waxing nostalgically, in an apparent effort to boost their felt meaning in life (Routledge et al., 2011). We can also see this same kind of hydraulic pattern in people's efforts to focus more on some key sources of meaning in life in response to

other kinds of threats to their meaning in life. For example, when people feel that their sense of belongingness is insufficient, they work more towards establishing new relationships (e.g., Baumeister & Leary, 1995). Likewise, when people focus on their mortality, they are more likely to turn to their religion (e.g., Norenzayan & Hansen, 2006). This pattern of people turning to key sources of meaning in life during times when their lives are feeling less meaningful, provides evidence that people defend their sense of meaning in life in parallel ways to their efforts to defend a more general sense of meaning in the face of meaning threats.

In all of the above ways, we suggest that motivations towards meaning in life share the same underpinnings as that towards general meaning, or the desire of any kind of connected, coherent mental framework. We suggest that meaning in life is the experience of general meaning when it incorporates an additional kind of connection: connection with teleological concerns such as value, significance, and purpose, which are learned through people's cultures. Both the motivations towards meaning in life and general meaning also share overlap in that they have significant well-being consequences in the positive direction when both are present, and in the negative direction when they are absent in people's lives (e.g., Heintzelman & King, 2014; Janoff-Bulman, 1992; Park, 2010). In many respects it can be said that people have a *need* for general meaning (see Heine et al., 2006), as well as for meaning in life (Park & George, 2020). We can see evidence for this need in that feelings of meaning have real consequences. People who report lower levels of meaning in life are more likely to suffer from depression, lower psychological well-being, substance abuse, and even heightened risk for suicidality (e.g., King et al., 2016; Klonsky & May, 2015; Ostafin & Proulx, 2020; Park & Baumeister, 2017; Steger et al., 2006). This need likely originated early in humans' evolutionary history, gaining complexity

and taking hold due to its reliable contribution to improving humans' survival adaptiveness. Seeking meaning and meaning in life helped—and still helps—people survive and thrive.

Conclusion

In this article we have argued that much can be gained by looking at the psychological literature from the perspective of humans' motivations for meaning: people are motivated to share meanings with each other, and these shared meanings create a shared reality which ultimately makes up the cultures that they live in. These cultures provide people with standards for what kinds of behaviors are appropriate and valued, so people come to interpret whether their lives are meaningful by comparing their actions and accomplishments alongside these cultural standards. Moreover, because everything that humans do is wrapped up in cultural meanings, we suggest that people need to always be attending to cultural meanings as they work towards satisfying their fundamental needs. We further suggest that people have evolved a self that internalizes these cultural meanings, rendering them more accessible, and thus shaping people's default actions such that they are usually aligned with the local cultural meanings. We propose that people's selves can be understood as frameworks of meaning which connect people to their cultures, to everything that is theirs, and to teleological concerns which helps to make their lives more meaningful.

In other words, the perspective that we have offered here – that much of human behavior can be better understood when we attend to people's motivations for meaning – can perhaps be seen itself as a meaning framework. We conclude with this meta-perspective that when the human condition is examined through the lens of humans' motivations for meaning, many psychological findings and theories that have hitherto been treated as distinct can be integrated

and perhaps better understood. Motivations for meaning connect much of what humans are trying to do in their lives.

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