Uncertainty, Value, Communication, and Problematic Integration

By Austin S. Babrow

This essay discusses problematic integration (PI) theory, a general perspective on the nature of the dynamic relationship between communication and tensions among expectations and desires and considers the relevance and potential value of PI theory to questions foundational to the field of communication research. The paper begins with a discussion of the main propositions of PI theory, then considers the relationship between the theory and emerging analyses of uncertainty, attending in particular to the meanings of uncertainty and the tensions among uncertainties, wants, and wishes.

An acquaintance of mine began to experience pain in her hips several months ago. As a 51-year-old who had been running every day for more than 25 years, she had often felt achy. When she mentioned the discomfort to her husband or children, they offered comfort, encouragement, or advice. In times past, the pain would subside and running would become pleasurable again. This time, however, the pain persisted. She tried moderating and then stopping her daily run, but this soured her mood, so she resumed running despite the dull ache. Eventually she consulted her internist about the problem. He thought her body was rebelling against the years of pounding, and he urged her to become a swimmer, a course of action she was loath to accept. She wanted to get a second opinion, but she did not want to jeopardize her relationship with her doctor by what she feared would appear as an act of distrust. She also was concerned about reimbursement from her insurer given the somewhat nebulous circumstances, and she worried about how this would affect an ongoing disagreement with the insurer over coverage for an unrelated problem. Eventually, my acquaintance became a participant in a study of communication and illness, decision, identity, embodiment, marital/family/doctor-patient relationships, social support, compliance, negotiation, power, gender, dialectical tensions, narrative, and so on. In fact, although she did not participate in any of these studies, her situation qualified her for them and more.

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Across the range of communication studies, there is interest in how communication articulates the world: from broad and foundational questions about communication and meaning, ideology, and worldviews, to narrowly focused questions about communication and more pointed orientations (e.g., perceived attributes of self, other, and relationship; attitudes, opinions, and beliefs; behavioral intentions, gratifications sought, and perceived risks). All of these areas of theorizing and many others concern the nature of the relationship—whether representational or constitutive—between communication and one’s conception of or orientation to the world. Problematic integration (PI) theory is one such ongoing, evolving inquiry into this relationship. My purpose is to consider the relevance and potential value of PI theory to questions common in the field of communication research. I begin with a discussion of the main propositions of PI theory, then consider the relationship between the theory and emerging analyses of uncertainty, paying attention in particular to the meanings of uncertainty and the tension between uncertainty and evaluative orientations.

Main Propositions of PI Theory

The theory of problematic integration (Babrow, 1992, 1995, in press; Babrow, Hines, & Kasch, 2000; Ford, Babrow, & Stohl, 1996; Hines, this issue; Hines, Babrow, Badzek, & Moss, 1997, in press) is a general perspective on communication. It springs from two widely held notions. One is that people form probabilistic orientations to their world. The concept, “probabilistic orientation,” has to do with one’s understanding of some object of thought. Probabilistic orientations answer questions like, What does this seem to be? What are its characteristics? What seems to have caused this? How is it likely to behave? The second common notion is that people form evaluative orientations to their world. Evaluative orientations answer questions like, Is this object, characteristic, event, or outcome good or bad? Together, these two ideas form the theory’s first proposition: People form probabilistic and evaluative orientations to their world.

PI theory builds on these widely held ideas in several ways. It recognizes that probabilistic and evaluative orientations are not merely separate, cooccurring phenomena. A central claim in PI theory is that probabilistic and evaluative orientations are integrated in experience (Babrow, 1992, 1995). In part this means that expectations and evaluations (e.g., desires, dreads) are interdependent in complex ways. For instance, depending on various conditions, the scarcity of an object (i.e., the probability of obtaining it) may increase or decrease its value. Moreover, value can influence the perceived and actual probability of obtaining the item (e.g., by triggering optimistic bias or defensive rationalization, by motivating greater effort to create or obtain the item; see Babrow, 1991a, 1992). Beyond this integration of probabilistic and evaluative orientations to any given object, such orientations also are integrated with orientations to other objects. In other words,

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1 The term *object* is used in the most generic sense to stand for any focus of perception or thought or sentence subject or object.
these orientations to a given object are integrated with one another and with broader complexes of knowledge, feelings, and behavioral intentions. For instance, the probability and value of obtaining (or avoiding) a given item (or experience) affect other life possibilities, values, intentions, plans, and ongoing behavior.

Another basic claim is that integration is often problematic. The initial statement of the theory (Babrow, 1992) analyzed four main forms of PI: situations in which probabilities and values diverge (e.g., retrospectively, situations that occasion emotions such as frustration, disappointment, sorrow, embarrassment, regret, remorse, guilt, shame; prospectively, when we experience anxiety, fear or otherwise fret with anticipation of unlikely happiness or likely sorrow); ambiguity (e.g., situations involving multiple meanings, hazy odds); ambivalence (e.g., mutually exclusive, similarly (un)attractive alternatives; love-hate relationships); and impossibility. A more recent analysis of uncertainty (Babrow et al., 1998) suggests that this framework must be broadened to conceptualize a wider range of PI forms, which I will return to later. For now, it is sufficient to say that, whatever its specific form, integration is difficult in the sense that probabilities and values destabilize each other (e.g., when someone oscillates between hope and despair) and destabilize such orientations to related objects or issues (e.g., they unsettle related beliefs, attitudes, intentions, or actions).

PI theory develops the preceding ideas in two additional, closely related claims. One is that the experience of integrative dilemmas entails processes in which given problematic integrations are transformed in a variety of ways. Specifically, an initially problematic form may be altered into another problematic form. This occurs, for example, when we deny what at first appeared to be an impossibility and thus have to struggle to hold onto a slim hope. In another sort of transformation, our attention may shift to other foci. For example, my acquaintance’s concern about the discomfort in her hips heightened her awareness of aging and associated worries. In still another type of transformation, when our concerns are shared by others, they are transformed from isolated, idiosyncratic struggles into interpersonal, group, organizational, social, and historical-cultural discursive processes and practices (see Babrow, 1993, for a broader conceptualization of these levels of experience).

