

# Pragmatic Prospecction: How and Why People Think About the Future

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In the present, the past is more knowable than the future—but people think far more about the future than the past. Both facts derive from the principle that the future can be changed whereas the past cannot. Our theory of pragmatic prospecction holds that people think about the future so as to guide actions to bring about desirable outcomes. It proposes that thoughts about the future begin by imagining what one wants to happen, which is thus initially optimistic. A second stage of such prospective thinking maps out how to bring that about, and this stage is marked by consideration of obstacles, requisite steps, and other potential problems, and so it tends toward cautious realism and even pessimism. Pragmatic prospecction presents a form of teleology, in which brains can anticipate possible future events and use those cognitions to guide behavior. Toward that end, it invokes meaning, consistent with evidence that thinking about the future is highly meaningful. Prospecction often has narrative structure, involving a series of events in a temporal sequence linked together by meaning. Emotion is useful for evaluating different simulations of possible future events and plans. Prospecction is socially learned and rests on socially constructed scaffolding for the future (e.g., future dates). Planning is perhaps the most common form of prospecction, and it exemplifies all aspects of our theory (including pragmatic utility, meaning, teleological and narrative structure, and sociality). Bracing for bad news and defensive pessimism are strategies that inspire adaptive responses to feared outcomes.

*Keywords:* future, prospecction, meaning, teleology, planning

Most creatures live in the immediate present, and their mental powers are entirely devoted to processing what is happening now (Roberts, 2002). Human beings are different, in that people are able to think explicitly about past and future events. Moreover, they use these thoughts about other times to guide their actions in the present. The current paper seeks to advance theory about how people think about the future and how they incorporate those thoughts into the causation of behavior.

Psychology has devoted considerable effort and creativity to the problem of how people think about the past, including extensive studies of memory, attribution, interpretation, and biased reconstruction. Recently, however, researchers have increasingly turned their attention to also studying how people think about the future. This includes work such as accuracy of prediction of geopolitical and economic events (Tetlock, Mellers, Rohrbaugh, & Chen, 2014), op-

timistic bias (Shepperd, Klein, Waters, & Weinstein, 2013; Weinstein, 1980), predictions of one's own future emotional reactions (Gilbert & Wilson, 2007), and even predictions of whether oneself is likely to change as much in the future as one already has changed in the past (Quoidbach, Gilbert, & Wilson, 2013).

Although most research on prospective cognition has emphasized prediction, we believe that prediction often is secondary in importance to more direct, pragmatic concerns. Our focus is thus on pragmatic prospecction. Prediction is undeniably important to investigate, but we shall argue for a shift in emphasis so as to conceptualize prospective thinking as first and foremost a set of mental acts designed to guide future action for practical ends. Prediction is about what is going to happen, and it thus focuses on a single, particular event outcome. Pragmatic prospecction is about the choices and performances that one will have to make, including the different ways these could turn out, and thus it focuses on the multiplicity of possible outcomes (e.g., success or failure).

## Defining Terms

The term *prospecction* has come into use as the opposite of retrospection, and it denotes thinking about the future (Gilbert & Wilson, 2007). We use it in that sense, to refer to all cognitions explicitly that pertain to events, circumstances, and actions (including merely possible ones) forward in time from the present. To be sure, there is no strong consensus about exactly when the future starts. Still, we think people generally agree about what the future is.

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We use *pragmatic* and *pragmatism* in standard, traditional ways, referring to practical concerns. We emphasize the practical link to guiding behavior. That is, a fact is only pragmatic to the extent that it is useful for helping the person to act or not to act in the present or to decide how to respond in the future.

*Pragmatic prospection* is thinking about the future in ways that will have practical utility, which is to say ways that will guide action. Pragmatic prospection is thinking about the future in ways that will assist the process of producing desired future outcomes and avoiding undesired ones (though we emphasize the former).

*Prediction* is a mental representation of some future event or behavior—assessing whether this event or behavior is likely to happen or not. It is thus inherently prospective but not necessarily pragmatic.

### Stages in Prospective Thinking

The motivation for the proposed theory was a set of findings that clashed with some well-known patterns and prompted us to rethink our assumptions about prospective thought. It has long been established that when people are asked to make predictions about their own future, they are broadly optimistic—indeed unrealistically so. [Weinstein \(1980\)](#) showed that the average person predicts above-average outcomes for his or her future self, across a broad range of spheres (see also [Taylor & Brown, 1988](#)). People think good things are more likely and bad things are less likely to happen to them in the future than to others. This finding has stood the test of time, with recent evidence continuing to show that people overestimate their chances for positive romantic, educational, and health outcomes, and likewise underestimate the chances for bad ones ([Shepperd et al., 2013](#)). Some of the evidence of optimism for self relative to others can be ascribed to people being pessimistic about others ([Shepperd et al., 2013](#)). Nonetheless, the overarching tendency is for optimistic prediction.

If the future is indeed perceived as bright as these findings suggest, then thinking about the future should encourage a positive, optimistic outlook and an eagerness to pursue rewards despite the risks. However, recent experimental findings pointed in the opposite direction. [Monroe, Ainsworth, Vohs, and Baumeister \(2015\)](#) assigned some participants to think about the future, such as by writing a description of their future self or by having them think about and rewrite sentences referring to the future. Compared with neutral control condition participants, those who were made to focus on the future favored more cautious investments and exhibited lower degrees of interpersonal trust. In another study, prospection led to harsher condemnations of immoral actions by other people. The latter is relevant because moral condemnation serves a prospective function in at least two ways. First, it enables people to know whom to trust and with whom to cooperate ([Uhlmann, Pizarro, & Diermeier, 2015](#)). Recognizing untrustworthy others can save one from future betrayal and other misfortunes. Second, moral condemnation of misdeeds can uphold a group's values and thereby help the social system to function effectively in the future.

In an effort to integrate these two lines of research we considered how both unrealistic optimism and a seemingly pessimistic caution may have their place in the study of prospection. The [Monroe et al. \(2015\)](#) studies did not ask people to make predictions about specific events. Instead, it asked them to make choices and judgments after having contemplated the future in a seemingly

unrelated context. If thinking about the future consisted mainly of optimistic predictions, it would be hard to imagine why unrelated thoughts about the future should increase aversion to risk. But perhaps prediction is not the sole or main function of prospection.

Considering these findings, we propose that thinking about the future often involves preparation for action so as to bring about desired outcomes. This preparation for action can entail two heuristic stages, one of which focuses on identifying desired future outcomes, and the second one devoted to considering whether and how to bring those about. Each of the two stages can be further subdivided. [Oettingen \(2000, 2012\)](#) proposed a model of fantasy realization focusing on pragmatic prospection thought and motivation that specifies a self-regulation strategy named *mental contrasting* of the future and current reality. The first two steps in Oettingen's model consist of formulating a wish and envisioning the best possible outcome. Such thoughts tend to be inherently optimistic and positive. The later steps involve thinking about obstacles standing in the way of success, which leads people to determine whether reaching the outcome is not only desirable but also feasible, and if so then implicitly or explicitly making a plan to succeed despite the obstacles. These latter steps may be much less positive and indeed are grounded in realistic awareness of the central obstacles that need to be conquered on the way of wish fulfillment.

