

FALLIBILISM AND ORGANIZATIONAL RESEARCH: THE THIRD EPISTEMOLOGY

Published as:

Powell, T.C. 2001. Fallibilism and Organizational Research: The Third Epistemology, *Journal of Management Research*, 4, 201-219.

Correspondence to:

Thomas Powell
Professor of Strategy, Oxford University
Saïd Business School
Park End Street
Oxford OX2 8BZ UK
thomas.powell@sbs.ox.ac.uk

FALLIBILISM AND ORGANIZATIONAL RESEARCH: THE THIRD EPISTEMOLOGY

Abstract

Epistemology is the study of knowledge - of what is known and how we know it. Organizational epistemology is dominated by the dualist opposition of objectivist and subjectivist philosophies of science. Objectivists accept knowledge claims as potentially true and warranted on objective evidence, whereas subjectivists ground knowledge in perception, phenomenology and social construction. Though these two perspectives differ in their ontologies (the reality of constructs and relations) and methodologies (how these relations can be observed), both views accept that reliable organizational knowledge is possible. This paper introduces a third epistemological perspective - fallibilism - and shows how neglect of this third epistemology has constrained advance in the objectivist-subjectivist debate. Fallibilism, which challenges the foundations and reliability of knowledge claims, occupies a significant place in every major philosophical tradition, but contradicts the prevailing rhetoric of knowledge-claiming in organizational research, and has been systematically excluded from the debate. In this article we present the foundations and precepts of fallibilism, show how its absence has invited divisive and sectarian dogmatism, and explores its potential contributions to organizational research.

FALLIBILISM AND ORGANIZATIONAL RESEARCH: THE THIRD EPISTEMOLOGY

Organization and epistemology

It is customary in the philosophy of social science to depict organizational epistemology as a debate between objectivist and subjectivist perspectives (Burrell and Morgan, 1979; Morgan and Smircich, 1980; Gioia and Pitre, 1990; Knights, 1992). Whereas objectivists accept the independent existence of organizational entities and behaviors, and of causal relations between them, subjectivists reject the existence of these entities, behaviors and relations, independent of a knowing human subject. In short, objectivists defend the common-sense view that external entities exist independent of perceivers and can be investigated using quantitative methodologies, whereas subjectivists believe that different subjects experience different realities, and hence that qualitative methods yield more reliable knowledge. In so doing, subjectivists raise a host of accusations against objectivism, including *reification* (treating an abstract like “culture” as a concrete cognitive or behavioral entity); *abstracted empiricism* (applying quantitative measures to inherently qualitative concepts); *false causality* (absence of causal mechanisms); *cognitive researcher bias* (of the sort presented in Kahnemann and Tversky, 1982, 2000); or *researcher ideology* founded on positivism, gender, ethnicity, or sexual orientation (see Silverman, 1970; Burrell and Morgan, 1979; Astley, 1985; Calas and Smircich, 1997).

Clearly, objectivists and subjectivists differ in their organizational ontologies (i.e., whether organizational constructs and relations are “real”) and methodologies (i.e., how to investigate these constructs and relations). However, they do not differ in their *epistemology*, insofar as both regard organizational propositions as fundamentally knowable. On this issue, both are dogmatists, i.e., both sides believe that knowledge about organizations is possible. Whether adopting realist or idealist ontologies, or quantitative or qualitative research methods, both sides assert that these constructs, relations and methodologies produce reliable knowledge about organizations.

If organizational knowledge is truly achievable, then knowledge-claiming is defensible, and a contest of knowledge claims is a reasonable process for advancing organizational research. However, the role of epistemology in social science is not merely to justify our knowledge claims, but to probe the justifiability of knowledge-claiming itself. If we cannot show that organizational knowledge is possible - or in what sense such knowledge is possible, or the limitations of knowledge-claiming as an activity - then our claims to know organizational propositions are premature. Moreover, if the possibility of organizational knowledge is poorly established, or cannot be established, then the prevalence of knowledge-claiming on both sides of the organizational debate is itself a behavioral pattern worthy of investigation.