Finally, as suggested by the preceding, the theory contends that communication is integral to the experience of PI and its transformation (see Babrow, 1995). Communication in families and friendships, impersonal relationships, and private and public contexts provides the categories for perception and the grist for cognitive and emotional processes. In so doing, communication content, structures, and processes create, shape, clarify, obscure, challenge, and transform probabilistic and evaluative orientations and the PI they so often occasion. Quite obviously, communication is a constructive (i.e., nonneutral) medium through which we come to recognize problematic situations (as in warnings and bad tidings). Communication itself, however, is frequently a source of PI. At the level of speech acts, having to deliver warnings and bad news creates PI for the bearer of these tidings; PI also arises for both speaker and hearer of acts such as threats, complaints, and criticism. More generally, the (im)possibility of intersubjectivity constitutes PI to the extent that we value authentic connection. Communication also provides
imperfect coping resources, the imperfections themselves becoming sources of PI. For instance, the conventional resources of politeness and tact, euphemism, and strategic ambiguity or equivocality provide for local conversational management of PI as well as occasioning PI in turn (see Babrow, 1998a). Communication also creates—both directly and indirectly—more general resources for coping with PI. It does so by transmitting and enforcing normative conceptions of “character,” maturity, sanity, and sanctity (see Babrow, 1992; Eisenberg, this issue). It also does so by providing the means by which social organizations for dealing with PI can be created, sustained, and transformed (e.g., health care systems, insurance industry, police and courts, churches, governments, armies, libraries, theaters, universities; cf. McPhee & Zaug, this issue).

In summary, PI theory provides a general perspective on communication. It suggests that communication shapes conceptions of our world—both its composition and meaning, particularly its values. It also suggests that communication shapes and reflects problematic formulations of these conceptions or orientations to experience. In these situations, communication gives rise to, conveys, and shapes difficulties in integrating probabilistic and evaluative orientations with one another and with related beliefs, attitudes, and intentions. When we cannot resolve readily these dilemmas (e.g., by changing probabilities—perceived or actual—or by reevaluation; see Babrow, 1992), the experience of PI chains through time, as the form and focus of care are transmuted, and as the experience connects private, idiosyncratic struggles to broader bodies of discourse and social organization.

In short, problematic integrations are formed, sustained, and transformed by communication. Analyses of these dynamics have been developed in several areas (discussed below and elsewhere in this special issue). Some of these works, particularly those representing an evolving analysis of uncertainty and communication, have suggested important refinements in the conception of probabilistic orientations (see Babrow, in press).

**Unpacking Probabilistic Orientations/(Un)Certainty**

Probabilistic orientations are fundamentally associational. That is, any object of thought is understood by associating it (retrospectively, contemporaneously, prospectively) with other objects of thought, even when the association establishes isomorphism or links an object with a presumptive attribute. In other words, probabilistic orientations can ascribe an organic unity of the two objects of thought (e.g., X is Y; X is an element of class Y; X has attribute Y; X is a necessary and sufficient cause of Y). It can also attribute a range of looser associations between the two objects of thought (e.g., X is like Y; X is to Y as A is to B; X owns Y; X is correlated with Y). Moreover, these associations can be held with utter certainty, in many cases constituting unconscious assumptions about the nature of the world (thus they become the basis of “automatic,” “mindless,” “shallow,” or “heuristic” analysis of stimuli and behavior; see Petty & Cacioppo, 1986, pp. 11–14; Babrow, 1995). At the other extreme, these associations can be the barest suspicions. Indeed, the point in referring to such associations as “probabilistic” is to emphasize that
any such orientation (any understanding, knowledge) is vulnerable to doubt or uncertainty. Even the most taken-for-granted understanding can be called into question.

An illustration will concretize some of these abstractions. The acquaintance I introduced at the start of this paper was eventually diagnosed with a rapidly spreading cancer. Although she visited her internist numerous times and was sent to several different specialists, the cancer, which apparently started deep in her abdomen, eluded detection for well over a year. By the time it was discovered, the malignancy appeared to be beyond treatment.

My acquaintance’s experiences illustrate various probabilistic orientations: She has had to understand her symptoms. She has malignant tumors in numerous places in her body. It is a cancer of a particular type, associated with a frightening prognosis. Although the doctors told her that there was no discernable “cause” of her cancer, she has constructed several hypotheses and worries about her children. Her body, and the words and demeanor of her oncologist and family together, have convinced her that she is dying. She believes that her family is in shock and worries about how they might handle her death. She prays and, by turns, trusts in, doubts, and hopes for meaning in her life, death, and salvation. In each of these specific concerns, she formulates associations held with varying degrees of certainty. As the illustration suggests, the strength of particular associations may change repeatedly and dramatically over time.

Given the foregoing analysis, two questions arise: What is the nature of doubt or uncertainty? What is its significance? To begin to answer the first question, it is important to note that the term uncertainty is used quite liberally in communication and allied scholarship. It has a wide variety of meanings both as a formal theoretical concept and as an unexamined term. This observation calls to mind a comment by discourse analyst Paul Atkinson (1995). In writing about the literature on the sociology of medicine, he opined that “uncertainty” has been a catchall term. I believe that a systematic analysis of usage reveals important variations in meanings of the term and hence in understandings of the nature of uncertainty. Such an analysis thereby refines our understanding of probabilistic orientations.

In recent work with several colleagues (Babrow et al., 1998, 2000), we have developed just such an elaboration of the notion of uncertainty and hence probabilistic orientation. We identified several major dimensions of uncertainty: complexity (of the object of thought), qualities of information, various probabilistic formulations, structuring information, and lay epistemology. (A number of these ideas are illustrated in the Appendix to Jim Bradac’s essay in this special issue.) Subsequent reflection on the typology developed in our earlier work suggests a more elegant way to think of variations in the meanings of uncertainty—and hence the nature of probabilistic orientations. A basic distinction is that uncertainty has both ontological and epistemological meanings (but, of course, these meanings are interdependent).