Understanding prospection as consisting of a sequence of steps could reconcile the seemingly contradictory findings of [Monroe et al. \(2015\)](#) and [Weinstein \(1980\)](#). When responses are studied while mental operations remain in the first step, generating a wish and envisioning the best outcomes, they would be positive. When people move along to contemplating potential obstacles and hindrances and figuring out how to overcome them in order to reach the desired outcomes, they may develop a more factual and possibly even negative future outlook.

As the first and most fundamental stage of the above sequence is to imagine what one would like to happen and thereby to formulate a wish or possible goal ([Oettingen, 2000, 2012](#)), we speculate that the human mind evolved the capacity to think about the future, originally, not so much to answer the question of "What is going to occur?" but rather "What do I want to happen?" Only later do people elaborate on the possible obstacles and contemplate means to overcome them to reach the goals. Hence the later stage involves anticipating what can go wrong on the way to goal attainment and preparing to deal with those obstacles so that goal pursuit can be effectively initiated and maintained. To be sure, if the obstacles are formidable, the person may decide that the future outcome is too costly or simply not feasible, regardless of its desirability ([Oettingen, 2000, 2012](#)).

To provide a plausible evolutionary scenario, we speculate that the earliest forms of prospection involved short-term, imminent outcomes. Expectancy judgments are probably among the first prospective thoughts and may have been among the first prospective thoughts altogether. The most basic cognitions are associations, and so a brain that knows that X and Y go together has in effect learned to expect Y when seeing X. If the association involves a temporal sequence (first X, then Y), then seeing X should prompt even animal brains to project into the immediate future so as to expect Y ([Rescorla, 1967](#)).

Why did brains evolve? It is generally accepted that the origins of the central nervous system, including the brain, served purposes

of locomotion and digestion (Ghysen, 2003). So perhaps the first cognitions were about “Which way should I move?” and “What can I eat?” In other words, mapping out what to do next, especially with respect to the fundamental issues of moving and eating, were the beginnings of prospective cognition. Brains evolved to guide the animal to move so as to find food. Such thoughts begin with identifying potential positive outcomes (such as consuming nutrients). More complex brains can however increase the chances of positive outcomes by recognizing that not all desirable outcomes are feasible, so as to avoid wasting effort on actions that are unlikely to lead to reward.

### Pragmatic Thinking and Future Doing

William James (1890) articulated a profound insight or a truism (or perhaps both) with his assertion that *thinking is for doing*. This insight has been reaffirmed by many other writers (e.g., Fiske, 1993). The implication is that the ultimate function of all cognition is pragmatic, although presumably some is much more pragmatic than others. We seek to take that insight seriously, and our theory of prospective thought is based on it. We shall argue in this section that prospection can be effectively pragmatic, and further that pragmatic action control imposes some cognitive requirements and tendencies that differ from those of mere prediction.

Thinking about the future can be highly adaptive. Indeed, one can argue that natural selection would have favored progress toward developing the cognitive capacity to project forward in time, starting from short-term expectancies and extending to the human capacity to think and plan years ahead (Seligman, Railton, Baumeister, & Sripada, 2013). Being able to think about the future and base behavioral choices on it is adaptive in the sense that these thoughts improve survival and reproduction. Therefore, natural selection might well have gradually increased the cognitive ability to do that. Improvements both in accuracy and in temporal distance would be adaptive.

Intelligence itself may be an adaptation to serve prospection. Hawkins and Blakeslee (2005) proposed that the purpose of human intelligence is to anticipate what will happen. They pointed out that the human mind is almost constantly predicting the future, especially if one includes immediate expectancies such as that a stair will be underfoot when one steps on it without looking. Much other thought involves projecting farther into the future, such as deciding what to say during a current or impending conversation, where to go on vacation next year, or how to finance the new baby’s college education. “The human brain is more intelligent than that of other animals because it can make predictions about more abstract kinds of patterns and longer temporal pattern sequences” (Hawkins and Blakeslee, 2005, p. 65).

The difference between pragmatic prospection and mere prediction is relevant here. We propose that when people think about the future, they often envision it as a matrix of competing possibilities rather than as an unfolding of predetermined outcomes. The purpose of prospection is not just to know what is bound to happen but rather to influence and if possible control what will happen.

To be sure, some prospective thought is purely about prediction. People seem to enjoy discussing upcoming political and even sporting contests that have no direct pragmatic bearing on their own lives. But pragmatic prospection is a matter of assessing what to do now so as to improve the future. There is often a behavioral

adjustment that the person can make to bring about a more desirable outcome. Even when there is nothing one can do to prevent a particular event, one can still be pragmatic by adjusting one’s own response to it: People in the path of an oncoming hurricane may be unable to prevent the storm from hitting their homes, but they can still make pragmatic responses by making various local adjustments (e.g., purchasing bottled water). At the very least, one can prepare oneself emotionally for the unavoidable event. Adjusting oneself to external factors has been called secondary control (Rothbaum, Weisz, & Snyder, 1982), which thus signifies it is pragmatic as well (because control is inherently pragmatic).

Pragmatic prospection also tends to invoke a link between the imagined future and one’s action in the present, though this link is not necessary or universal. One can only act in the present, though present behavior can include making plans and decisions regarding future behavior. The ultimate aim of pragmatic prospection is to change behavior in the present based on what will improve wished-for future outcomes. However, it is not necessary that the actions be performed in the present. One can plan now to do something tomorrow that will lead to a desired outcome the following day, or year. Merely fantasizing about an idealized future, without contemplating obstacles and making plans, is not itself pragmatic.

This crucial difference between merely envisioning a desired outcome and actively trying to achieve it has been central to Oettingen’s (2000, 2012) research on mental contrasting. She notes that sometimes people like to imagine happy future scenarios for themselves and are seemingly content with such fantasizing. Indeed, these fantasies seem to provide some pleasure or satisfaction sufficient to reduce the person’s inclination to make hard choices or undertake strenuous action. As she emphasizes, a long tradition in Western and indeed especially American public discourse asserts that thinking positively is the crucial step toward achieving goals. Positive, optimistic thinking has become normatively prescribed, even expected. In Oettingen’s view, this tradition may tempt many to believe that simply thinking about positive outcomes and asserting confidently that they will occur are enough to improve actual outcomes.

Experimental findings cast doubt on the utility of simply thinking positively, however. Oettingen and Mayer (2002) distinguished two kinds of prospective, motivationally relevant thinking: expectations and fantasies. Expectations are judgments of how likely a particular desired future outcome is to happen. Fantasies are simply imagining a desired future outcome. In a series of studies, Oettingen and Mayer found that participants who relied on positive fantasies exhibited less effort, performed worse, and were less likely than others to achieve their goals. In contrast, expectations for positive future outcomes did improve effort and actual performance. In their first study, for example, graduating students who reported frequent fantasies about getting a great job and flourishing in it sent out fewer job applications, received fewer job offers, and had lower salaries over a 2-year period, as compared with students who entertained more sobering thoughts about difficulties they might encounter when transitioning from student to occupational worker. Similar effects were found in romantic relationships, course final examinations, and even surgical contexts.

