Exploring uncertainty and emotion in the knowledge-based theory of the firm

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Abstract

Nelson & Winter (1982) point out that uncertainty, managers’ frequent companion as they guide firms towards their goals, is poorly dealt with in theories of the firm. If knowledge is to be treated as the most strategic of assets, we should reconsider its relation to uncertainty. I draw on prior research and categorize uncertainty as three types of knowledge deficiency (Spender 1989). One is indeterminacy, the result of allowing independent others into our analysis. Nussbaum (2001) argues uncertainty leads to emotion. I draw on her extensive analysis of emotions as value judgments indicating a person attaches significance to specific things lying outside her/his control that affect her/his goals. Her insight opens a way of relating knowledge and uncertainty. The impetus behind this approach is partly theoretical, my attempt to follow up Simon’s critique of economic rationality, and partly personal, precipitated by observing New Yorkers’ emotions during and after the September 2001 WTC attacks. It is no longer empirically acceptable to ignore the ways in which emotion shapes our knowledge.
Introduction

Nelson & Winter’s (1982:4) proposal for an evolutionary model of the firm opens with a call for new thinking. In footnote 1, they note the “inability of prevailing theory to come to grips with uncertainty, or bounded rationality”. This paper, which I see as a footnote to Nelson & Winter, and to Simon 1976, addresses uncertainty as directly as seems logically possible – for if fully defined it would not be uncertain anymore. By uncertainty I mean, following Knight (1921), those knowledge deficiencies that arrest logical reasoning, rather than current theoretical usage that means probabilistic information. I draw on earlier research to offer a four-fold typology of uncertainties based on different notions of why information is missing, and of the practices we adopt to deal with the deficiency (Spender 1989).

As Nelson & Winter show, a knowledge management (KM) approach to the firm, focused on the processes by which its knowledge is generated, moved, stored, and applied, opens up new areas for theory and empirical work that are very different from those of orthodox microeconomics. Their model is biological and evolutionary, suggesting firms and industries evolve, carrying forward activity-shaping organizational routines that are somewhat analogous to genetic material. This paper proposes something rather different although my objective is similar, to get a sense of the ongoing processes that actualize the firm. I believe the knowledge approach has considerable potential precisely because it forces us to address knowledge deficiencies as well as knowledge assets. By no means all KM authors are interested in this, so many will find what follows unhelpful. My key idea is that uncertainty resolution is one of the firm’s raisons d’etre, what distinguishes it from markets, and that the theory of the firm must therefore encompass both rational decision-making and uncertainty resolution processes. Nussbaum’s (2001) contribution is an analysis of emotion as a type of knowledge precipitated by the exposure to uncertainty.

Four convictions guide this paper. First, I believe uncertainty resolution to be key to the nature of the firm and to what managers do. Second, as a theorist I believe a knowledge-based approach will add little to our existing understanding of firms so long as we treat organizational knowledge itself as unproblematic, considering only its absence. There is no need for a knowledge-based theory of the firm under such circumstances, just as Simon (1976:xxviii) argued there was no place for a theory of administration without bounded rationality. Third, as a practicing manager dealing with real colleagues I believe we need theory that pays explicit attention to the emotional, moral, and social dimensions of organizational activity. Fourth, as one who witnessed the September 2001 attacks on Manhattan, and their emotionally intense aftermath, I was forcibly reminded of the foundational aspects of emotion in our private and public lives. Given the appeal of the concept of emotional intelligence (Goleman et al, 2002) I believe it is no longer empirically acceptable to avoid dealing with emotion in our organizational theorizing.
The argument is presented in four parts. In Part 1 I review the KM literature that treats knowledge as ‘objective’, unemotional, essentially separable from the people who might know, create, or use it - like books in a library or data on a hard drive. I argue that if KM is framed by the notion of knowledge as objective, then it is wholly compatible with existing economic and organizational theories. There is no problem with cognitive limits and no basis for thinking of KM as a new or separate field of theorizing. The conclusion is that whenever we seek a KM theory of the firm our analysis must stand on the precise ways in which we depart from orthodox assumptions about the objective nature of organizational knowledge.

While I discuss epistemological concepts such as uncertainty and bounded rationality towards the end of the paper, the notion of tacit knowledge gives us an easy bridge into Part 2. Here I consider knowledge as ‘subjective’, integrated into the lives and activities of knowing human agents. I hypothesize two alternative types of knowledge, one objective and the other subjective and activity based. Whenever we adopt a pluralist epistemology, meaning one with more than one type of knowledge, we imply a new theory of the firm that addresses the integration of varied types of knowledge. In Part 2 I review several pluralisms, for there are already many in the literature, and the resulting discussion of how knowledge variety might be resolved into a coherent theory. My conclusion is that all real KM-based theories of the firm must be about how we integrate the various types of knowledge into the coherent entity that we call the firm. None of this considers emotions.

In Part 3 I adopt a particular pluralist epistemology, one that contrasts objective knowledge and personal emotion as different types of knowledge. This is relatively novel. Given bounded rationality and a pluralist epistemology organizational actors lack both objectivity and neutrality. They cannot avoid having ‘attitudes’ to what they know. Indeed their knowledge and decision-making is an important part of their sense of identity and so inevitably shaped by their emotions. I argue that actors have a secure sense of identity only when they have been able to resolve their objective knowledge and their emotions into their actions. I draw on Nussbaum’s 2001 analysis of emotion. Finally in Part 4 I focus on several emotions – compassion, disgust, awe, fear, and competence – and meld these into a tentative KM theory of the firm. I suggest important differences between positivist theories of the firm, which consider only calculative rationality, and others theories which admit emotion and so are able to address a wider range of uncertainties.