**Ontological Uncertainty**

From an ontological standpoint, uncertainty refers to the character or nature of the world (see Mishel, 1990). It may, for example, refer to perceived indeterminacy.
As Anderson (1996) explains it:

*Indeterminacy* is a relationship where the cause of [some event] cannot be resolved. [The event] is presumed to be caused but the cause cannot be known because of, say, the presence of multiple causation or causal events too small to be recognized as such (chaos theory is of this sort). (p. 44)

Alternatively, the cause may be indeterminate because of complex contingencies (e.g., most people cannot readily grasp four-way or higher order interactions) or reciprocal relationships such as mind-body or disease-iatrogenic effects in healthcare (see Babrow et al., 2000). Anderson’s (1996) analysis of other forms of determinism reveal additional ontological meanings of uncertainty: “*Undeterminacy* is an event that is uncaused. . . . *Underdeterminacy* refers to a relationship between A and B where B has a choice in the outcome motivated by A. (We say either that agency inhabits the consequent or the consequent can refuse the antecedent.)” (p. 44).

In short, uncertainty can have ontological meanings insofar as it characterizes one’s conception of the nature of the world or some aspect of the world. Hence, probabilistic orientations may take the form of deterministic certainty or ontological uncertainty of various sorts. Of course, the examples above all deal with causal associations.

Analogous ontological meanings of uncertainty could be described for understandings of other sorts of associations. For example, membership in a class may be taken to mean identity with the class or some less perfect, complete, or definite relationship. More generally, one may be uncertain in the sense of being unsure about whether the class or category of perception represents some real or natural feature of the world, the extent to which the class is well understood or understandable, awareness of apparent anomalies related to the class, and so forth (e.g., think of different understandings of the meaning of race, sex, or psychological depression). Hence, again, probabilistic orientations may be characterized by certainty or by one or another form of ontological uncertainty having to do with our conception of the nature of types of objects and relationships in the world.

*Epistemological Uncertainty*

*Qualities and uses of information.* However we conceive of the nature of the world, we experience epistemological uncertainties of many sorts. Numerous forms of uncertainty arise out of the way that we experience information we have about the world (Babrow et al., 1998, 2000; Mishel, 1988; Norton, 1975). These may be concerns about the qualities of available information, such as its sufficiency (e.g., clarity, completeness, and volume—too little or too much to manage), or its validity (e.g., freedom from error, source expertise or trustworthiness, ambiguity, applicability, consistency). Alternatively, we may be uncertain about how to organize or structure information. For example, people commonly experience uncertainty about how to order a series of interdependent choices, particularly when these decisions depend on uncertain outcomes (i.e., the problem of how to order “choice” and “chance” points in a formal decision tree; see Bursztajn, Feinbloom, Hamm, & Brodsky, 1980/1990). More generally, PI theory asserts that we are often uncertain
The nature of the association. Aside from the nature and structuring of information we have relevant to a given probabilistic orientation, another major epistemological meaning of uncertainty is the nature of the probabilistic association itself. Many theories (e.g., expectancy-value formulations, models of judgment under uncertainty, rational choice and decision analysis, theories of risk) hold to the more or less explicit claim that such associations take the form of, or can be readily translated into, quantitative probability estimates (Raifa, 1968). In other words, uncertainty can refer to a specific probability estimate. It also might refer to a range of probabilities; in the decision under uncertainty literature, this uncertainty about uncertainty has been referred to as “ambiguity” (Einhorn & Hogarth, 1987; cf. Empson, 1947; Norton, 1975).

Alternatively, uncertainties may not be readily translatable into the form of a quantitative probability. Study of a thesaurus reveals that the English language provides a wide range of more and less proximate synonyms for uncertainty, as well as innumerable quantitative probabilistic words and phrases. These range from general characterizations of uncertainty, such as “chance,” “likelihood,” “possibility,” “doubt,” and “contingency,” to words and word phrases that denote, without numbers, the magnitude of a probability. In regard to the latter, it is instructive to recall the many unsuccessful attempts by survey researchers and others to translate such words into specific numeric quantities (see Schwartz & Griffin, 1986). So, in addition to doubts about qualities and uses of information, another epistemological meaning of uncertainty relates to the nature of the association between objects of thought.

The nature of knowing. Another epistemological variant in the meaning of uncertainty has to do with what might be called “lay epistemology” (Babrow et al., 1998, 2000). What I mean by this term is the way that people commonly understand what it means to know. The significance of this notion is that common understandings of what it means to know—and hence, what it means to be uncertain—appear to vary substantially within and across individuals, cultures, and historical contexts.

Of course, differences in formal epistemological perspectives demonstrate that philosophers vary widely in their sense of what it means to know (see Anderson, 1996). It is easy to demonstrate, however, that everyday understandings of “knowing” vary both within and across individuals. For instance, common locutions like “you had to be there” suggest not merely quantitative but qualitative differences in knowing. Alternatively, we encounter people who comfortably “know” all manner of things in the sense of believing that they have sufficient justification to act as if what they know is true (i.e., what some philosophers call “moral certainty”; see Audi, 1995, p. 113). Moreover, Kruglanski’s (1988) work suggests that the sufficiency of justification varies substantially with both motivation and ability to think carefully about what we would know.² By contrast, we also encounter people for whom

² My usage of the term lay epistemology differs from that of social psychologist Arie Kruglanski (1988). For him, the term refers to what he believes is a universal two-stage process of hypothesis generation and hypothesis evaluation “whereby all knowledge is formed or modified” (p. 113). I see Kruglanski’s
certainty is necessarily metaphysical, that is, a manifestation of what must be true in order for the world to be the kind of world they take it to be (see Audi, p. 113). For instance, religious fundamentalists aspire to knowledge consonant with the revealed truths of holy scripture. So, in sum, individuals vary in understandings of what it means to know, and by implication they differ in understandings of what it means to be certain and uncertain.