Why are the positive fantasies detrimental to success? Simply imagining a positive future simulates accomplishment and provides some satisfaction of the desire, and this in turn may reduce

motivation (Kappes, Kappes, & Oettingen, 2015). These pleasant thoughts have been shown to reduce energy, on both physiological and self-report measures (Kappes & Oettingen, 2011), as well as behavioral measures of reduced effort to work toward the goal (Oettingen & Mayer, 2002).

In order to be pragmatically effective, therefore, prospection must contain both of the main heuristic stages. That is, it is first necessary that the person formulate a desired outcome. After all, thinking of what can go wrong is only meaningful in relation to an idea about what could go right. Second, it is necessary that the person moves on from merely imagining an optimal outcome to identifying and mentally experiencing potential obstacles and difficulties, and subsequently planning how to deal with them so as to maximize one's chances of success. Oettingen, Pak, and Schnetter (2001; Kappes, Wendt, Reinelt, & Oettingen, 2013) have shown that both steps are necessary and moreover must be performed in that sequence (i.e., first elaborating the wish for the future, then the elaboration of the obstacle). If people first imagine the hurdles they might encounter before they articulate the goal's outcome and desired future state, their minds seem to cement on the obstacles and problems and people stay stagnant. Conversely, first imagining the desired endpoint enables the positive outcome to become the anchor for subsequent cognitions and behaviors. In addition, people's explicit and implicit energy levels are directed at the desired future state (Oettingen & Cachia, *in press*; Oettingen et al., 2009).

The mental contrasting findings bring us back to the question of whether optimistic distortions are adaptive. Realistic, accurate appraisal would seemingly furnish the most effective basis for making decisions, which means that optimism would be counterproductive and possibly dangerous. Against that view, many have argued that not only optimism but indeed unrealistically positive illusions about the future are adaptive (e.g., Taylor & Brown, 1988). In particular, expecting success can create self-fulfilling prophecies, thereby increasing the chances of real success (Williams, 2010). In other contexts, too, optimism may be beneficial (Carver & Scheier, *in press*). Optimism may help one to make friends (Carver, Kus, & Scheier, 1994). Optimistic leaders attract followers, as indicated by evidence that American presidential elections tend to be won by whichever candidate offers the more optimistic vision about the country's future (Zullow, Oettingen, Peterson, & Seligman, 1988). However, once American presidents were in power, so that hard work rather than promises were necessary to guide the country, positive future thinking predicted comparatively lower economic success (Sevincer, Wagner, Kalvelage, & Oettingen, 2014).

Accordingly, there are various solutions to the question of whether optimism or realism is best. First, when optimism comes in the form of expectancy judgments built on past performance (Bandura, 1997; Taylor, 1989), it can be helpful for effort and success; however, when it comes in the form of sheer positive fantasies and daydreams, it saps energy (Kappes & Oettingen, 2011; Kappes, Oettingen, & Mayer, 2012; Kappes, Schwörer, & Oettingen, 2012; Oettingen & Mayer, 2002). Though such indulging in positive fantasies and daydreams is highly problematic, when these fantasies are complemented with a realistic view of the obstacles in the way, these fantasies stir beneficial behavior change.

Perhaps the most elegant answer to the question of whether optimism or pessimism is best is the notion that people can switch back and forth as is most useful. Optimism feels good and sustains effort—but a more pessimistic outlook is useful when figuring out what needs overcoming. In the end, realism is best when decisions must be made, so the optimal solution would be to be realistic only when making decisions. Gollwitzer and Kinney (1989) and Taylor and Gollwitzer (1995) concluded that people mostly sustain positive, optimistic illusions, as these can increase confidence and sustain effort—but when a decision has to be made, people rather abruptly shed those distortions and assess the options in a clear-eyed manner. After the decision is made, they seem to revert to their optimism, which again is helpful while working toward the chosen goal.

### Pervasiveness of Pragmatic Prospection

The pervasiveness of pragmatic prospection is evident even in thoughts about the past. Baumeister, Hofmann, and Vohs (2015) conducted an experience sampling study to investigate the content and time dimensions of everyday thoughts. There were far more thoughts about the future than the past. Moreover, when people did say they were thinking about the past, the most common category they reported was “implications of the past for the future.” Replaying the past for its own sake was not entirely absent but quite rare. Apparently, when people think about the past, it is mostly to assist them in preparing for the future. The past cannot be changed—but one can use information and lessons from the past to make pragmatic improvements in the future (which can still be changed).

Thoughts about the future also exhibited patterns indicative of pragmatism. Baumeister et al. (2015) found that most thoughts of the future focused on the short run, such as later today, tomorrow, and in the coming week. There were plenty that extended even farther into the future, but these frequently coincided with also thinking about the present. (In that study, past, present, and future were presented as separate questions about each thought, rather than as a forced choice; therefore people could indicate any, all, or none of those three categories of time.) Thoughts about the future were in fact about equally divided between “pure” thoughts about only the future and mixed-time thoughts that evoked both present and future.

The Zeigarnik effect also points to the pragmatic utility of prospection, though whether it is pragmatic has been debated. Zeigarnik's (1927) original finding indicated that thoughts about unfinished goals and tasks intrude spontaneously into conscious thought (see also Klinger, 1975). Thus, it is inherently prospective. Recent evidence suggests that the purpose of the Zeigarnik effect is not necessarily to insist that goal pursuit resume immediately but rather to *make a plan*. Masicampo and Baumeister (2011) showed that students experienced spontaneously intrusive thoughts about their unfulfilled goals—but these subsided if students made plans in the form of implementation intentions (Gollwitzer, 1999), even though no actual work was done or progress made. The function of the Zeigarnik effect is thus satisfied once there is an implementation intention.

Perhaps the most compelling evidence for the pragmatic nature of prospection is to be found in the prevalence of planning. Given the importance of planning, we shall devote a separate section to

it. Prior to that, it is however necessary to articulate several other basic aspects of the theory.

### Assuming Multiple Possibilities Exist

A basic assumption of the pragmatic prospection theory is that there is a key difference between future and past: The past cannot be changed but the future can. The narrative of the past can be reinterpreted, but the events themselves are beyond objective alteration, whereas the future can objectively be shaped in many different ways. William James described the process of choice thus: “of two mutually exclusive trains of future fact . . . one shall forevermore become impossible, while the other shall become reality . . .” (James, 1890, p. 431). For the pragmatic present, the relevance of the past comes from distilling useful lessons and information to assist in guiding the future. The actor in the present moment uses this information to make choices and perform other actions that will lead the story toward the desired future outcome.

Pragmatic prospection regards the future as a set of options and possibilities rather than as a linear unfolding of a script. There are relatively few certainties and many possibilities, risks, probabilities, and unknowns. Indeed, a survey of social psychology’s independent variables concluded that one of the five basic elements of situational structure is a matrix of possibilities (Baumeister & Tice, 1985). That is, a large part of social psychology studies situations as consisting of things that might but might not happen, as in research on threat, opportunity, worry, negotiation, risk, and success versus failure (Reis, 2008). Thinking about the future is pragmatic and adaptive insofar as it can prepare and improve future outcomes. The brain uses information from the past to extrapolate into the future to guide itself to a better future. The very concept of “better” suggests that a less pleasing alternative is possible, and thus the multiplicity of possibilities is assumed.