Part 1  Managing objective knowledge

Even though KM is a new specialism, it has already evolved a rich set of objectively oriented theories (e.g. Venzin, von Krogh & Roos, 1998, Choo &
Most stand on positivist axioms about the object-like nature of organizational knowledge, presuming the:

(a) know-ability of the universe
(b) factual nature of scientific knowledge
(c) irrelevance of value judgments

(Kolakowski, 1972)

We see knowledge as an organizational asset, seldom represented on the balance sheet, but one to be managed like any other organizational asset. It costs money to produce or acquire knowledge, and it is a strategic factor of production. Many writers, such as Reich 1991, Drucker 1993, or Teece 2000, cite structural changes in the economy and assert knowledge has now become the most strategic factor of production.

Some KM literature focuses on how knowledge assets can be created, stored, and moved. We see concerns with moving R&D’s output into production, with increasing the firm’s efficiency by avoiding duplication in research and invention, or with getting greater returns from the knowledge already generated. Much of this is about information technology (IT) techniques. My point is not with whether these notions are useful, for they clearly are, but rather whether they have anything to do with KM as a distinct body of thought. Organization theory (OT) has long dealt with communication and the literature on information management is huge. What can a KM analysis add?

We might argue that while organizational knowledge is certainly an economic asset in the accepted sense, it cannot be managed in the same way as the assets that have previously been the focus of managerial and theoretical attention. One of the assumptions necessary to economics is scarcity. Without scarcity there are no prices or markets. There can be no equilibrium analysis. Arrow 1974 suggests knowledge may be an asset of a very different type, demanding a different theory, simply because it is ‘extensible’, threatening the assumption of scarcity. Unlike regular assets, knowledge is seldom consumed by its use. It can be shared (communicated to others) and applied to the generation of goods and services without its possessor’s stock being diminished. So its economics are highly problematic.

Knowledge can also be ‘extinguished’ without being consumed. It disappears when obsoleted by new knowledge that has greater explanatory power or covers a wider range of phenomena (Popper, 1969). There are also increasing returns to knowledge, especially those deriving from ‘network externalities’ (Arthur 1994). When other firms, initially ignorant and unable to benefit from our goods and services, invest in learning how to use them, they become ‘locked in’ by that investment. The probability of their switching is reduced. The result is a market that lacks diminishing returns and the competitive erosion of monopolistic profits. The winner takes all. The different dynamics are a consequence of the nature of knowledge, often easy to leak or distribute by copying and sharing, but only to
those with the absorptive capacity to absorb it. In contrast, orthodox microeconomics is concerned with transactions and their costs, and with transfers of title to assets that are known to many but can only belong to one. Extensibility, extinguish-ability, and the costs of generating and acquiring knowledge remind us that knowledge assets do not have the same distributive properties. Hence one basis for KM as a distinct discipline could be that knowledge itself is too problematic to be examined within an orthodox framework.

As Simon 1976 showed, organization theory has similar assumptions, equally threatened by the problematic nature of knowledge. What do role occupants have to know to comprehend the instructions they are given? How can the firm’s value premises be established so that they shape subordinates’ action when rules fail? How can organizational change occur? As educators ourselves we answer ‘education’. So we adopt a dynamic concept of knowledge, a theory that brackets its generation and application. But where do we find invention, discovery, and education in OT? Classical analysis would locate it beyond the boundary of the analysis. The firm is a rationally designed and constructed apparatus that articulates the knowledge available about how its apriori goals can be met. As Weber (1969) noted, bureaucracy is a rational apparatus based on knowledge. Within a generation, of course, theorists such as Gouldner, Selznick, Dalton, and Whyte showed bureaucratic theory to be seriously flawed, precisely because the organization’s knowledge is imperfect (March & Simon 1958). At best knowledge is imported into organizations by routinizing (institutionalizing) the charismatic leaders (entrepreneurs) who bring new ideas with them.

In contrast, Scientific Management specifically embraced invention and learning. In spite of being pilloried, Taylor’s 1911 work should be seen as seminal to KM (Spender & Kijne 1996). Taylor 1969 tells us that much of the knowledge necessary for the firm’s functioning comes not from outside, prior to the firm’s existence, but from the creativity of the shop floor craftsmen. This is consistent with Adam Smith’s explanation in the Wealth of Nations of craft creativity as the key to productivity growth. In Scientific Management the firm’s knowledge is not left with the craftsmen, as in Smith’s analysis, but is harvested by rigorous observation – what became work-study – scientifically evaluated by trained staff, and articulated into the tools and procedures to be followed by the re-trained workforce.

The conclusion from Part 1, which could be extended to consider much more of the mainstream KM literature, is that KM cannot be distinguished from economics and OT so long as the concept of knowledge is itself unproblematic. Thus Teece 2000 is not sketching a new theory. He is telling us how orthodox economists should handle ‘objectified’ knowledge assets like patents and copyrights. Likewise the theory of intellectual property rights does not suggest a new theory of the firm. Instead it points to the institutional processes available to ‘objectify’ knowledge and turn it into an economic asset. Thus knowledge is drawn into orthodox theory. Only by defining it as problematic, as does Arrow, can we
argue that KM implies a separate field of economic thought. Likewise IT specialists point out that new technologies have removed some of the impediments to the efficient storage and movement of knowledge. The communication of data does not require new theory. Only by making organizational communication problematic, as does Simon, can we begin to think about KM as a field separate from IT and OT.

At this point the reader might wonder why I discuss economics and OT without simply accepting that they are different bodies of knowledge. Perhaps, but I follow Simon (1952) and believe that they can be merged into a coherent theory of the firm that analyzes both its environment and its value creation processes simply because managers consistently deal with both simultaneously. Treating knowledge as problematic may break through the axiomatic differences that separate economics and OT. Whatever our hopes for KM theorizing, we are always limited by our assumptions about knowledge itself, about what exactly makes our kind of knowledge different from the objectified knowledge. Those working on the philosophy of science, such as Wittgenstein and Popper, deal with these matters in a variety of ways. Some make direct critiques of positivist axioms. Others, such as Kuhn or Polanyi 1962, question the claimed objectivity of scientific practice. Polanyi, especially, appreciated the significance of scientists’ intuitions and laboratory skills, as part of his critique of the rational model of hypothesis testing (Hempel 1966, Popper 1968, Popper 1969). He appropriated Wittgenstein’s notion of tacit knowledge. While it is not too clear what he means – for ‘tacit’ is as ambiguous a term as Kuhn’s ‘paradigm’ – the idea can take us to Part 2.