Such variations are markedly evident across historical and cultural contexts. For example, Levine’s (1985) analysis of the contemporary “flight from ambiguity” notes that some cultures foster the belief that the essence of understanding is the absence of ambiguity; this is characteristic of “modern” cultures given to the mechanistic perspective of “science.” By contrast, other cultures mystify reality, “seeking enlightenment through intuited indeterminacy” (p. 37). Bradac (this issue) also has touched on the general point of varying lay epistemologies in contrasting what he calls Zenian and Faustian perspectives. The former views conscious understandings of mundane reality as illusory; uncertainty, to the extent that it disrupts illusory ways of knowing, can be a pathway to truths that transcend conscious, articulate engagement with the world. The epistemological stance embodied in this perspective contrasts sharply with the (Faustian) quest for positive knowledge and the epistemology that rationalizes this quest (also see Eisenberg, this issue).

Summary. Probabilistic orientations are the associational webs of understanding that we form through more and less thoughtful engagement with the world. Many of these associations are so deeply ingrained that they guide our thoughts, feelings, and actions without any conscious awareness. For example, the expectation that I will be able to finish this workday and return to my family came to mind only after some thoughtful excavation. However, even the most deeply held assumption can become uncertain. For example, a fleeting thought of my dying acquaintance makes me think of my father’s death, which in turn leads me to feel the fragility of my beating heart and ache, albeit momentarily, with emotion for my young children at the prospect of my death. Of course, many of our probabilistic orientations are characterized by various sorts of uncertainties. When I visited my acquaintance after learning of her cancer, her description of symptoms, particularly the difficulty she had in first recognizing that she was sick and in eventually obtaining a definitive diagnosis, made me think of a persistent, dull ache in my lower back and hips. I wondered if the ache might be the first sign of some malignancy. How does the body accommodate to a nascent tumor? When does the mind take notice? Are these questions answerable? Are the answers credible? Can anyone answer these questions better than I? If answers conflict, what should I believe? If the answers are consistent, what will they mean? Are these meaningful questions, or are they merely the penumbra of a false consciousness?

work as a demonstration of intra- and interindividual differences in the experience of knowing. That is, Kruglanski’s research and theory strongly suggest that the extent of epistemic activity (“freezing” and “unfreezing”), its nature (the form, substance, and extensiveness of hypothesis generation), and fruits of such activity (e.g., subjective certainty) vary with both cognitive capacity and epistemic motivation (e.g., the need for ambiguity). Because cognitive capacity and epistemic motivation vary both within individuals through time and across individuals at any given time, it is reasonable to infer significant variations in what it means to “know.”
Probabilistic Orientations/(Un)certainty in the Context of PI Theory

As this special issue attests, there is considerable reason to be interested in the relationship between communication and uncertainty. I believe that PI theory has much to offer this work. The theory offers a systematic, nuanced, and dynamic view to scholars working in this area. It also identifies and surmounts a number of common misconceptions that can limit or distort our understandings.

Realizing Opportunities

PI theory identifies and analyzes a wider variety of forms than is typical in other studies of uncertainty (for a review, see Babrow et al., 1998; cf. Friedman, Dunwoody, & Rogers, 1999). Moreover, the theory organizes forms of uncertainty within a coherent framework. With Mishel's (1988, 1990) cognitive theory, this sort of systematic accounting is rare. The virtue of an extensive framework such as that offered by PI theory is that it sensitizes researchers to meanings of uncertainty that might be missed with less elaborated perspectives. For example, we commonly recognize that uncertainty rooted in insufficient information can be resolved by information seeking but less commonly recognize that information simply may not be available—either to us or to anyone else (Babrow et al., 1998; Fox, 1957). Far less common still is the recognition that there are great and consequential differences among uncertainties rooted in the conviction that the information we desire may someday be known, whether it may be known in time to matter to us personally, and whether what we would like to know is essentially unknowable (Babrow et al., 1998).

The foregoing should not be taken to mean that every form of uncertainty identified by PI theory will necessarily appear in every context. Clearly, some forms may be more characteristic within particular contexts. Indeed, comparative analyses may be revealing. For example, one might compare and contrast Brashers et al.'s (2000) work on the uncertainties associated with AIDS/HIV, Parrott et al.'s (2000) analysis of uncertainty experienced by people with spinal cord injury, and Kline and Babrow's (2000) analysis of uncertainties associated with breast self-examination. When we miss nuances in form, and when we fail to recognize the variations in forms across context, we will fall victim to often dangerous oversimplification, such as the ideology of uncertainty reduction (Babrow & Kline, 2000); we also miss opportunities for careful theoretical and pragmatic developments, such as communication strategies that are tailored to specific forms of uncertainty (Babrow et al., 1998, 2000; Brashers, this issue; Hines, this issue).

PI theory also postulates interrelationships that are recognized only haphazardly or that remain opaque in underelaborated, minimally organized, or atheoretical accounts. Indeed, PI theory suggests dynamic interrelationships among forms of uncertainty and emphasizes the complexity of these dynamics (Bradac, this issue). For example, compare the analysis of PI theory and alternative uncertainty frameworks in this way. The former theory “predicts” that substantial PI will result in chaining across forms (of uncertainty/PI), foci, and levels of experience. Borrowing Bateson's (1972) notion, we can say that it is common in alternative perspectives on uncertainty to punctuate the behavioral stream in ways that obscure
rather than illuminate the nature of struggles with uncertainty. For instance, we might punctuate the stream by isolating the process in which a given uncertainty has been “reduced” with new clarifying information. Alternatively, we might focus on the way that an uncertainty has been “managed” by new ambiguating information or by avoidance. By contrast, PI theory emphasizes that given integrative dilemmas often arise out of other dilemmas and in turn give rise to still other problematics.