The primary theme of this paper is that the possibility of organizational knowledge has neither been established nor significantly discussed in organizational research. By epistemological neglect and persistent overclaiming, the objectivist-subjectivist debate has devolved into something less than productive and progressive scholarship, resembling instead a sectarian struggle between competing and entrenched dogmatisms, or faiths. With neither party having established the grounds for knowledge-claiming, the debates consist all too often of empty persuasion and rhetorical flourish, devoid of epistemological foundation.

To see how it might have been otherwise, we need only compare the dualistic debates in organizational epistemology with epistemological debates in philosophy itself. Objectivism and subjectivism did not spring forth as original insights in organizational research but emerged from long-standing Western and Eastern philosophical traditions. But in every major philosophical tradition we find a third branch of epistemology altogether absent in the two organizational perspectives – a *fallibilist* epistemology concerned with establishing criteria and justifications for knowledge-claiming. In philosophy, fallibilism acts as a kind of thermostat, deterring and constraining excessive knowledge claims among positivists, realists, empiricists, idealists, rationalists,

existentialists, etc., and thereby protecting the discipline's epistemological integrity. Without such a constraint, epistemological debates might easily descend into semantics, extravagant overclaiming, and entrenched, increasingly-dogmatic churches of belief, as in fact we observe in organizational research.

In the following two sections, we present two philosophical arguments representative of the fallibilist approach – thick illusion and Gettier problems – and from there discuss the origins, precepts and potential contributions of fallibilist epistemology to organizational research.

Thick illusion

In the 1998 film *The Truman Show*, the protagonist had lived his entire life, unbeknownst to himself, as a television character. The evil director successfully deceived Truman because the illusion coopted precisely those of Truman's perceptual faculties that might have discovered the trick. Nothing Truman saw, heard, touched, tasted or smelled contradicted the illusion, and his entire experience produced an escalating conviction in the illusion's authenticity.

Philosopher O. K. Bouwsma, a friend and student of Wittgenstein's, called this class of perceptual trick "thick illusion," in that it creates a world so convincing that perceivers accept it as real (Bouwsma, 1995). Other examples may include dreams, hallucinations, psychoses and drug-induced states. By contrast, a "thin illusion" can be falsified by sense data - a plastic flower, an image in a mirror, a portrait in a museum, a movie, a computer game, an oar appearing bent in the water, all these are thin illusions for most adult humans.

Thick illusions become indistinguishable from truth, woven into the fabric of consciousness, absorbed as frames of reference not unlike Simmel's (1978) "a priori," Goffman's (1974) "frames" or Kuhn's (1962) "paradigms." Thick illusions survive because they could only be detected by precisely what humans lack, namely an augmented sensory faculty unaffected by the illusion. Thus,

in Bouwsma's thought experiment, a creature with a sixth sense (which he called "cerpicio") declared real flowers illusory because he could not "cerpicio" them: "If I cannot also *cerpicio* what I see, smell, touch, etc., what I have then seen is not anything real. *Esse est cerpicio*. I just now tried to *cerpicio* your flowers, but there was nothing there." (1995, p. 135)

The notion that human consciousness operates under thick illusion is a recurrent theme in Hinduism and Eastern philosophy, and runs persistently through the history of Western philosophy. Plato told the allegory of the cave, in which cave-dwellers accept shadows as reality and reject rumors of brightly-colored, three-dimensional life outside the cave. In his *Meditations*, Descartes could not reject the possibility that we are all mad, that life is a dream, or that our consciousness is the handiwork of an evil genius:

I will suppose not a supremely good God, the source of truth, but rather an evil genius, supremely powerful and clever, who has directed his entire effort at deceiving me. I will regard the heavens, the air, the earth, colors, shapes, sounds, and all external things as nothing but the bedeviling hoaxes of my dreams, with which he lays snares for my credulity. I will regard myself as not having hands, or eyes, or flesh, or blood, or any senses, but as nevertheless falsely believing that I possess all these things.