**Part 2 Theorizing when knowledge is problematic**

The distinction between tacit and other types of knowledge is widely accepted among KM researchers. It is generally explained either by riding bicycles or the mantra ‘knowing more than one can say’. The idea is that people are able to do things, transform knowledge into action, without being able to explain how. They ‘know’ something they cannot express in language and which cannot, therefore, be considered an item of objectified knowledge. In the positivist epistemology language and explication is crucial. A scientific theory is a framework of explanation and thus an exemplar of objective knowledge, meaning that which can be separated from the knower and, in the economic models, traded or, in the OT models, fully communicated by one role occupant to another. This is part of the ‘scientific’ notion of objective. We expect the explanation to be independent of the explainer, separable, and, at the same time, universally expressible. It becomes accessible to others who can then test it against their own experience.

For those unwilling to abandon orthodoxy the problem of tacit knowledge is that it must be explicated before its truth content can be examined – in the manner suggested by Taylor and widely articulated later e.g. in Nonaka, Takeuchi &
Umemoto (1996:834). Note that Nelson & Winter (1982:78), whose concept of organizational routine is essentially tacit and stored in activity, see tacit as a characteristic of knowledge – which can be more or less tacit – rather than knowledge of a different type. Neither Nonaka nor his colleagues (1995:59) consider tacit knowledge to be of a different type. They define it as one end of a continuum from ‘hard to formalize and communicate’ to ‘transmittable in formal systematic language’ at the explicit end. Nor do they consider, as Simon might, the mediating effect of an individual’s articulation capabilities, which could range from the appalling to the extraordinary. Is what is tacit for one person explicit for another? Other researchers, e.g. Brown & Duguid 1991, Spender 1998, Baumard 1999, and Cook & Brown 1999, propose many different types of knowledge. There is nothing original here. Multiple types of knowledge are part of Greek epistemology (Spender 1998). James 1950:I221 and Ryle 1949 also distinguish two types of knowledge, closely corresponding to explicit and tacit. Both were scholars, thoroughly familiar with Greek epistemology.

In practice, the types of knowledge we recognize are directly related to the types of uncertainty we admit (Spender 1989:42). Positivism focuses on ignorance of the truth, knowledge that is essentially ‘out there’, yet to be uncovered. But we clearly experience other kinds of uncertainty. How will someone react when I act? If we treat this as ‘ignorance’ we fail to grasp our experience of the world and the surprises it occasions. Shubik 1954 calls this ‘indeterminacy’ and it follows immediately we admit decision-making others into our analysis. Positivism, we see, is a knowledge game played with a passive physical universe that allows no intelligence except our own – unless, as game theorists know, the actions of these others are completely known ahead of the event that triggers their actions. As soon as we admit both ignorance and indeterminacy we adopt a pluralist epistemology with two types of knowledge. We must also confront the possibility they are ‘incommensurable’, grounded on different axioms in just the way Simon (1952, 1962), following Barnard’s three incommensurable universe model of the organization, sees economics and OT as distinct.

The three types of uncertainty are conceptually intertwined. Any one can be considered the same as any another. Indeterminacy can be treated as ignorance, in this case of the other person’s action rationality. Or it can be considered as incommensurability between the two actors’ frameworks. Likewise incommensurability can be treated as ignorance of the overarching framework that brings the various types of knowledge together, etc. These uncertainties do not differ because of what we know, rather because of the different knowledge practices or routines we adopt to deal with them. Thus ignorance must first be framed within a theory that identifies what is missing, then hypotheses must be formed and supporting or falsifying evidence sought. Indeterminacy leads us to explore the range of possible responses, some of which we might insure against. Incommensurability pushes us to build theory that brackets contrasting bodies of knowledge.
This brings me to the main conclusion of Part 2. Only if knowledge itself is problematic can we argue that KM is a separate discipline rather than merely a variant or sub-discipline of orthodox economics or OT. Why is this so important? Many will see it as mere academic quibbling. Certainly there is much value in considering the problems that intangible, slippery/sticky, inimitable, rare, scarce, etc. assets present to a conventional theory of the firm, or to considering how imperfect information might change market behavior, or with decision-making biases (Kahneman, Slovic & Tversky 1982). But while these questions seem to form part of the KM literature I suggest they do not fall properly within the domain of a knowledge-based theory of the firm — simply because the terms knowledge-based and knowledge management are superfluous when knowledge is unproblematic. Under these circumstances we can replace the term knowledge with terms like information, data, facts, etc. without loss. Likewise rhetoric about the differences between data, information and wisdom is meaningless without a supporting theory of how people know.

I believe the proper scope of KM theorizing is that which addresses the additional set of questions raised by knowledge's additional assumed problematicity i.e. what lies beyond the problems presented by ignorance. In a positivist theory ignorance is the only problem allowed. The philosophy of science evaluates whether ignorance is removed by science's rigorous process. The hope is that it is truly objective, that people's emotions, biases, and other shortcomings are kept out. Thus science can be completely shielded from a-rational elements. As these assumptions have been transposed into the social sciences, orthodox economics and OT have been constrained to deal only with the problems of ignorance. Since the method presumes a coherent universe, conforming to positivism's way of knowing, it cannot address the possibility of fundamental difficulties with what we already know. Kuhn's work is so important precisely because his historical research indicated fundamental instability in, and therefore profound problems with, the physical sciences, what we previously assumed the most stable and paradigmatic type of knowledge.