In other words, there is commonly a chaining from one to another form of PI. For example, we may reduce our uncertainty only to find out that something we dread is more likely than we had at first feared. Alternatively, when we deny the inevitable, keeping hope alive by insisting on some slim probability of realizing our wishes or by ambiguating chances of some unwanted event, we are left with new forms of PI (divergence or ambiguity; see Babrow, 1992, 1995). Hence, rather than isolating and decontextualizing uncertainty reduction or management, PI theory stresses the fundamental interdependence between and among integrative dilemmas of various sorts (forms, foci) as they play themselves out across a variety of contexts (especially various levels of experience). In this way, the systematic, nuanced, and dynamic framework represented in PI theory will allow researchers interested in uncertainty and communication to realize opportunities for insight and understanding that might otherwise be missed or misunderstood.

Avoiding Misconceptions
PI theory illuminates and avoids a number of common misconceptions about uncertainty. Only a few of these are widely recognized. Probably the most widely discussed misconception is that uncertainty is bad (Babrow, 1992; Bradac, this issue; Brashers, this issue; Brashers & Babrow, 1996; Ford, 1993/1994; Ford et al., 1996; Goldsmith, this issue; Lazarus, 1983; Levine, 1985; Mishel, 1988, 1990). From the perspective of PI theory, no object of thought is inherently good or bad; all objects, including uncertainty itself, must be evaluated.

A second common misconception, or unfortunate assumption, is that uncertainty has a single or narrowly homogeneous meaning. PI theory, in compelling us to examine probabilistic orientations with great care, reveals that there are numerous and substantial variations in meanings of uncertainty. The assumption of a single underlying or homogenous meaning contributes to two additional, tightly connected misconceptions: that the main response to uncertainty is information seeking, and that the aim and significant outcome of any encounter with uncertainty are its reduction (or frustration of this aim). These misconceptions rest not only on the

3 It is also worth noting that writings on uncertainty (including some in this special issue) frequently confound variations in forms of uncertainty (e.g., rooted in the apparent complexity of the world, doubts about the reliability of available information, the quandary of how to organize information) with variations in the objects of understanding (e.g., a pain, job, relationship, success, salvation). The former are related directly to—reflecting variation in—the nature of or meanings of uncertainty; these forms are probably limited in number. The latter—objects of thought—are only indirectly related to the nature of uncertainty; although infinite in number, objects of thought, by the nature of their being and its relationship to the nature of knowing, indirectly reflect forms of uncertainty. In any case, I believe that clarity requires us to distinguish carefully between variations in the forms of uncertainty and variations in the objects about which we might be uncertain, which I call foci.
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mistaken view that uncertainty is uniform and uniformly negative but also on the mistaken assumption that its reduction is possible. As nearly all of the essays in this special issue point out, these are limiting—and in Eisenberg’s view, dangerous—ideas (also see Babrow, 1995). The PI analysis makes clear not only that uncertainty has a multiplicity of meanings and both positive and negative values. It also clarifies that many uncertainties cannot be resolved by more information. Relevant information may be unavailable—now and forever. Moreover, some uncertainties involve not a deficit of data but a surfeit of information; others involve the quandary of how to organize information. Some are rooted in unresolvable contradiction or paradox; others reflect conceptions of the very nature of the world, and so forth. The PI framework postulates that integrative dilemmas are often unresolvable in any completely satisfying way. Any one resolution frequently gives rise to its own challenges.

Yet another misconception corrected by PI theory is that uncertainty and its attendant problems are resolved exclusively by managing level of uncertainty. PI theory postulates several additional ways of coping. One is coping with uncertainty by changing the evaluative orientation to the object of our doubts. Uncertainty is problematic to the extent that we value (positively or negatively) what we are uncertain about. Reappraisal (or reevaluation) of the object of our uncertainty is often a key to resolving emotions such as frustrated yearning, anxiety, doubt, or fear (see Lazarus, 1991; Lazarus & Folkman, 1984). For instance, we may cope with uncertainty about being able (or having) to stop working at 65 not only by trying to affect our level of doubt but also by reappraising the value of retirement.

In contrast to such “piecemeal” coping strategies (i.e., in which probability or value are revised), we also cope with the problematic integration of uncertainty and evaluative orientation holistically (Babrow, 1992; also see Lazarus, 1999; Mishel, 1990). The most basic, powerful, pervasive and conservative example of this is subservience to political, economic, religious, social psychological, and other ideologies (Babrow, 1992). A host of social structures enforce these ideologies by demanding that we accept conventionally sanctioned uncertainties. For example, currently in the United States people must accept the uncertainty of: gainful employment; food, clothing, and shelter; access to quality healthcare; and market-based and hence uncertain valuation in ever more spheres of experience. As noted earlier, insofar as people are able to recognize these uncertainties, they might cope by reappraising the object of uncertainty in reassuring ways (e.g., the economic doctrine that full employment is inflationary; blaming the homeless and hungry for their plight; accepting substantial numbers of uninsured people as a cost of outstanding care for the more fortunate; contrasting softly conceptualized market-based valuation with sharply and narrowly conceived managed economies).

But the current point is that we can also transform these uncertainties/PI holistically by seeing them as “the way things are.” Seeing and accepting “the way things are” confers upon us citizenship in the status quo.

A slightly more transformative approach to coping with uncertainty is to reframe it as a test (e.g., of character, faith) and an opportunity for self-exploration (Babrow, 1992). Beyond these moves, we may be able to muster ever broader or more basic reinterpretations of some problematic (i.e., highly valued) uncertainty; this
appears to be what psychotherapeutic reframing and renarratizing are meant to accomplish.