Viewing prospection as pragmatic means that prospective thinking is less concerned with knowing what will definitely happen than with predicting possibilities and contingencies. That is, it may be useful to predict not what is inevitable but what the probabilistic structure of the matrix of possibilities is. Two kinds of crossroads are particularly relevant. First, there are decisions (choice points), at which the person must select among multiple possible options. Second, there are performance demands, which by definition offer the possibility of both success and failure, or a range of possible outcomes with varying degrees of success. Prospective thought thus seeks not to predict the final outcome but rather to know what choice points and performance demands will confront oneself with multiple options. Preparing for these so as to be able to produce the best outcome is essentially pragmatic.

### Backward Causality and Meaning

Can the future cause the present? This question goes to the causal function of prospection. Assuming that physical causality only moves forward in time, direct or physical causation by the future would be impossible. However, living things with brains can form mental representations of the future. Insofar as these representations are based on the objective future (e.g., tomorrow is Monday), it is fair to say that these processes do incorporate the future into the causation of current behavior.

Thus, the backward link from future to present does not mean that the future physically causes the present. Rather, the connec-

tion between the present and the distant future, by which the future influences the present, consists of meaning.

Meaning is the main alternative to physical relationships. Non-physical connections such as symbolism, abstract representation, and other meanings can stretch across great removes in both physical space and time. Brains (especially cultural brains) use these nonphysical connections to construct mental representations to serve as a guide for action.

Ample evidence supports the importance of meaning in prospective thought. Baumeister, Vohs, Aaker, and Garbinsky (2013) found that ratings of the meaningfulness of life correlated with how much people mentally linked the past, present, and future (unlike happiness, which was correlated positively with thinking about the present only). The experience sampling data by Baumeister et al. (2015) provided more thorough evidence, because those included ratings of the meaningfulness of particular thoughts, not just of life in general. The meaningfulness of thoughts conformed to a J-shaped function. Thoughts invoking the future were the most meaningful, and the farther into the future they extended, the more meaningful they were. Thoughts about the past were also highly meaningful (and the more remote the past, the more meaningful), but in general the future was more meaningful than the past. Thoughts confined to the present had the lowest average level of meaning.

Another key finding indicated that linking “time zones” (past, present, or future) increased meaning. Baumeister et al. (2015) coded each thought for whether the participant indicated a single time zone or indicated that it referred to two or three of those. Thoughts that incorporated more than one were rated as more meaningful overall than thoughts that referred to just one time zone. The most common combination involved present and future, and so the findings indicate that people rated their thoughts highly meaningful when the thoughts linked present to future. Further analyses revealed that meaning increased steadily as more time zones were invoked: The least meaningful thoughts were those that lacked any time frame, and the most meaningful were the ones that combined past, present, and future.

### Narrative and Propositional Knowledge

Thus far we have argued that prospection involves the use of meaning to connect the possible futures to acting in the present. The future does not have a direct, physical, causal influence on the present in the way Aristotle imagined. Rather, teleology (causation of the present by the future) is mediated by meaningful cognitions, and so it is limited to cases in which individuals can think about the future, using meaning to connect different points in time, and can then use those cognitions to guide present actions. This brings up the broader issue of what sort of thinking, thus what kind of meaning, is involved.

Knowledge, or information—essential forms of meaning—can be sorted into two categories that have quite different structures and properties. *Propositional knowledge* consists of general principles, facts, and abstract relationships. In contrast, *narrative knowledge* consists of stories. Narrative information is thus generally more concrete than propositional knowledge. Although both may involve causation, a story describes one event leading to another and then in turn to another on a specific occasion, whereas propositional knowledge describes general relationships such as

that one type of event usually causes another type to occur. For example, a revenge story might relate how the protagonist was wronged by someone and subsequently got even by aggressing against the wrongdoer. In contrast, a propositional statement about revenge could assert that being wronged causes people to become aggressive toward the transgressor.

Narrative thought is inherently temporal, whereas propositional thinking is mostly atemporal. Narratives (stories) are meaningful sequences of events, and the sequencing is *essentially* a function of time. Without time, there are no temporal sequences, and hence no stories. The events are related to each other in a particular sequence, and a different sequence would mean a different (probably incoherent or implausible) story. Moreover, many stories are situated at a very specific point in time (more precisely, to a sequence of points in time). In contrast, the abstract generalizations that constitute propositional knowledge are presumed to exist independently of any specific time. (Some statements about temporal facts are propositional, such as many predictions that take the form of expectancy judgments.)

Narrative structure is at least as relevant as propositional information to the pragmatic guidance of action. To get from the present to a desired future outcome requires a sequence of actions and events, meaningfully and often causally related to each other. Plans have narrative structure (see below).

Human life is experienced in narrative form, in which one's present actions constitute part of a story extending into past and future. It is unlikely that other animals experience life in such a narrative form, beyond a minimal degree of brief, compact sequences of events (e.g., a chase). An authoritative review of the literature by Roberts (2002) concluded that animals seem to be "stuck in time," in the sense that their experience of life is exclusively of the present.

In contrast, human beings construct narratives to make sense of their lives. Some of these are brief, such as accounts of specific events. Others are grander, extending to understanding one's entire life as a (somewhat) coherent narrative, possibly embedded in even greater temporal contexts such as religious and political developments. By the age of 12, the average human being is able to tell a story of his or her life that begins with birth and is organized on the basis of temporal sequences, thus integrating the events of the life into a coherent narrative (Habermas & de Silveira, 2008).

The human ability to connect present to past and future, sometimes across years, complicates and enriches human life. It makes it possible for people to sustain effort on tasks even when disinclined, and to resume work after interruptions. It enables the present to draw more meaning from past and future, such as celebrating ancient events or working toward future ideals. Of particular importance is the gain in ability to make choices in the present based on events in the distant past and possible events in the distant future.

Thus, crucially, prospection adds meaning to the present, insofar as present actions are seen as part of a narrative sequence of events leading toward a desired future outcome (the end of a particular story). The implication for pragmatic prospection theory is that the construction of meaningful narratives connecting future to present can improve present decision-making and long-term outcomes. Although propositional information can be helpful, pragmatic prospection is primarily narrative.

## Social Life and Time

The previous section argued that humans may be unique, or nearly so, in their ability to construct mental narratives that link across time and extend far into the future (e.g., Suddendorf, 2013). This capacity likely evolved in connection with adaptations for social life. The complex form of consciousness that humans have (unlike the simpler forms, which other animals seem to have) is intricately linked to constructing meaningful sequences of thought, and its functions seem primarily sociocultural (Baumeister & Masicampo, 2010).

The use of meaning to mentally link events across time into coherent narratives transformed human life partly by transforming social life. This is inherent in the structure of communication. Some animals communicate, and some primates have been shown to use gestures to communicate (Byrne, 2015). These communications consist mainly of single gestures designed to influence another. Humans however evolved the ability to make sentences and to share information—by conveying gestures and words sequentially and in turn creating broader meaningful units of communication. If primate-style commands and requests were the first gestures, telling stories may have been next, as indicated by the fact that humans everywhere on earth and presumably far back in time have told stories. Even early cave drawings are now understood as having been intended as narratives (e.g., Azema & Rivere, 2012; Hurlburt & Voas, 2011). We speculate that as humans began to tell each other stories, they assisted each other in constructing an extended sense of time, which set humans apart from other animals.