Berkeley (1929a) claimed that visual distance is a thick illusion - some perceptions appear smaller than others, certain manipulations render them larger or smaller, but nothing lies "farther out there." In fact, for Berkeley, and for much of Western philosophy since, nothing lies "out there" at all. Berkeley argued that all the properties of so-called objects - taste, texture, color, extension, etc. - are, in fact, properties of perceivers (Berkeley, 1929b), so that matter itself is a thick illusion.

Hume denied not only matter but causation - cause involves no necessary connection, but a mere repetition of events (Hume, 1951). Kant concluded that time and space are also properties of perceivers, not of external reality - time and space are little more than the organizing templates into which we pour sensation and perception (Kant, 1965). In the Kantian spirit, philosophers such as Hinton (1910) and Ouspensky (1920) argued that, if space is perceptual, then its three-dimensional character is also a thick illusion, a limitation of human perception. Nineteenth century Scottish

writer Thomas Carlyle (1937), under the influence of Kant and Goethe, and in turn a major influence on American “transcendentalist” philosophers (such as Emerson), held that nearly all human experience is illusory, a kind of imprisonment, a deception perpetrated by familiarity, tradition, and the herd instinct.

In our own time, textbooks provoke first-year philosophy students with the “brain in a vat” scenario, suggesting that a brain, wired with electrodes to produce visual, tactile and other sensations, might render precisely the realities we now experience. The brain in a vat, though far-fetched, fully accounts for human consciousness and is arguably no more far-fetched than explanations founded on the independent existence of space, time and material substance.

Formally, if we are to establish the truth of any organizational knowledge claim - or of any knowledge claim - then we must *completely exclude* any possibility of thick illusion. But of course, thick illusion can ever be completely excluded because all thick illusions are, by definition, unfalsifiable. As such, uncertainty never vanishes, and moreover it is impossible even to estimate the degree of that uncertainty. The next section shows, through a recent debate in philosophy, why fallibilists believe that “uncertain uncertainty” undermines knowledge claims.

The Gettier problem

Epistemology is the study of knowledge, and an important epistemological unit of analysis is the *knowledge claim*, an assertion that something or other is the case. We are not concerned here with other usages of the terms “know” or “knowledge,” e.g., to be acquainted with x (as in “I know Sausalito” or “I know Maria”); or to possess the ability to x (as in “I know how to swim”).

Assertorial knowledge claims are expressible in propositional form, though they are rarely prefaced with explicit claims of the form “I know that . . .” or “It is the case that . . .” In organizational research, the following are taken to be knowledge claims:

New information technologies have increased the scope and reach of workplace surveillance. (Sewell, 1998, p. 397)

Institutions come with rationalized myths that make sense of their establishment and existence. (Holm, 1995, p. 401)

Top management team characteristics consistently predict organizational outcomes better than do CEOs' characteristics alone. (Hambrick, Cho and Chen, 1996, p. 662)

In traditional epistemology, a known proposition must be true, believed and certain (Hospers, 1956; Lucey, 1996). One cannot know that New Zealand is larger than Australia, because it is not true. One who does not believe Australia is larger than New Zealand does not know it, even though the proposition is true. Finally, we do not know that New Zealand will win the next three America's Cup races because it is objectively uncertain, i.e., we don't know it even if we believe it and it turns out to be true. Philosophers sometimes refer to this third criterion as justification – we don't know unless our true belief is justified on the evidence.

The formula *justified true belief* is one defensible definition of knowledge, sometimes called the “standard analysis,” and was for many years accepted uncontroversially among philosophers. Then, in 1963, Edmund Gettier published a brief article entitled “Is Justified True Belief Knowledge?,” in which the author posed two brief scenarios of justified true belief that appeared to fall short of most philosophers' acceptable standards of knowledge. The first scenario was as follows:

... Suppose that Smith and Jones have applied for a certain job. And suppose that Smith has strong evidence for the following conjunctive proposition:

(d) Jones is the man who will get the job and Jones has ten coins in his pocket.

Smith's evidence is that the president of the company assured him that Jones would in the end be selected and that he, Smith, had counted the coins in Jones's pocket ten minutes ago. Thus:

(e) The man who will get the job has ten coins in his pocket.