Of course, holistic transformative, reframing, and transcendental approaches to coping with uncertainties are hard to imagine because they challenge habits of thought or conventional wisdom (Galbraith, 1958). Moreover, they are difficult to manage or sustain, and they are not always helpful. Many of these points are encapsulated by the gifted singer-songwriter, heroin addict, and ex-convict Steve Earle in the jacket of his recently released “Transcendental Blues” (2000):

I have spent most of my life (like most people) avoiding transcendence at all costs, mainly because the shit hurts. Merely defining transcendence can sometimes be painful. I once heard that “Transcendence is the act of going through something.” Ouch. I see plate glass windows and divorces. Someone else told me that it was “rising above whatever one encountered in one’s path” but at this point in my life that smacks of avoidance as well as elitism of some sort. I am compelled to look back on years of going through, above, as well as around my life looking for loopholes to redefine everything including any and all of the ideas that I have held close to my heart along the way - Art - Freedom - Justice - Revolution - Love (a big one) - Growth - Passion - Parenting (a really big one) - and I find that for me, for now, transcendence is about being still enough long enough to know when it’s time to move on.

In short, we deal with uncertainties at times by trying to manage our level of uncertainty. At other times we cope by reappraisal or by more holistic efforts to accept matters as they are or to render them meaningful in new ways.4

Another common misconception, alluded to earlier, and implicit in the quote from Steve Earle, is that any one resolution of an unpleasant uncertainty is the final punctuation of experience, or for that matter that any integrative dilemma has a clear first cause. One of the overriding points of this essay is that PI permeates human experience. It chains across forms and foci to constitute much of our waking consciousness (an exception appears to be “flow,” as described by Csikszentmihalyi, 1975, 1990; see Babrow, 1995, in press). Chaining across PI forms, foci, and levels of experience constitutes our most significant and consequential communication.

One other common misconception avoided by PI theory is that the course of uncertainty (e.g., reduction) is predictable in any broad and robust sense. Probabilistic and evaluative orientations are fundamentally plastic and profoundly contextual and interdependent. Of course, a degree of stability and a sense of predictability are achieved by structures and processes operating in the individual and ever broader social levels. A number of factors interact at the individual level to confer a degree of stability. We see essentially the same face in the mirror every

4 An anonymous reviewer of a paper I recently coauthored with Kim Kline (Babrow & Kline, 2000) argued persuasively, we thought, that the idea of “managing uncertainty” partakes of the very control orientation that even more clearly undergirds the notion of uncertainty reduction. For this reason, we altered our phrasing from “managing” to “coping with” uncertainty in that paper. I have tried to follow that usage here. Even the phrase “coping with” is unsatisfying, however, in that it seems to exclude acceptance (see Mishel, 1990). Perhaps it might be best to say that this and related essays are about how we “live” uncertainty and PI.
morning (indeed, for many, personal grooming is an ongoing effort to stabilize a
desired face). Our body reacts day after day in essentially the same ways to caffeine,
jalapeno peppers, and allergens. Stability is also fostered by memory and habits of
thought (e.g., the results of what cognitive scientists call principles of recency and
frequency of category activation). Stability is also fostered by habits of being, such
as sleeping in the same bed, seeing the same family and friends, and going to the
same job day after day. Moreover, at every level of interaction and social
organization, there are structures and processes that confer a degree of stability
and predictability (see McPhee & Zaug, this issue); as I have said, social
arrangements—from friends’ relational contracts, to conversational politeness and
other norms, to broad conceptions of manners, to formal organizational rules and
goals, civic codes, and laws—are designed to stabilize and often formalize means
of coping with PI. In all of these arrangements, though, be they individual,
organizational, or societal, there exist the seeds of radical change, disorder,
unpredictability, reformulation.

Together, these ideas suggest somewhat contradictory hypotheses: One is that
increasingly problematic integration (i.e., when central values or beliefs are at
stake, when resolution of the integrative dilemma is elusive) will cause greater
variance in modes of attempted resolution. Any one resolution will be profoundly
context dependent and therefore highly susceptible to change as context changes.
The second is that increasingly problematic integration will cause more heavily
defended and hence stable (although perhaps brittle) resolution. Because the
processes that participate in PI are many and quite varied, it may well be that both
of these partially contradictory hypotheses are true (see Babrow, 1993, 1998a). In
any case, predicting courses of uncertainty resolution is likely to be a difficult and
perhaps ill-considered endeavor.

Some Limitations, Some Extensions

Probabilistic Orientations/(Un)Certainty as Social Constructions
It should be clear from the foregoing that probabilistic and evaluative orientations
should not be taken to have specific material reality. Indeed, much of the foregoing
strongly suggests that these orientations—for example, the many forms of
uncertainty—are not psychological, social, cultural, or historical universals. Rather,
the very nature of such orientations emerges in historical and other contexts.
Notably, some historical or cultural contexts appear to exhibit “probabilistic” thinking
so spare that it stretches the term to near meaninglessness. For instance, Renee
Fox (1957), originator of the influential, and controversial, idea that medical
education is “training for uncertainty,” eventually came to believe that the concepts
of uncertainty, probability, and chance do not exist in some cultures. In her studies
of the nonmodern, non-Western, Central African country of Zaire, Fox (1976)
observed that virtually no happenings were considered fortuitous:

They are viewed as determinatively caused, primarily by supernatural, psychic,
and interpersonal forces, within a closed system of thought and belief. . . .

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When evidence contrary to traditional interpretations presents itself, there is a tendency to develop what Evans-Pritchard has termed “secondary elaborations,” that “excuse” or explain away the untoward occurrences and thereby protect established premises. There is no room for the concept of probability in this way of thought, nor for the formal acknowledgment of an ultimate, irreducible degree of uncertainty as an inherent property of man’s [sic] attempts systematically to understand, explain, and predict physical, biological, social, cultural, and psychological phenomena. (p. 780)

In short, depending upon historical and cultural context, “probabilistic orientations” will be more or less differentiated and elaborated. In some cultures, there appears to be habitual certainty, or what we might stretch to term dichotomous probabilistic orientations (e.g., either “It was/is/will be” or “It was not/is not/never will be”). This would seem to be natural in cultures where people cleave strongly to a clear and compelling cosmology, and where challenges to the cosmology are rare.