Some evidence for the social nature of temporality, even among modern citizens, emerged from the experience sampling study on thoughts and time (Baumeister, Hofmann, & Vohs, 2015). It included a query as to whether one was alone or with others. Time or its absence, meanwhile, had eight categories: past, present, and future, the three combinations of any two of those, plus all of the above, and none. The seven categories invoking time were all more common when the person was with others than when alone. The sole reversal was thoughts that had no time aspect: Such thoughts were more common when the person was alone than when with others. Thus, social life occurs in time. When alone, people's thoughts drift outside of time, but interacting with others emphasizes time.

## Role of Emotion in Prospective Simulation

Emotion is also useful for prospection. Although one might assume that emotions focus on the present and the very recent past (i.e., what just happened), that does not appear correct, and in fact Baumeister et al. (2015) found that negative emotions were most common when people were thinking about the relatively distant future and relatively distant past (though sometimes relating those different times to the present). Positive emotion was higher when thoughts focused on the present than on past or future, which might reflect a tendency to savor enjoyable present moments.

Emotion is crucial for evaluating events. Basic affect offers a simple positive-or-negative evaluation (Russell, 2003). Without emotion, it is difficult to evaluate possibilities and hence make decisions. Damasio (1994) reported cases of individuals who lacked emotional responding due to brain abnormalities such as due to injury. Some were able to conduct lengthy, intelligent

analyses of various decision options but still could not manage to choose among them.

Our emotion analysis builds on the feedback theory put forward by Baumeister, Vohs, DeWall, and Zhang (2007). Briefly, this view rejected the widespread assumption that the basic function of emotion is to cause adaptive behaviors in the immediate present (see also Schwarz & Clore, 1996, 2003), and indeed a recent meta-analysis of social psychology publications found that emotions are widely tested for being the direct cause of behavior—but are usually *unsuccessful* in that role (DeWall, Baumeister, Chester, & Bushman, in press). Instead of seeing emotions as designed to cause behavior, Baumeister et al. (2007) proposed that full-blown emotions drive and inform cognitive processing of recent events, so one can extract the appropriate lessons (thereby facilitating learning how to behave in a complex social environment). As an example, relief stemming from escaping an undesirable outcome produced counterfactual thoughts about how one could avoid getting that close to the outcome in the future (Sweeny & Vohs, 2012). Relief stimulates reflection presumably to prompt people to consider what lessons to draw for the future.

Moreover, some emotion is overtly prospective: One learns to anticipate that certain courses of action will lead to outcomes that cause one to feel particular emotions. This enables people to make more accurate choices and plans in an effort to reach outcomes that bring about positive emotions and to avoid outcomes that lead to negative emotions. Following Damasio (1994), Baumeister et al. (2007) proposed that full-blown conscious emotions leave traces that can be retrieved from memory in the form of brief, automatic, affective responses (chiefly, just good or bad) and thus can guide behavior or inform simulations. Again, in order to reject a plan that one realizes will likely end in tears, it is not necessary to actually shed tears in the present moment while contemplating it. A twinge of anticipated sadness is enough.

Emotion, as evaluative feeling, can be relevant to each stage of prospection. The first stage involves articulating what one would desire to occur. A future outcome's desirability is evaluated by automatic affect. For example, the person has a sense that he or she would be happy if a particular event were to occur in the future. Emotion is also helpful for the later steps in prospection. Obstacles are recognized in part by negative emotional tags (Kappes et al., 2013). The decision about whether to embrace a desired future and to work toward it depends in part on its perceived feasibility, but also on how one feels about the project after one has considered the obstacles. Moreover, experimental studies indicate that emotional biases in decision making, including biases that produce self-defeating actions, are mediated by failing to consider the pluses and minuses of deciding in a certain direction. Making people pause briefly to consider both pluses and minuses eliminated the destructive impact of anger on decision making (Leith & Baumeister, 1996).

Further, emotion may assist in planning, as the next section will elucidate. In all these cases, however, it is not so much a full-blown emotion that is involved, but rather the relatively small and automatic twinges of affect that signify whether something seems good or bad.

Strictly speaking, there are two different (but likely related) ways in which emotion is involved in prospection. One is prospection about emotion, as in anticipating how one will feel. The other is current emotion in reaction to prospective thoughts. As an

example of the former, one might anticipate that “If I do this, I will be sorry.” One does not feel sorry now but anticipates feeling that way if a particular course of action is followed. As examples of the latter, one can feel afraid when thinking about tomorrow’s surgery or battle, or happy about the impending reunion with loved ones. Still, these two overlap somewhat. The happiness about the impending reunion is in some sense a preview of the happiness one anticipates feeling when actually in each other’s presence. Likewise, the anticipation of feeling guilty or regretful is often accompanied by a small dose of such emotion, a twinge of affect. Either way, emotion plays a useful, even vital role in evaluating possibilities and plans.

### Planning as Pragmatic Prospection

Two final sections complete our theoretical exposition. This one focuses on the most common and most important form of pragmatic prospection, namely planning. Planning combines and exemplifies the various components of our theory, but not all pragmatic prospection involves planning, as the next (final) section will elucidate.

Much human behavior is causally mediated by making and then carrying out plans. Planning dominates prospective thinking. In the Baumeister et al. (2015) investigation, most (75%) thoughts about the future involved planning.

### Simple and Complex Plans

Planning is a set of cognitions specifying actions to reach a goal. In our view, a plan has a narrative structure in that one step leads to the next, with an ending envisioned. The steps are designed to cause a desired outcome.

The most-studied type of planning is forming implementation intentions (Gollwitzer, 1999, 2014; Gollwitzer & Sheeran, 2006). Implementation intentions have a simple if–then or when–then structure. They specify that in response to a particular stimulus (if or when it is encountered), the person will perform a specific goal-directed behavior. Complex plans, such as for a vacation trip, can be viewed as sequences of these, in which in some cases the outcome of one implementation intention leads to activating another one. Prospective thought may also come in form of process simulations, which are mental simulations of the process leading to an envisioned future outcome, or outcome simulations, which consist of imagining oneself experiencing the outcome as in outcome simulations. Taylor, Pham, Rivkin, and Armor (1998) found that process simulations improved performance (such as for students taking an exam) substantially better than outcome simulations, partly because they contained plans that organized and increased preparations (studying).

### Planning is Pragmatic

Plans specify a series of actions designed to produce a desired future outcome. Abundant evidence indicates the efficacy of implementation intentions: Researchers have found that making such if–then plans to accomplish things on particular occasions led to much better performance than controls—even controls who had the same general goals and values but did not articulate implementation intentions (Gollwitzer, 1999, 2014; Gollwitzer & Sheeran, 2006).

The pragmatic usefulness of other forms of planning has been documented by several sources. Ariely and Wertenbroch (2002) randomly assigned students to structure their work according to externally imposed plans (a sequence of deadlines for relevant steps), their own self-generated plans, or a control condition in which only the final project deadline was stipulated. The externally imposed plans (which may have been superior plans) yielded the best results, followed by the self-generated plans. Students in both of these conditions outperformed students in the control condition, where no mention was made of planning.