... Smith is clearly justified in believing (e) is true. But imagine further that, unknown to Smith, he himself, not Jones, will get the job. And, also, unknown to Smith, he himself has ten coins in his pocket. Proposition (e) is then true, though proposition (d), from which Smith inferred (e), is false. In our example, then, all of the following are true:

(i) (e) is true; (ii) Smith believes that (e) is true; and (iii) Smith is justified in believing (e) is true. (Gettier, 1963, p. 122)

Because Smith held a justified true belief with respect to (e), but could not be said to know (e), Gettier had shown that “justified true belief” provided, at best, necessary but not sufficient

conditions for knowledge. And Gettier's paper, brief though it was, set off an explosion of monographs in which philosophers presented their own examples, refutations, counter-examples and reformulations of the standard analysis (e.g., Clark, 1963; Saunders and Champawat, 1964; Feldman, 1974; Lehrer, 1979; Pollock, 1986).

Despite absorbing the talents of leading epistemologists for many years, this search for the so-called "fourth condition of knowledge" (Klein, 1971) was not satisfactorily resolved – new conditions produced new counterexamples, producing more elaborate counterexamples, etc., until finally most epistemologists either settled tenuously on one view or other, or quietly took up less intractable philosophical problems (Lehrer and Paxson, 1969; Klein, 1971, 1979; Levy, 1978). But the debate highlights one of the central problems of knowledge: if we can't identify what knowledge entails, how can we claim to know anything at all?

It is precisely this challenge to knowledge-claiming, so prevalent in philosophy, that is absent from debates between organizational objectivists and subjectivists. Having emphasized questions of ontology ("Are organizational constructs and relations real?") and methodology ("How do we research them?"), these debates overlook the underlying fragility of all knowledge claims and, in so doing, fail to establish epistemological criteria for evaluating propositions about organizations. A fallibilist does not insist that objectivist or subjectivist epistemologies are wrong, but that they are incomplete - we cannot know whether they are wrong because they provide no criteria for evaluating organizational knowledge claims. Objectivists and subjectivists are, in that sense, *dogmatic* for claiming knowledge without having established foundations for knowledge. In the next section, we examine the epistemological foundations of objectivism, subjectivism and fallibilism, and explore further arguments and consequences of the third epistemology.

The philosophical foundations of organizational epistemology

The objectivist-subjectivist debate has historical antecedents in Eastern and Western philosophy. Objectivism finds its Western roots in Aristotelian empiricism, was resurrected in Francis Bacon's inductivism, and emerged in modern philosophy through 18th century Scottish "common sense" philosophers such as Thomas Reid and Dugald Stewart. Objectivism was systematized in the social sciences under positivist sociologist August Comte, and received twentieth century support in the school of realist analytical philosophers such as G. E. Moore of Cambridge. The objectivist view underlies ordinary perception and informs most of organizational research conducted under positivist, functionalist paradigms using methods resembling those of the natural sciences. In contemporary organizational research, the objectivist view would encompass most research conducted, for example, under contingency, population ecology and systems approaches.

By contrast, subjectivism finds its philosophical roots in Platonic idealism, received an 18th century reorientation in Berkeley's subjective immaterialism, and has been embraced or restated in various existentialist traditions, from Nietzsche through Sartre and Hiedegger; by phenomenologists in the tradition of Husserl and Schutz; and in postmodern approaches tracing their philosophical influences through these schools, including Derrida's textual deconstruction and Foucault's archaeological and genealogical approaches. In the social sciences, the subjectivist view has manifested itself in phenomenological perspectives (Deutscher, 1973; Douglas, 1970), symbolic interactionism (Blumer, 1969; Becker, 1970), and in qualitative or exegetical methodologies, including ethnomethodology (Garfinkel, 1967; Turner, 1974), ethnography (Clifford and Marcus, 1986; Van Maanen, 1988), and textual deconstruction (Calas and Smircich, 1991, 1997). Husserl's view is typical of the subjectivist perspective as it has filtered into social science:

The world is for me nothing else but the world existing for and accepted by me. . . By my living, by my experiencing, thinking, valuing, and acting, I can enter no world other than the one which gets its sense and acceptance or status in and from me. . . (quoted from Westphal, 1995, p. xvii)

Fallibilism is the view that no empirical statement is impervious to epistemological challenge - for example, to arguments such as thick illusion and Gettier problems - and hence that our propositions, whether objectivist or subjectivist, amount to something less than true and certain knowledge. As such, a fallibilist would look critically not only on objectivism and subjectivism, but on the foundations of the entire objectivist-subjectivist debate, comprising as it does a competition among knowledge claims.

Fallibilism has its ancient Western roots in Pyrrho of Elia (c. 300 b.c.), who wrote nothing, but, according to Diogenes Laertius “held that there is nothing really existent” and “led a life consistent with this doctrine, going out of his way for nothing, taking no precaution, but facing all risks as they came.” (Laertius, p. 475) Pyrrho’s fallibilist views were recorded by his student Timon, systematized by second century Alexandrian philosopher-physician Sextus Empiricus, and entered Renaissance philosophy through Spanish philosopher Francisco Sanchez (1588) and French satirist-essayist Michel de Montaigne (1588). Fallibilism was instrumental in the birth of modern epistemology - particularly through its influence on Descartes, Hume, and Kant – comprising, according to one source, “*the* main force in the broad sweep of Western philosophy from Descartes through Hegel.” (Sosa, 1995) Fallibilism arises conspicuously in the epistemologies of pragmatist philosophers C. S. Peirce and William James, and later in Santayana and Wittgenstein, and has increased in philosophical influence in the latter half of the twentieth century (Rescher, 1980; Blackburn, 1994), primarily through the work of philosophers such as Arne Naess (1968), Charlotte Stough (1969), Peter Unger (1975), Barry Stroud, (1984) and Richard Popkin (1967, 1979, 1980, 1988).

Fallibilism rejects the assumption that propositions can be known, taking the knowability of propositions as a claim to be demonstrated. To the fallibilist, objectivism and subjectivism are equally afflicted with knowledge dogmatism, the unstated and unproven assumption that propositions can be known. But, consistent with their rejection of dogmatism, fallibilists do not

insist on the truth or certainty of their own perspective. The original Pyrrhonists, for example, adopted a mental posture known as *akatalepsia* – suspicion toward appearances - and a method of inquiry called *isosthenia* – the balancing of opposite views. For the Pyrrhonist, *akatalepsia* (Stage 1: suspicion of appearances) leads to *isosthenia* (Stage 2: balancing of opposite views), which leads to *epoche* (Stage 3: suspension of opinion).

In this way, fallibilists raise arguments such as thick illusion and Gettier problems not as true and certain propositions, but as correctives or counterweights to existing knowledge claims. Life may not be a dream, a hallucination, or the twisted hoax of an evil genius, but neither can these possibilities be formally eliminated. And if philosophers themselves cannot establish necessary and sufficient conditions for knowledge, then researchers have a responsibility to disclose the criteria by which they believe their propositions can be known. The fallibilist finds it peculiar and psychologically interesting that objectivists and subjectivists exchange increasingly sophisticated knowledge claims with no significant debate on knowledge fallibility.

The Pyrrhonist “balancing of opposites” has enabled fallibilists to serve the thermostat role in the historical sense that, when scientific knowledge claims became dogmatic or excessive, fallibilists emphasized the vulnerabilities of scientific knowledge, as with Bayle, Sanchez, Montaigne and Feyerabend; and when mysticism took the ascendancy, fallibilists turned a skeptical eye on beliefs, providing outlets to scientific knowledge, as in the skeptical empiricism of Sextus Empiricus, Peirce, James and Wittgenstein. In this way, fallibilism has provided essential checks and balances in the evolution of philosophy and philosophy of science.