As they import their own theories of people and how they know, James, Ryle, and Polanyi present theorists with completely new problems that cannot be framed simply as ignorance of the physical universe. Now, if we treat organizational knowledge as a critical resource, and suggest it comprises different types, we must explain how a firm of individuals with various types of knowledge can both create or acquire knowledge, and bring it together in reasoned activity. Nonaka & Takeuchi (1995:63) assume explicit and tacit knowledge can be integrated. They are convincing on the tacit to tacit transfer, the result of collaborative craft practice, but unconvincing on the conversion from tacit to explicit. They actually define the process as one of capturing in language that which can be so captured, a tautology that tells us nothing about the inexpressible aspects of tacit knowledge. Their illustrations of the process are of teams of workers discussing the corporate slogan “present new values and present joyful driving pleasures” and trying to articulate this into a product - and
into an explanation of the choices they are making. At the same time their footnote refers to Searle’s speech acts and Kant’s statement that language creates the world. The assertion that all knowledge is language is reinforced by their definition of tacit knowledge as involving the person’s belief, perspective, and value system (1995:viii). For Nonaka & Takeuchi, it seems, tacit knowledge is more to do with the difference between individual or collective perceptions and scientifically established facts than with the action embedded skills that interested Polanyi. In short, the real value of the concept of tacit knowledge is that, in spite of its ambiguities, it lets us posit pluralism and incommensurability, and thus the problem of integrating various types of knowledge. It opens up a new theory of the firm, one not derived from Adam Smith’s or Marshall’s notion of an apparatus for combining factually understood capital, land and labor. It also embraces a theory of knowing people as other than purely rational.

In several papers, reviewed in Grant 2002, Grant explores a knowledge-based approach to the firm as an integrative apparatus, drawing also on the work of others such as Machlup 1980, Nelson & Winter 1982, Demsetz 1991, Kogut & Zander 1992. He is focused on the modes of integration that (a) allow individuals to apply their knowledge efficiently to the production of goods and services, while preserving the efficiencies from specialization in knowledge production, and (b) show the firm’s resulting integrating mechanisms are superior to those available across markets. These are the concerns of an organizational economist. The distinctions he takes as axiomatic are (1) between knowledge production and its application within the firm, and (2) between firms and markets. His conclusions are grounded in assumptions about (i) rules and directives, (ii) task sequencing, (iii) organizational routines, and (iv) group problem-solving and decision-making, and he does not need to presume organizations or individuals possess different types of knowledge in order to explore the problem of integration.

Blackler 2002, in contrast, assumes four different types of organizational knowledge: embrained, embodied, encultured, and embedded. Embrained knowledge depends on conceptual knowledge and cognitive abilities, thus is largely explicit. Embodied knowledge is action oriented and essentially tacit. Encultured knowledge is collective, but explicit. Embedded knowledge is collective but more tacit, related to social and institutional arrangements. Thus he implies a two-by-two matrix: implicit/explicit, individual/social. He argues in recent years the balance of strategic significance between these types of knowledge has shifted, the trend to symbolic analysis and embrained knowledge has accompanied a trend towards encultured knowledge. He draws two principal conclusions: first, he uses his typology to show the possibility of four distinct types of organization (2002:53). Second, that Vygotskian ‘activity theory’ and a switch in emphasis from ‘knowledge’ as object to ‘knowing’ as process explores how these various types of knowledge can be integrated into the four types. The problems posed are those of (a) integrating the different types of knowledge, and (b) integrating knowing with doing. The conclusions are markedly less specific than Grant’s, but are clearly outside the boundaries of OT
as currently understood. Spender 1993 likewise adopts a two-by-two matrix of knowledge types, and appeals to Vygotskian activity theory (Spender 1995) or to Latour’s notion of activity systems (Spender 1997).

I conclude that (a) every KM theory is delimited in possible conclusions and the empirical phenomena it can address by the specific knowledge deficiency it takes as axiomatic, and (b) as we move from knowledge types which can be located within an orthodox ‘objective’ epistemology, we can embrace non-positivistic theories about actors with richer uncertainty resolving capabilities.

Part 3 Modeling the emotion experiencing and knowing person

My intention is to use a theory of emotion as a way of bringing more complex models of people into a knowledge-based theory of the firm. What we call various types of knowledge are simply reflections of our different ways of learning about the world. Objective knowledge is carried in language, and learned through mastery of language, while tacit knowledge is acquired through mentored activity. Cognition theory is about interposing fallible and limitedly rational people between phenomena and the knowledge we use to reason about them. It mirrors the movement from behaviorism (S-R) to cognitive psychology (S-O-R). Simon’s concept of bounded rationality is just one variant. Vygotskian activity theory, which offers another theory of the mediating person assumes the individual’s sense of identity is problematic. It relates identity to perception (Tharp & Gallimore 1988). Identity cannot be assumed. It must be constructed, and this makes us vulnerable to perceptual error and personality disorders. We shift from a model in which cognitive structures are simply being reproduced to one in which new structures are constantly being originated, elaborated, proliferated, and obliterated.

Emotion is clearly a key part in one’s identity and everyday activity. Thorndike et al 1927 suggest it is like an atom’s binding energy, integrating the identity’s disparate elements. It is also a type of tacit knowledge, evidenced in a person’s actions and perceptions while under the conditions that produce specific emotions. Likewise tacit knowledge is more than just the motor skills involved in riding a bike or dancing, it embraces non-calculative aspects of the desire to change one’s activity (Oatley 1992), such as the greed of the shrewd trader, or the anger of a lover learning that she/he has been deceived. Given Polanyi’s complementarity of the explicit and tacit, I propose emotion as a form of knowing that complements explicit knowing. Instead of simply celebrating the activity of cycling, we consider the emotional dimensions of living a life that includes the exhilaration of mountain biking. Note that Czikszentmihalyi’s 1988 concept of ‘flow’ embraces the emotional high from action shaped by tacit knowledge – particularly relevant in sports or on the battlefield. Such speculation is all very well, but is there reasonable evidence for treating emotion this way? At this point I do little more than conflate emotion with tacit knowledge whilst recognizing that
we often describe our emotions. The literature of emotion is large and complex, so I turn to Nussbaum (2001) as a guide, hoping to garner enough understanding to find a place for emotion in organizational life.