Of course, the term dichotomous probabilistic orientation obscures a variety of other ways in which such cultures may diverge from the elaborate forms alluded to above. For instance, members of such cultures may not doubt the reliability of evidence or sources. Moreover, unlike modernists or scientists, they would not aim to “marshal all the facts,” so they would avoid the uncertainty of being overwhelmed by information. They may have no uncertainty about how any given revelation fits into surrounding beliefs and values. By comparison, cultures characterized by modernity and postmodernity have differentiated probabilistic thinking so that certainty is only one among a multiplicity of shades and meanings of probabilistic orientation.

A parallel argument applies to evaluative orientations. It is likely that, at different times, and in different cultures, people have developed more and less differentiated evaluative thinking/symbol systems. Relatively less differentiated evaluative thinking would seem to be natural in cultures and times in which the resources for meeting life’s basic needs are scarce. Indeed, Galbraith’s (1958) The Affluent Society suggests that highly differentiated evaluative thinking is a quite recent opportunity that is even now available only to the affluent minority of the planet. Hence, historical and other contexts shape the very nature of evaluative and probabilistic orientations.

It is also worth noting another limitation of PI theory as it has been articulated to date: Efforts to refine the notion of probabilistic orientations have not been matched by comparable analysis of evaluative orientations. One potential direction for future work is to link PI theory more carefully with attitude theory. There are obvious compatibilities. Indeed, the scholarly consensus evolving over the past couple of decades holds that attitudes are evaluative orientations that arise from and are in turn manifested in cognition, affect, and behavior (Eagly & Chaiken, 1993; Greenwald, 1989; Petty, Wegener, & Fabrigar, 1997). Moreover, consistent with the PI framework, the attitude literature demonstrates the pervasiveness of evaluative orientations in: “(a) the ease with which people report evaluative reactions to a wide variety of objects, (b) the difficulty of identifying categories of objects within which evaluative distinctions are not made, and (c) the pervasiveness of an evaluative component in judgments of meaning” (Greenwald, 1989, p. 2). Still, the
complexities of the enormous attitude literature (e.g., see McGuire, 1985) make prospects of connecting it with PI theory appear daunting.

One seeming incompatibility is the fundamental notion of stable evaluative orientations in the attitude literature and theoretically dynamic, contextual, and unpredictable nature of PI. Indeed, the latter recalls Blumer’s (1955) argument that one’s attitude is “no more than an initial bid for a possible line of action” (p. 63). But these views may not be as incompatible as they seem to be at first blush. In fact, the past 30 years of attitude research have supported Blumer’s contention by demonstrating that the correlation between evaluative judgment and action increases as (a) the time between the two measures decreases and (b) the evaluative judgment and behavior measures correspond in terms of their specifications of action, target, context, and time (see Fishbein & Ajzen, 1975; Kim & Hunter, 1993). Hence, it may be possible to refine the conception of PI, and perhaps inform attitude theory, by linking the two in future work.

**Applying and Extending PI Theory**

I believe that a wide variety of areas of communication scholarship will be enriched by attention to the issues raised by PI theory. Health and risk communication researchers have begun to realize some of the benefits of a differentiated, nuanced analysis of the meanings of uncertainty and, in some cases, analysis that accounts for both uncertainty and evaluation (Babrow & Mattson, in press). For instance, unpacking the meanings of uncertainty and tensions with values suggests numerous potentially useful insights into and strategies for explaining illness (Babrow et al., 2000), understanding social support messages (Babrow & Ford, 1995; Brashers, Neidig, & Goldsmith, 2000; Ford, 1993/1994; Ford et al., 1996), and challenges and strategies in dealing with chronic and life-threatening illness (Brashers, this volume; Ford et al., 1996; Hines, this issue; Hines et al., 1997, in press; Parrott et al., 2000). The PI framework has been used to critique and suggest an alternative to the “ideology of uncertainty reduction” that pervades discourse on breast self-exam (Babrow & Kline, 2000; Kline & Babrow, 2000); this same critique is readily extended to screening for other sorts of problems or to health screening in general (see Brashers, this volume).

Bridging health and mass communication, some risk communication scholars have come to recognize the importance of a careful analysis of probabilistic orientations. For example, Stocking (1999) opines that risk communication specialists “need to decide what we mean by scientific uncertainty” (p. 35). Stocking and several other authors contributing to the recently published book, *Communicating Uncertainty* (Friedman, Dunwoody, & Rogers, 1999), offer a variety of sparsely developed typologies of meanings, and they discuss the relevance of these distinctions to risk communication (e.g., tailoring communication to type of risk/uncertainty). These works will gain precision and greater range when the typologies are systematized and refined, either by interpreting them within the more comprehensive framework noted earlier in this paper, or by developing an alternative (see Babrow et al., 1998). In any case, risk communication scholars are coming to recognize that a differentiated understanding of probabilistic orientations—the many forms of uncertainty—is one key to illuminating risk
communication. Such work would be further enhanced by systematic attention to evaluative orientations, problematic integration, and the dynamics described by PI theory.

Beyond the applications in studies of health and risk communication (also Brashers, this issue; Hines, this issue), the foregoing discussion also suggests numerous areas of potential cross-fertilization between PI theory and work on interpersonal (cf. Goldsmith, this issue; Eisenberg, this issue), organizational (see McPhee & Zaug, this issue), mass (also see Babrow, 1991a, 1991b; Babrow & Swanson, 1988), and cross-cultural communication (cf. Goldsmith, this issue; Eisenberg, this issue). One area that crosses a number of these boundaries and that promises a variety of interesting opportunities is research on persuasion.