Turning from schoolwork to money, planning again seems beneficial. Lynch, Netemeyer, Spiller, and Zammit (2010) used a brief trait measure of propensity to plan. They showed that it was positively correlated with credit scores, such that avid planners had superior credit (and could therefore borrow more cheaply).

Even children benefit from plans. Four-year-old children who tried to work on a boring primary task involving putting pegs onto a board while a talking clown attempted to get them to play with him did much better at sticking to their job (and hence performed better) if they were given an if-then plan for how to deal with the distractions, as compared with control children who had no plan (Patterson & Mischel, 1976).

As for planning in organizations, a meta-analysis of nearly 2,500 organizations revealed that planning led to similar improvements in firm profits, shareholder profits, and sales growth (Boyd, 1991). More complex planning led to better group performance, as shown by a meta-analysis of 13 studies (Lechler, 1997; as cited in Zwickel, Pathak, Singh, & Ahmed, 2014). Businesses that made plans extending at least 5 years into the future, and identifying areas of opportunities or challenges, yielded the best stock market returns 10 years later (Rhyne, 1986). These businesses bested even firms that were equally future-oriented but did not consider new ventures.

To be sure, many plans, even quite detailed ones, do not lead to desired outcomes, and especially not within the planned time frame. The so-called *planning fallacy* refers to a well-documented tendency for goal pursuit to take more time and other resources than the original plan called for (Buehler, Griffin, & Ross, 1994). Thus, planning can still be pragmatic and beneficial even when the plans have flaws.

One reason for the planning fallacy is that planners fail to anticipate the full range of possibilities, including what can go wrong and what additional steps may be needed. That brings us to the next feature of our theory, the assumption of multiple possibilities.

### Assuming Multiple Possibilities

Planning is also based on recognizing the future as having multiple possible outcomes. The purpose of the plan is to bring about a more desirable outcome, as opposed to others that would ensue if the plan were not followed. To the extent that outcomes are inevitable and uncontrollable, we hypothesize that planning would be reduced. Moreover, complex plans may contain contingencies, so that instead of simply specifying a sequence of actions, the plan is built with branches: First do X, then if A is encountered do Y, but if A is not there, do Z.

Just because the future is indeterminate does not mean that there are limitless opportunities to perform a desired behavior. Planning is especially important for cases when the window of opportunity to engage in the desired response is relatively narrow (Dholakia &

Bagozzi, 2003). One study of flu vaccinations found that having people write down the date and time of their intended visit to the clinic was superior to a neutral control condition where people received personalized contact information about their local clinic, and this was particularly true when the clinic was open only 1 day per week (Milkman, Beshears, Choi, Laibson, & Madrian, 2011). Thus, planning is extra helpful in the context of external constraints and contingencies.

The multiplicity of possibilities is especially salient when business conditions change rapidly, and one line of conventional wisdom has been that under such circumstances of rapid change, planning is useless and pointless. Recent evidence contradicts this, however, and affirms the value of planning even in unstable times. A study of 656 firms showed that the value of planning was heightened when there was much change in business conditions (Brews & Hunt, 1999). Unstable firms' plans that were formal, specific, and flexible allowed them to remain viable in difficult situations. A meta-analysis reached a similar conclusion about the value of planning when change, instability, and uncertainty are high (Miller & Cardinal, 1994).

Evidence for the importance of indeterminacy and flexibility was provided in early studies on planning. Kirschenbaum, Humphrey, and Malett (1981; also Kirschenbaum, Tomarken, & Ordman, 1982) randomly assigned students to make plans for their studies. Vague plans were not much help, but highly specific ones also were less than optimal. The best results came from making plans that were moderately specific, because these were more flexible. The detailed plans often ran into trouble because unexpected delays or obstacles arose, which thus quickly derailed progress, because the student could not keep to the plan. Thus, plans that allowed for multiple different possible versions of the future were more effective than more specific, rigid plans—similar to the findings with organizations (Brews & Hunt, 1999).

It may seem that the superiority of moderately flexible plans contradicts the well-documented efficacy of implementation intentions (Gollwitzer, 1999, 2014; Gollwitzer & Sheeran, 2006). However, implementation intentions specifying specific situations are most useful for single, specific actions. When a plan has to involve multiple steps, making an allowance for unexpected developments may be superior, because it allowed the plan to be sustained even when problems and delays arose. Having some flexibility in the plan enabled people to overcome the planning fallacy, because they could adjust their schedule when unexpected problems, delays, or other developments interfered with progress.

### Meaning and Teleology

Plans that are more meaningful should have bigger effects, given our emphasis on meaning as mediating backward causation. Consistent with that view, plans that are in line with people's prized values are better at getting the desired result than other plans (Koestner, Lekes, Powers, & Chicoine, 2002). Similarly, there is a growing body of evidence that implementation intentions that are formed after engaging in mental contrasting are more meaningful (more integrative) and more effective for reaching goals than forming implementation intentions alone (Adriaanse et al., 2010; Kirk, Oettingen, & Gollwitzer, 2013; Oettingen, Kappes, Guttenberg, & Gollwitzer, 2015). The mental contrasting contributes the teleological structure, in the sense of commitment to an

overarching goal in the future. It also boosts and clarifies the meaning, by elaborating the obstacles and linking together steps to overcome them while moving toward the overarching goal. Likewise, experience sampling data found that plans were rated as highly meaningful, indeed even more meaningful than other thoughts about the future (Baumeister et al., 2015).

Plans exemplify the use of meaningful connections to enable the present to be guided by the future. We assume most plan making begins by specifying the desired outcome. The planner then mentally works backward from the endpoint to the starting point, which is earlier in time. Plans obviously consist of meaning, which connects the various steps to the intended goal. When the person enacts the steps in the plan, then, he or she is using meaning to guide behavior and enabling the future outcome to dictate physical actions.

### Narrative and Propositional Knowledge

Plans have a narrative structure. Indeed, in an important sense, a plan is a story about the future. A plan delineates a series of steps that one should take in order to obtain a desired outcome, just as many a story describes a sequence of events leading to a happy ending. To be sure, propositional knowledge can be quite helpful in planning. Knowing relevant facts and contingencies can greatly improve the effectiveness of planning.

A creative method for examining the distinction between narrative and propositional inputs into plans was recently developed by Sellier and Avnet (2014). They noted that some people plan to perform actions based on propositional cues such as the clock (e.g., tonight at 7:30 we will attend the concert). Other planned actions are performed based on the narrative sequence of actions, so they are performed whenever the previous step has been completed (e.g., analyze the data after they are all collected, then write the paper). Participants had higher feelings of control and higher enjoyment when their plans were driven by the narrative sequence rather than the propositional cues such as the clock.

### Social Life and Time

Prospection is often social and cultural. Culture and society have mapped out the future, and so it is possible to make specific plans and purchase reservations for specific events that are weeks, months, or even years in advance. The use of meaningful thought to construct plans is learned via social interaction. Plans are typically constructed in language, which is a cultural tool for conveying meaning, and they involve social life, including the opportunities and constraints that society presents. Many plans are made collectively, often after discussion and compromise.