It seems OK to consider emotion when discussing the arts but not when theorizing about social entities such as firms. Why is this, when anyone who has been part of an organization knows that life within is often highly emotional? Behind this distaste for considering emotion lies the positivist canon cited in Part 2, that ‘value judgments’ are irrelevant because they are ‘unscientific’. The implication is there is nothing to be gained by including emotion. Indeed we must keep ‘people’ and their non-scientific tendencies apart. Art, in contrast, does not aspire to be a science, so there is no reason to exclude emotion. Indeed, we define art as those human artifacts and activities that have no functional value, simple exercises in aesthetics. The methods of science seem irrelevant.

Nussbaum begins with the dichotomy between reason and emotion, inherited from Stoic (early Greek) philosophy. Their point is not that emotion should be ignored. To the contrary, emotions are considered a ‘faulty’ type of knowledge. So we should seek reliable forms of knowledge as we reason about the world. Actually the Stoic notion is somewhat more complex in ways that are crucial to the analysis. To paraphrase Nussbaum (2001:4), emotions are value judgments indicating a person attaches significance to things outside her/his control that affect her/his goals. This definition has several components:

(a) cognitive evaluation, hence knowledge related to perception and learning,
(b) goal-directed activity, hence rationality, and
(c) specific external objects such as people or social institutions, hence attention.

Thus we might get joy from an admired person’s warm greeting or angry at the flat tire that prevents us reaching our destination, cursing it as if it were animate, and could be offended and reciprocate our emotion. A Stoic would advise we keep our cool, and reason more about how to deal with the situation and so reach our goal. The Stoic objective was the undisturbed (cool) life. This required one to extirpate all emotion, to refuse to attach importance to anything beyond one’s control. They knew this was easier said than done. A contrary view of emotion, still influential in some quarters (Nussbaum 2001:24), is that emotion is unreasoning, free and undisciplined energy that interferes with reasoning, simply pushing one around without, as in the view above, being associated with specific knowledge or perceptions of the world. Again the implication is that emotion stands opposed to reason and should be suppressed by mature people.

The Stoic view embraces emotion but is inadequate in that it fails to deal with so much of our experience. In particular, in a theory of the firm we must be concerned with (i) goal seeking motivation and learning, (ii) the collaborative
nature of much economic and organizational activity, (iii), institutional constraints over our activity, and (iv) the development of identity, both individual and organizational. The a-social individualism of Stoic life does not provide an appropriate basis for a theory of the firm. In contrast, Nussbaum suggests emotion is a type of knowledge, not opposed to objective knowledge, as the free energy model implies, but a necessary component of our knowledge about the world. Many dismiss the motivation to know by simply assuming we are an enquiring species pursuing knowledge for its own sake. Others, such as Passmore 1974, argue our real purpose is to achieve mastery over nature and, thereby, the human condition. The lack of theoretical concern with the personal motivations behind science is matched by the dismissal of the emotions of those involved in its progress. Yet we need only recall Neil Armstrong’s first steps on the Moon, or read Watson’s 1970 story of the race to understand DNA, or Sabbagh’s 1996 story of the Boeing 777, to realize the emotional content of both the process and the product of science.

It is one thing to argue that emotions might drive people to create knowledge, quite another to argue that emotion is a type of knowing. The first is comfortable; it lets us separate the activity and its outcome. The second suggests some kind of ‘contamination’ or inter-penetration, exactly what positivism seeks to avoid. The point of the social construction literature (e.g. Gergen 1994), as well as the more venerable literature of the sociology of science, is to examine such inter-penetration. It sees knowledge as a social product, often shaped more by social concerns than by a simple search for the truth. We would add the question of personal identity. I suggest above that those who create knowledge identify with it. Artists and their art are intimately interpenetrated, indeed art is an exposure of the artist’s self. Surely it is reasonable to suggest the same about scientists, and managers and those who create organizations. Bill Gates and Microsoft, Jack Welch and GE, Steve Case and AOL, Henry Ford and the Ford Motor Company, what would one be without the other? There is no great leap from Vygotskian ideas about the development of consciousness to the idea that firms bear the imprint of their founders, and vice versa, that people’s identities are significantly shaped by the work they do and what they produce.

Nussbaum sees emotion as inter-penetrating our knowledge, just as Polanyi sees the tacit and explicit inter-penetrating, for the reasons examined in Part 2, the problematic nature of knowledge. For Nussbaum the critical concept that brings emotion into play as a type of knowledge is the experience of uncertainty. As noted above, positivism admits only ignorance, and thereby makes knowledge a game between the individual and the passive physical universe that contains all that is to be known. But as we move into a universe of boundedly rational people interacting with others, other uncertainties – indeterminacy and incommensurability – come into view. That is the uncertain world about which we must theorize when we consider organizations and markets. Likewise North 1990 argues that social institutions, such as the legal system, are responses to society’s uncertainties. Inasmuch as knowledge is socially constructed, it must
bear the imprint of that society’s institutions and uncertainties. This does not seem controversial. But I also suggest society’s knowledge products bear the imprint of the uncertainties operating at the individual level too. These, following Nussbaum, draw in their emotions. For example, as an émigré from Nazism, Popper’s passion about the ‘open society’ fashioned his philosophizing. If knowledge is to be that which changes the world, then it must model that world in its social and psychological respects.