Studies in this area often focus on the relationship between communication and acceptance of some thesis. In addition to measuring evaluations, empirical work at times conceptualizes acceptance in specific probabilistic terms. For instance, an outcome measure after a speech on granting most favored nation (MFN) status to China might ask the respondent the likelihood that this change in status will increase jobs in the US. But what have we learned from someone constrained to express their (un)certainty about a given thesis in probabilistic terms? Unless they express perfect certainty, the meaning of their response is ambiguous in the extreme. Does less than perfect certainty reflect ontological uncertainty? Continuing the previous example, is the respondent uncertain in the sense of believing that the impact of MFN status is unpredictable because of the complexity of relevant economic forces (too many causes, too many contingencies)? Does it reflect one or more forms of epistemological uncertainty? Perhaps the respondent cannot understand the relevant information—there is too little or too much information to be sure; available information is perceived to be error laden; available information is thought to reflect source bias; the information is inconsistent, ambiguous, or not clearly relevant, and so on. In short, simple probabilistic outcome measures mask vital distinctions in responses to persuasive messages.

Aside from the measurement issues sketched here, attention to the nature of probabilistic orientations, evaluative orientations, integration, and PI leads us to a broader conceptualization of the sorts of questions that researchers are or should be asking about the nature of persuasive messages and persuadee sense making. Studying the nature of uncertainty will illuminate the substance and meaning of persuasive messages in new ways (e.g., How do persuaders manage the many different forms of uncertainty? Are there varying consequences of differing sorts of uncertainty?). These considerations also are relevant to the sorts of questions researchers ought to be asking about ongoing interactions in which suasory aims are pursued and modified, and in which such ends are wed or balanced with other sorts of interactional goals (see Dillard, 1990). For example, uncertainty can have multiform identity implications. The most obvious of these is source ethos.

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5 An even more ambiguous method is to ask the extent to which a person agrees with a given thesis (i.e., the unfortunately popular “Likert-type” scale). Respondents may disagree for countless reasons, including any specific feature of the wording of the thesis (see Fowler, 1993), or one or more specific forms of uncertainty (see discussion that follows).
but uncertainty also can have substantial implications for persuadee identity and the relationship between interactional participants. Moreover, acceptance of a persuasive thesis is clearly contingent on the interplay of identity and relational concerns (Wilson, Aleman, & Leathman, 1998), which are themselves bound up with uncertainties of various sorts. Hence, persuasion research might be enriched by attention to the nature of probabilistic orientations. The opportunities expand further when we take into account the PI that might be occasioned by suasory efforts (Babrow, 1998a).

The foregoing suggests that PI theory is applicable in a wide range of research designs. The theory has been supported in experimental and survey tests of some predictions (Ford et al., 1996; Hines et al., 1997, in press). However, its applicability in experimental and survey work is likely to be constrained by the nature of PI (its instability, complexity, and contextuality; cf. Hines, this issue). The theory can clearly be applied in descriptive and interpretive work of various sorts, such as the analysis of literary texts (e.g., Babrow, 1992, 1995). It may also be useful for analyses of narratives, such as Lazarus (1999) recently called for in studies of stress and emotion. For instance, it might inform studies like Vanderford and Smith’s (1996) work on narrative and uncertainty in the silicone breast implant controversy (but see commentary by Babrow, 1998b). PI theory also has obvious relevance to analyses of the conversational management of a wide range of phenomena, such as hope (e.g., Beach, in press), troubles talk or bad news (Maynard, 1991; Maynard & Frankel, 1998), evidentiality (Chafe & Nichols, 1986), and more. Finally, PI theory also can be used in critical work. For instance, the aforementioned critique of the ideology of uncertainty reduction in the discourse associated with breast self-examination (Babrow & Kline, 2000) revealed meanings of uncertainty that are often ignored or suppressed in ways that disempower women and threaten their health. Because the ideology of uncertainty reduction pervades communication research more generally, parallel critical works are mandated across the field.

**Conclusion**

Having made several claims about the potential values of PI theory, it is fitting to conclude by noting that none of these outcomes are certainties, nor are these outcomes uniformly or universally valuable. Any judgment about these potentialities, that is, their likelihood or value, is necessarily contextual: probabilities affecting values, and vice versa; probabilistic and evaluative judgments about any one potential use or meaning of PI theory depending on and also affecting such orientations to other issues; such orientations, their integration, and especially problematic integration take shape and meaning within particular persons, relationships, groups or larger collectives, and within particular historical moments.

Consider two examples. My acquaintance, the runner discussed earlier, died a few weeks ago, long after she had become an integral part of the essay, but too soon to be able to read the finished work. Could PI theory have been useful to her? Can the theory be used to understand and improve such things as patient-
provider communication, diagnosis, negotiation of health care, decision making, social support, transitions in identity and relationships, operations within and coordination among (healthcare) organizations? How likely are these improvements? How valuable would they be? If not PI theory, what could have helped her—to find her tumor earlier, to deal with family and care providers most effectively, to experience a death that had the appropriate meaning for her life, her family, and her community? What were the most pressing certainties and uncertainties? The most significant values? The most significant tensions between expectation and desire? The most helpful ways of living these tensions?

Although I want to answer these questions, I cannot help considering their import in context. For instance, Henwood (July 10, 2000) recently has reported that per capita income explains 70% of the variation in world life expectancies. “The trendline rises sharply then flattens, suggesting that the health benefits of higher incomes reach a point of diminishing returns around $15,000, and suggesting that a transfer of income from the rich to the very poor would dramatically help the very poor in terms of life expectancy at little cost in health terms to the rich” (p. 10). Observations like this make me wonder whether the potential value of PI theory should be worked out in the context of my acquaintance’s experiences. Wouldn’t that be gilding the lily? What is the appropriate context for us to work out the potential value of any idea or course of action? Who should be parties to that conversation? How can the conversation be fostered?

PI theory offers few specific predictions or prescriptions. It suggests primarily general ideas about a range of possibilities—what might be useful and what should probably be avoided (e.g., rigidity, narrow focus, closure). Its aim, purpose, and meaning are to shed light on struggles that define what it is to be a human being at a particular point in our evolution.

References