### Two Stages in Prospection

Following Oettingen (1996, 2012, 2014), we have associated planning with the later stage in prospection. Nonetheless, the first stage is relevant, even indispensable. Without the initial idea of a desired outcome, there is nothing to plan for.

We noted that the first stage of prospection tends to be optimistic, whereas the second stage eschews optimism and adopts pessimism in seeking to consider obstacles of reality, based on what

might stand in the way or can go wrong. The planning fallacy is evidence that plans may suffer from optimistic distortions. People tend to make plans that are unrealistically optimistic about how long it will take to perform tasks and reach goals.

Possibly the planning fallacy suggests that the second step in prospection is influenced by an anchoring and adjustment process, such that the first step optimistically selects a goal and the second step adjusts it to be more pragmatically viable—but the adjustment is insufficient, as found in the majority of research on anchoring and adjustment (Epley & Gilovich, 2005; Mussweiler & Strack, 1999; Tversky & Kahneman, 1974). Consistent with that view, research by Oettingen and colleagues has found that when people simply formulate their fantasy of an ideal future outcome, without going through the more reality-based and pragmatic consideration of obstacles and difficulties, success rates are quite low (e.g., Oettingen, 2012). In terms of the anchoring and adjustment heuristic, this suggests that the anchor is reaching one's desired future speedily and without considerable effort. Making a plan is a process that may be tainted by that optimistic color. People often make plans without giving due allowance for obstacles, pitfalls, problems, and so forth. The fantasy is to have what one wants, quickly and easily. The plan adjusts from that, but it remains anchored to the fantasy.

The “fallacy” aspect of the planning fallacy may arise for several reasons. One is that people simply overestimate their ability to achieve things rapidly and smoothly, consistent with people's general tendencies to overestimate their positive capabilities (Taylor & Brown, 1988). Another is that people fail to anticipate all the steps needed to reach the goal, especially if difficulties arise. Many plans also involve interacting with social structures such as bureaucracies, and these often produce unforeseen delays.

### Emotion

Planning may seem dispassionately cognitive and unemotional, but in fact we think that emotion often is a crucial part of the process. Just as affect enables one to judge the difference between a good and a bad story, affective reactions likely influence the decisions about what is a good versus a bad plan. People whose emotional reactions are impaired have difficulty making plans (Damasio, 1994). As one moves from the initial formulation of a wished-for outcome to later steps, emotion plays a key role, such as helping to decide whether the obstacles (themselves identified by negative affective tags, Kappes et al., 2013) are so formidable that the plan is feasible or not, and formulating a supposedly realistic sequence of steps to achieve that goal. Some steps, for example, might promise to be highly efficacious but would be immoral, dangerous, or otherwise unacceptable.

As evolution conferred on the human brain the ability to string together mental representations of action sequences and project into the future, it may have refined the emotion system to work with it. The mind became able to anticipate future emotions and to use emotions to evaluate competing plans. A recent meta-analysis found that anticipated emotion is more effective and adaptive for driving behavior than currently experienced emotion (DeWall, Baumeister, Chester, & Bushman, in press).

As we have said, a plan is a narrative sequence of possible future events, and it is generally based on the idea that multiple future

outcomes are possible. All these are key assumptions of the pragmatic approach. A plan is only worth making because there could be other plans, leading to the same or perhaps to other outcomes. How, then, does one decide which plan to choose? Emotional reactions to the anticipated outcomes of the competing plans may be the decisive guides. The plan that seems likely to end with feeling sorry should be rejected in favor of other plans with better emotional outcomes. Being able to anticipate regrets and other emotional contingencies is helpful for the optimal planning process.

### Beyond Planning: Other Pragmatic Prospecction

Although we featured planning as a central example of pragmatic prospecction, there are other examples. [Shepperd, Findley-Klein, Kwavnick, Walker, and Perez \(2000\)](#) showed that people prepare themselves psychologically for possible bad news by shifting toward overly pessimistic expectations, which may serve an emotion-regulating function. That is, unexpected bad news is more upsetting than expected bad news, and so by cultivating pessimistic expectations, one prevents the worst outcome (i.e., unexpected bad news). In studies of people awaiting bad news, [Sweeny and Falkenstein \(2015\)](#) showed that feeling anxiety during the anticipation period seems to reduce feeling dismayed when the bad news arrives, indicating there may be a tradeoff between present and future dysphoria. [Taylor and Shepperd \(1998\)](#) nicely showed the strategic nature of pessimistic anticipation by giving participants an ostensible test that could potentially reveal a disastrous and incurable medical vulnerability. Their risk assessments were measured initially, when they thought they would not get the results for several weeks, and then again when they were told the results would be available momentarily. Participants who expected to get the test results in a few minutes were significantly more pessimistic about their results than when they had expected the results not to be available for several weeks. The duration of wait for the results is logically irrelevant to their content, so the shift toward pessimism when results were imminent suggests that people were bracing for possible bad news.

Similar benefits were documented among elderly persons by [Cheng, Fung, and Chan \(2009\)](#). They showed that old people who anticipated being less happy in the future ended up happier than those who were more optimistic about the future. The authors proposed that persons highly confident about the future failed to prepare for the upcoming and partly inevitable declines associated with growing old. The more negative outlooks motivated people to prepare for problems, and they were less disappointed when bad things did occur. Again, these prospective thoughts become pragmatic insofar as they facilitate the person's cognitive, behavioral, and emotional adjustment to upcoming events. [Lang, Weiss, Gerstorf, and Wagner \(2013\)](#) showed that these pessimistic forecasts of future happiness improved health and longevity among the elderly.

A pessimistic bias can also motivate people to perform well. Defensive pessimism ([Norem & Cantor, 1986](#)) uses a strategy of predicting impending disaster to motivate oneself to work extra hard to prevent it. This approach rejects the idea that accurate prediction is most pragmatically useful. By using this strategy, a defensive pessimist can go through life achieving a series of successes by dint of superior effort, although at some cost (i.e.,

doing so amid a pervasive anxiety over imminent doom). Moreover, the anxiety is managed by keeping expectations low, so that it does not become debilitating—thus, fortuitously, the anxiety motivates them to do better while not impairing actual performance. The pragmatic value of that was confirmed by [Elliot and Church \(2003\)](#) who distinguished between defensive pessimism and self-handicapping (creating obstacles to one's own performance so as to have an excuse for possible failure). Self-handicapping did actually impair performance (including students' grade point average), whereas defensive pessimism did not.

A review entitled simply "Forsaking Optimism" concluded that the general pattern of optimism found in much previous work has boundary conditions, and that many people do in fact shift toward pessimism when feedback is imminent, especially when it is relevant to self and contains the possibility of a seriously bad outcome ([Carroll, Sweeny, & Shepperd, 2006](#)). The conclusion was that these shifts facilitate preparedness, especially for bad outcomes. These shifts include emotional preparedness to cushion the blow and minimize the aversive impact of unexpected bad outcomes (by making them expected), as well as practical (behavioral) preparation.