We can now seek direct links between emotion and organizations. Nussbaum’s treatment is innovative because it breaks through the customary treatment of emotion as an undifferentiated tangle of feelings. Hate, anger, envy, fear, guilt, grief, etc. are often lumped together, restating the opposition between emotion and reason. But to analyze their interpenetration, and show that emotion is a type of knowledge important to organizational theorizing, we must distinguish the emotions and their impact on the ways individuals behave, and organizations form and operate. I need not consider every type of emotion to illustrate the method. So in the next and final part of the paper I consider compassion, disgust, awe and fear, and relate them to the tacit underpinnings of a knowledge-based theory of the firm.

Part 4 Tying Nussbaum’s theory of emotions into a theory of the firm

Nussbaum (2001:354) starts with compassion. The Stoic rejection of compassion is no simple hard-heartedness. It springs from a respect for individual consciousness and people’s ability to sustain their identity and sense of self-worth under trying conditions. The case against affirmative action is grounded in Stoicism. But to deny compassion entirely is unacceptable, we are social beings. Even Kant, who dismissed the emotions as pre-rational, offered the dictum ‘treat others, and oneself, as an end, not a means’, often re-phrased as ‘treat others as one would they treat you’. The impetus to compassion lies in our consciousness of need. The Stoic attitude was that we should aspire to live believing we ourselves complete, and whatever our feelings, require nothing from others. To expect compassion is to diminish oneself, to feel it for others is to place oneself above them.

Nussbaum neither denies emotion nor surrenders to it. She argues for a middle position that admits emotion but limits its impact. So she applauds compassion but argues it must be framed appropriately. If compassion is an insubstantial type of knowledge and a poor basis for decision-making, correct framing may diminish the risks. First, seeing another’s loss of, say, a child or a home or of a faculty such as sight, triggers our compassion. But it must be bounded by an appropriate sense of the lost value. Thus appropriate compassion stands on a good understanding of how society works, and how its goods and happenings should be properly valued. It is grounded in tacit knowledge of the concrete aspects of that society. Second, a loss can occur for many reasons, some of
which may not inspire compassion. We do not feel compassion for a gambler loses his stake, even his last for we recognize the agency of the object of our compassion. We feel compassion for those killed in the WTC attack in part because they seemed ‘innocent victims’, in no way deserving of what happened. We are distressed when we hear people say we deserved the 9/11 attacks, it undermines our expectations of compassion. Thus compassion is bounded by a theory of just deserts and appropriate social responsibility. Third, the loss must be eudaimonistically relevant to the person for whom we are to feel compassion, meaning involved with that person’s flourishing. Compassion relates to the agent’s goals, we see the loss interfering with reaching those goals. We feel little for the deserted husband who failed to value and nurture his marriage. But much of our compassion for the WTC victims, and the logic behind their compensation, is grounded in a sense of the victims’ lost futures, the loss of their opportunity to flourish.

In summary, appropriate compassion stands on concrete knowledge of a society and of the practices people employ as they construct their lives under its real and uncertain conditions. First, it entails a theory of the value of social and psychological goods; second, a theory of agency and social responsibility; and third, a theory of appropriate personal goals. Nussbaum (2001:391) concludes: “the judgments characteristic of compassion are essential for the health of a complete adult rationality”. The Greeks sought such rationality for the ‘good life’, a rationality far from that which Simon criticizes.

Emotion is always directed toward a specific object in the person’s world, and thus at a particular time. The Greeks considered ‘freshness’ a revealing characteristic of emotion. Time is the great healer and we see that again, a year after the WTC attacks. Likewise the law recognizes the special circumstances of crimes of passion. Some might believe love is enduring while anger is fleeting, though others may think the opposite. Rage, love, hate, envy, joy, each suggests a different time-scale. Time may erode the sharper features of emotion, but the healing transformation is probably less to do with the emotion’s vanishing than with its sedimentation. It remains part of our life but becomes more tacit, the process Weber called routinization when applied to a leader’s charisma. The notion reappears again in Nelson & Winter’s routines. These, I suggest, remain laden with the emotions that attended their creation, and they can be surfaced again just as therapy surfaces the emotional content of our personal routines. Nussbaum’s enquiry is actually prompted by Proust’s analogy between emotion and mountain producing earthquakes. It led to her title “Upheavals of thought”. Proust tells us that emotion, especially love, disrupts the equanimity of life. While Proust’s metaphor is geological, others employ the metaphor of fabric. Loss rips the social fabric. Grievers rip their clothes. The loss of the towers ripped the fabric of Manhattan, its families, firms, and communities.
How do our other emotions interact with our compassion? Compassion reminds us of our social nature, that “no man is an island”, that we reach out to others because of our sense of ourselves. But as we declare individuality problematic, we have to identify roots to our sense of identity. Where is the boundary around the individual? The physical body or our bounded body of knowledge? Simon’s 1976 discussion of bounded rationality is ambivalent. Sometimes he keys it to an individual’s limited information, sometimes to his limited ability to process information. We know the boundaries around the self and around organizations are permeable, but they are typically sensed and maintained well enough to let the actors identify their interests and decision-making goals (Thompson 1967).

Mature adult rationality presumes appropriate goal identification. Yet so far we imply compassion is un-bounded, even if it shades off asymptotically. Appropriate compassion depends on socially legitimated understanding of those who lie beyond the pale and so beyond the reach of our compassion. It is by analyzing the emotions we feel, and the decisions we make, that both the objects of our attention and our boundaries’ placements are revealed. Thus we come to know our identity. Such knowledge is transient and context-dependent. We remain open to surprise about how we might respond to new uncertainties. Many caught up in the al-Qeada attacks, like those on Flight UA93, downed by its passengers, surely discovered aspects of themselves that they had not previously known.

Like many other authors examining interpersonal relations under uncertainty, Nussbaum draws on the Holocaust literature. It provides some of the most extreme illustrations of how we contrive to define others as undeserving of our compassion. She argues the Nazis and their collaborators considered the Jews to be vermin, filth, excrement, disgusting. Nussbaum focuses on the emotion of disgust, arguing it pivots about the boundaries of the body (2001:200). To suggest that Microsoft and Apple feel disgust towards each other, and thereby discover their identity, is to miss the point that there is more to their relationship than can be derived from a competitive economic model. Apple’s famous anti-conformity Super Bowl advert revealed a deep antipathy to Microsoft, a sentiment widely recognized – and shared - throughout the computer industry. Their anti-trust case could never have arisen absent such emotion. Managers often seek to demonize competitors, to add emotional punch to the marketing struggle, without resorting to disgust. Yet the feeling is often there, a difficult-to-pin-down unease about an alien way of doing things and being.

Probing a firm’s identity is complicated because firms are often cousins than competitors. A gas station in one town is not competing with another half a tank-full away, they are collaborating parts of the infrastructure. Businesses with limited means and no ambition to monopoly often adopt similar ‘industry recipes’ or ways of framing their situation (Spender 1989). Other sources of identity are the firm’s institutionalized or routinized attitudes towards customers and suppliers. In practice identity is partly shaped by passed-down notions, often
deeply infused with nostalgia and stories about the ‘good old days’, reflecting the experiences of others towards whom we may feel compassion and respect. But it is also shaped by the shocks and uncertainties we have been forced to absorb and the resulting personal emotions.

By now the reader may be wondering about power and where it figures. Surely firms are held together by power rather than by compassion and disgust? In these final comments I consider the emotions associated with power: awe, fear and, finally, our competences and confidence in power-structured situations. Etzioni’s 1971 analysis of complex organizations identifies three types of power: calculative, cultural, and coercive. In this paper I have moved from rational self-interest, the calculative basis for organization, to the social and cultural basis of identity through action, following the idea that knowledge deficiencies produce emotional responses as they arrest rational decision-making. Inasmuch as we have considered external objects it is as sources of interference with the achievement of the person’s goals.

The writings on power are vast. Much springs from Weber’s 1969 definition of power as one person’s ability to make another follow some course of action, even though the other person wishes otherwise. Barnes 1988 mounts an interesting critique, pointing out that it focuses on the effect of power rather than on its nature or sources. What leads to behavior change? Is it one actor’s rationality, the power holder’s, being substituted for another, the other actor’s own, as one computer program might displace another? Or is this process physical, out of the actor’s control? Or is it voluntary, a consequence of the actor’s agency? Barnes offers several insights. First, he sees power as an integral feature of all concrete social situations. Social power and social knowledge are equivalent. Knowledge is power. Second, following Parsons’s social action theory, he argues power is the network’s capacity for action. Power and knowledge can be collective, like culture. So can action. Individuals have power when they have significant discretion over the network’s capacity for action. The power relation between individuals is a consequence of their different placement in the social network. Barnes reminds us of Parsons’s analogy between power and wealth.

If we want to understand why one would follow the dictates of another, we must delve into the emotions generated by power differences. First there is awe. One of the unforgettable aspects of being around powerful people is the awe they generate. They possess a gravitational pull that sucks power from those around them, forcing these others to give up their power, leaving them less powerful. We know that political power rests on the willingness of the constituents to grant power to their leaders, but there are also emotional dimensions too. Such power is clearly ‘cultural’ in Etzioni’s typology, voluntarily given up in the dynamic process of social structuration. Second there is fear. The network’s capacity for action can be turned against less powerful individuals in the form of sanctions. This is coercive power. Note that the effects of awe and fear can be the same,
even though the emotions are very different. Fear is generated by sanctions threatened or applied and arise from threats to one’s identity, uncertainties that interfere with one’s functioning, goals and even existence. Sometimes they cannot be coped with. Stoicism is a defense, but fear is universal because we know our defenses can be breached. Just as disgust is grounded in a sense of one’s own body, and of it being violated, so is fear is grounded in threats to one’s body. But as with disgust, fear readily transcends purely physical concerns.

There is much fear, both individual and organizational, in the corporate environment. The sanctions differ from those in the social environment but are just as persuasive. The threat of being fired is as an attack on one’s family as well as one’s social identity. Corporate sanctions can be more directly focused. The tools available to those with greater power to generate embarrassment, greed, shame, guilt, anger, loathing, etc. are considerable. There is also the task of integrating the various types of knowledge, and emotions, into reasoned action. This is the essence of what managers do and it is reasonable for them to feel fear if they sense they may not be competent to deal with the uncertainties present. Just as fear can freeze a mountain climber, so it can freeze managers into inactivity or indecision. An especially nuanced fear is of having to compromise one’s values in the face of the complex pressures of the workplace. Recalling Etzioni’s typology, compassion and disgust are emotions on the cultural plane. Reaching out to others, social identity is developed at this level. Coercive power is on a different plane that proclaims individuality and fears of the sanctions that others can bring to bear. The firm’s identity is defined by the limits to its capacity for social action towards others, both cultural and coercive. Fear, whether individual or collective, is an emotional response to uncertainties that threaten identity.

Finally there is the feeling of competence, confidence, and satisfaction, both with one’s ability to control the situation and one’s positive enjoyment in using the tools available. Much of organizational life grows out of people’s ability to cope with and gain satisfaction from the practice of the skills and specializations Smith argued are key to the firm’s nature. Competence carries us beyond an instrumental relationship with the firm. We establish an identity far from the Stoic ideal, one in which we frame ourselves in terms of our work and our professional place. For many the psychic benefits are more strategic that pay. Highly valued while they work, the feeling becomes bitterness if we get laid off. Likewise ambition may be either the search for power or for the satisfactions of dealing with more complex problems. We should note the satisfactions about which managers typically speak: not about power, rather about a job well done, the firm robust, customers satisfied, employees’ skills raised, public responsibilities met. All convey a powerful sense of organizational identity, more than sufficient to cope with the uncertainties experienced.