Another form of nonplanning prospecction that has motivational implications was shown by [Campbell and Warren \(2015\)](#). They demonstrated that people have a "progress bias," overestimating the impact of actions that advance toward goals relative to actions that hamper goal pursuit. This contributes to underestimating how much more may be needed to reach goals—and as a result encourages people to resume or continue working toward goals (because the goal seems easy to reach). They showed that the progress bias can backfire, if people put in less effort than is needed because they overestimate their progress and underestimate how much still needs to be done. Still, the pattern is likely there because it is pragmatically adaptive for people to be overly confident that they can reach their goals with additional work. To be sure, that strategy is the opposite of defensive pessimism, but the latter only appeals to certain personality types, whereas the former is apparently more widespread. Some people may well be motivated by anticipating imminent, catastrophic failure, whereas others are motivated by anticipating imminent success.

The pragmatic aspect of such pessimistic shifts was supported by subsequent work. [Sweeny and Shepperd \(2007\)](#) confirmed that people show these shifts only when predicting their own outcomes and not those for other people, even in similar circumstances. Thus, only when the outcome is pragmatically relevant to self do these pessimistic shifts materialize. [Sweeny, Reynolds, Falkenstein, Andrews, and Dooley \(2015\)](#) showed that the pessimistic shift increases motivation to take practical steps to deal with the bad outcome. In one of their studies, for example, law students who failed an important exam that enables them to practice law were more motivated to work harder and try again insofar as they had made the pessimistic shifts. More resolutely optimistic students who failed were more devastated by the failure and were less inclined to take steps to try again.

Indeed, recent work by [Tenney, Logg, and Moore \(2015\)](#) has asserted that the widespread belief in the benefits of optimism may have been exaggerated. A series of experiments showed that while people thought that adopting an optimistic outlook would improve performance, in fact optimism made no difference. More generally, they suggest, optimism may predict success without causing

it. If all information were perfectly accurate, it would be rational to expect optimistic people to outperform pessimistic ones. (Hence perhaps the preference for optimistic leaders, as covered earlier.) Given this, however, many people, and especially candidates seeking leadership positions, may be tempted to exaggerate their optimism, in order to gain the confidence and trust of others. In these cases, prospective thoughts have pragmatic utility apart from making plans.

Contemplating the future can motivate people to make better choices in the present. Cheng, Shein, and Chiou (2012) showed that after participants were instructed to think about their future life, as opposed to their life as it is now, they were better able to choose larger delayed rewards instead of favoring immediate gratification.

The idea of motivational effects of prospection can help to explain the value of prediction—and even wrong predictions. Miloyan and Suddendorf (2015) noted the widespread evidence that people make mistakes when predicting their future emotions. They provided evidence that these exaggerated predictions of future emotional states often motivated people to work harder and make better decisions than if they had less positive predictions of their future feelings.

### Discussion

We have proposed a theory of pragmatic prospection. It begins by proposing that the basic reason that people think about the future is not for the sake of pure prediction but rather to guide actions toward desirable outcomes (hence the pragmatic designation). Thinking about the future evolved less to forecast “What is going to happen?” than to identify “What do I want?” The first step is overtly positive and optimistic, and although later steps lean toward pessimism and realism they may remain anchored to the initially optimistic forecast, thereby suffusing plans with optimistic fallacies. Among other benefits, this model permits explanation of both highly optimistic forecasts about the future and cautious, risk-averse tendencies that sometimes arise when people think about the future.

Pragmatism is about guiding action toward desired future outcomes. Hence it typically begins with some mental simulation about what those desired outcomes would be. The first stage is thus idealistic and optimistic. A second stage, however, involves thinking about how to get from the present to that desired future, and that requires anticipating possible problems, obstacles, and other requirements. The second stage is therefore cautious and even pessimistic.

The simple notion that prospective thought is inherently pragmatic has further implications. One concerns how people imagine the future. Rather than thinking of it as the unfolding of a fixed script, as would be conducive to an emphasis on prediction, people seem to think of it as a matrix of competing, often incompatible possibilities. The perennial view that the future is in some sense already inevitable (and therefore subject to be known in advance) does not mesh well with how people actually conceptualize the future in terms of contingencies, options, and other possibilities.

Another assumption is that the future can have causal force in the present, thus constituting a form of teleological causation. We do not assume that causality extends backward in time in any physical sense. Rather, brains living in a cultural society can

represent the future and use those mental representations to guide current action. The pathway back from the future to the present depends on meaning, not physical events, and so pragmatic prospection emphasizes the highly meaningful aspect of contemplating the future.

In terms of the type of meaningful thought involved in thinking about the future, we suggested that narrative thought is more central and fundamental than propositional. People understand their lives as sequences of meaningfully interrelated events extending from the past through the present and into the future. That is, the future is understood as an extension of the ongoing story that includes the present. Specific future events are understood in the context of the ongoing narrative.

Pragmatic prospection theory also assigns a vital role to emotion, insofar as mental simulations of possible futures must be evaluated in order to make choices, and affective responses to these simulations provide decisive guidance. It also assumes that the future is socially and culturally constructed, and how to think about it is culturally learned—so only a fully socialized member of a cultural society can make full use of the human powers of prospection. Indeed, adult human social life is heavily situated in time, and so interaction with others underpins the role of time in human experience.

### Directions for Future Research

Researchers interested in how people think about the future have traditionally focused on expectancies and predictions. We admire that work but wish to suggest complementing it with studies on the pragmatic aspects of prospection. One hypothesis deriving from the pragmatic view is that people mainly think about the future when, and to the extent that, they can do something to change it. Prediction is always possible, whereas pragmatic response is only sometimes possible. Put another way, one can always ask research participants to make predictions, but outside the lab, we hypothesize that people mainly engage in prospection when it has pragmatic import.

Studies of prediction generally ask people to pick the most likely future event or to specify the odds of it happening. The focus is thus on future events. A pragmatic prospection approach would suggest that instead of predicting events, people seek to predict choice points and other instances in which multiple outcomes are possible (and they can influence which outcome is realized). Viewing the future as a matrix of options and choice points suggests a radically different paradigm, as opposed to seeing it as an unfolding sequence of events. More generally, research could test our hypotheses that pragmatic prospection is about multiple possibilities—and also tends to have narrative structure, in contrast to predictions, which are mostly propositional.

Our two-stage model could be tested. If the sequence is correct, then initial and rapid responses should tend to be optimistic, whereas more delayed ones will be realistic and/or pessimistic. These may correspond to automatic optimism and deliberate, controlled pessimism. (Undoubtedly, though, automatization enables some people to have automatic pessimistic responses.)

Planning also deserves more research attention. Beyond basic fallacies of planning, research may profitably investigate when and how people make plans. Different forms and styles of planning can be compared. For example, Fernbach, Kan, and Lynch (2014)

distinguished two kinds of planning when resources are inadequate: efficiency plans, which seek to do more with less, and prioritization planning, which designates some endeavors to be sacrificed. Collective planning may differ in theoretically interesting ways from solitary planning. The narrative and teleological structure of planning is worth investigating. How people manage the tension between optimistic forecasting and realistic assessment of problems is also important.

## Concluding Remarks

Through much of its history, psychology has emphasized that behavior is caused by the past. Research on prospection suggests that people are navigating into the future more than driven by the past (Seligman et al., 2013). The view of the human mind and human behavior as based more on the future than the past has potential to offer profound new insights, extending potentially to a new, more enlightened vision of human nature.

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