To summarize how the emotions of people acting under uncertainty meld into a theory of the firm: in the final part of the paper I explore five emotions whose
principal leverage is over identity. While employees have explicit knowledge of the firm, its constituent parts and linkages, and of its environment, it is riven with uncertainties. Emotions are raised by or directed towards concrete entities in the firm’s situation, an inevitable aspect of the awareness of uncertainty and compromised control, and interference with achieving the firm’s goals. The process of emoting helps resolve these uncertainties.

- compassion, the need to reach out to others and identify with them,
- disgust, the need to distance ourselves from others and identify ourselves as differing from them
- awe, the willingness to grant others higher levels of discretion in the social power network,
- fear, the awareness that others and their sanctions can threaten our identity, and
- the warm feelings of competence and satisfaction that reinforce identity.

As they develop a sense of competent identity firms and agents come to know emotionally rather than explicitly, who they are, how and why they interact with others within the firm, and where the firm’s boundaries lie. These emotions are inevitable in any network of social power, and are complementary to any less than perfect knowledge about the entities that are the objects of attention. Our emotions are the tacit aspects of our knowledge of our concrete situation. They motivate our creativity about the gap between the limited knowledge available and our need for coherent reasoned action. The other emotions, envy, grief, love, and especially anger, also have their place as aspects of organizational knowledge and need to be brought into our theory. But the analysis above illustrates the thrust and method of the argument.

**Conclusion**

Where does this leave us? Perhaps I am only saying that acting under uncertainty makes people emotional. This becomes less trivial once we concede that managers, as opposed to academic theorists, constantly experience the collision of responsibility and uncertainty. We could define management’s principal task not as one of making rational decisions under conditions of certainty, but one of constructing a provisional rationality sufficient to making reasoned goal-oriented decisions under conditions of uncertainty. This is too extreme; we need to integrate both definitions. Nussbaum’s insight that our emotions are directed towards entities that threaten our progress towards our objectives, and thus complement our factual knowledge, gives us a path towards such integration. We conclude that a knowledge-based theory of the firm must pay attention to both explicit knowledge and to the creation, movement, and storage of members’ emotions – and to their articulation into action.
My conclusion, that objective knowledge and reason alone are insufficient to in concrete social situations, and that there has to be some means of dealing with uncertainty, has profound implications for any theory about managing real firms. Simon 1952 suggests we now have two distinct bodies of theory about the firm, microeconomics and OT, un-integrated because they are axiomatically distinct and thus address different uncertainties (Spender 1989). A knowledge-based approach gives us new leverage because we address uncertainty directly as we make assumptions about the ways in which knowledge can be problematic. In Part 1 I consider positivist theories and argue the only uncertainty considered is ignorance, the absence of objective knowledge. In Part 2 I add indeterminacy and incommensurability. The first follows when others with their own identity enter our analysis, for we cannot know their reactions to our actions. The second arises when we cannot integrate our knowledge into a coherent picture. In Part 2 I also argue the term knowledge management merely obfuscates a positivist analysis. We have no need of it. KM is properly that which goes beyond ignorance to address additional types of uncertainty. While this may have seemed arbitrary at first, introducing emotions shows it is not.

Nussbaum argues emotion is our response to the uncertainties that interfere with our goal-oriented activity. These uncertainties derive from, and our emotions are directed towards, specific aspects of the concrete environment, so the emotions are part of our knowledge of that environment. The positivist frame only allows one uncertainty, ignorance. We cannot attach feelings to what we do not know so cannot feel emotion about ignorance. We can have feelings about our being ignorant, but these feelings are directed at a concrete object, ourselves. The other uncertainties do lead to emotion. We have feelings about others we are attached to or who have power over us. When we cannot integrate what we know into a coherent basis for action, we experience incommensurability and its attack on our sense of identity. Thus Nussbaum’s treatment of emotion gives us a way of distinguishing between (a) positivist theories of the firm, objective in that it is purely rational and deals with objective data, and (b) knowledge-based theories that allow more complex models of people and allow different types of knowledge. Beyond this distinction, of course, lie very different theories of the firm and reasons for their existence. We may be able to illuminate Williamson’s (1975) argument. Instead of focusing on transaction costs, we may be able to theorize more generally, arguing, along with North (1990), that organizations exist to deal with uncertainty. They do so by exposing employees to specific uncertainties and structuring the emotions and responses precipitated. These emotions drive the creativity that Smith believes is key to the firm. Markets, in contrast, generate rather than absorb all three types of uncertainty.

Surprisingly, once we address rather than deny emotion we open up novel avenues for empirical research. Emotional is readily observed and can also be self-reported. First, as Simon and Nelson & Winter indicate, with bounded rationality there are difficulties with measuring the firm’s ‘relevant environment’. Precisely how is the manager’s or the firm’s perceptual lens constructed or
bounded? Perhaps we can develop a method of measuring specific emotions that has some parallels to lie detection, thus researching the environmental aspects about which managers feel emotion and plotting the field so bounded. The classic verbal projective techniques used by most consultants, and in my industry recipe research, are one version (Spender 1989). Second, we can track uncertainty resolution within the firm by following the processes of emotion management. Many would call this leadership. Charismatic leaders, corporate and military, are able to channel our feelings, helping us deal with our fears or to encourage our compassion and interest in others. We learn to lean on others and make alliances. Story telling, myth making, and other culture management processes are also researchable. When successful, fact and emotion are subtly interwoven and integrated in ways that augment and sustain organizational and personal identity. Introducing emotion is a highly practical way to give meaning to the concepts of organizational knowledge and knowledge management.

Finally we should take a brief and respectful glance at Nussbaum’s incisive analysis of love. Like compassion, disgust, awe, fear, or competence, love is focused on an external object. But unlike these other emotions, love entails allowing the object of affection to reach into one’s identity, utterly exposing oneself to another that one cannot and shall not control. The greater this penetration of one’s identity, the less relevant is explicit knowledge of the other. To live with this we can simply suffer, as does Proust’s hero, or, alternatively, come to trust the other utterly as we experience the ultimate uncertainty of the ultimate emotion.
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