By contrast, organizational sociology, lacking a fallibilist epistemology, has been susceptible to epistemological extremes, ranging from the brash and presumptuous knowledge-claiming of which objectivists are often accused (Parker, 1992; Knights, 1992), to postmodern ideological skepticism (Kilduff and Mehra, 1997; Calas and Smircich, 1997), to harping and disconsolate self-critiques

lamenting the field's lack of a genuine paradigm, or its overabundance of pseudo-paradigms (Perrow, 1972; Albrow, 1980; Pfeffer, 1982, 1993; Astley and Van de Ven, 1983). Although the objectivist-subjectivist debate illuminates differences in researchers' views of ontology, determinism, power and radical change, it provides little *epistemological* discrimination, and no metacritical mechanism from which to assess the dogmatism common to both perspectives. Although many organizational researchers seem confused by the apparent anarchism of postmodernist perspectives, the emergence of such perspectives seems almost inevitable in an entrenched dualistic environment lacking any fallibilist metacritique. Postmodernism is less a form of anarchism than a classic countervailing ideology attempting to correct the hubris of a field with inadequate epistemological introspection.

The fallibilist case

Table 1 summarizes the previous discussion, showing the assumptions, philosophical ancestries and methodologies of objectivism, subjectivism and fallibilism. In this section, we present the leading arguments of fallibilism as they address the epistemological issues of truth, belief and certainty. In the final section, we will explore potential fallibilist contributions to organizational research.

Fallibilism and truth. Since "I know p " implies " p is true," a fallibilist challenge to any knowledge claim may take the form "How do you know p is true?" or "By what criterion can we evaluate the truth of p ?" This is sometimes known as the "no foundation" argument.

Consider the following propositions:

p_1 : In this sample, structural bureaucratization correlates $r=.54$ with firm size

p_2 : For these sample characteristics, $r=.54$ is statistically significant at $p<.01$

From objectivist or subjectivist views, p1 is potentially true so long as it can be corroborated by valid and reliable empirical observations. This invokes a *correspondence theory of truth* – p is true because it corresponds with an empirically-observable state of affairs. The objectivist or subjectivist might also accept p2, though under a different theory of truth. The proposition might be true inductively – i.e., because it has held uniformly true in the past for every correlation matrix of the same parameters - or deductively, i.e., because we have defined it as true under accepted forms of mathematical discourse. Either of these approaches invokes a *coherence theory of truth* - p is true if it coheres with other known or accepted propositions. Correspondence theorists have criticized coherence theory for disconnecting truth from empirical fact, as exemplified in Otto Neurath’s image of a ship being repaired at sea.

But the fallibilist rejects both of these perspectives. The fallibilist would seek justification not only for p1 and p2, but also for the foundations themselves, i.e., the correspondence and coherence theories of truth. Here, the fallibilist raises the “no foundation” argument, which Montaigne referred to as “the wheel”:

To adjudicate . . . we need to have a distinguishing method (un instrument judicatoire); to validate this method we need to have a justifying argument; but to validate this justifying argument we need the very method at issue. And there we are, going round on the wheel. (quoted from Rescher, 1980, p. 11)

If no proposition rests on secure epistemological foundations, then no proposition is infallible, and no proposition can be known. This attack on foundations is typical of fallibilist argumentation, and takes various forms. For example, under Hume’s theory of descriptions, extended by Kant, all propositions are either analytic or synthetic. A proposition is analytic if its predicate carries only information already contained in its subject (*My sister is a female*), and synthetic if the predicate carries new information (*My sister is a psychiatrist*). This, according to Hume, necessarily gives rise to fallibilism – analytic propositions are certain but empirically vacuous, but synthetic propositions

must withstand the full arsenal of fallibilist and skeptical argumentation, including Hume's own arguments against induction and causation, obstacles Hume regarded as insurmountable.

In modern philosophy, the term "fallibilism" is most often associated with American mathematician and pragmatist philosopher C. S. Peirce. Peirce summarized fallibilism as follows:

We cannot in any way reach perfect certitude nor exactitude. We can never be absolutely sure of anything, nor can we with any probability ascertain the exact value of any measure or general ratio. This is my conclusion after many years study of the logic of science; and it is the conclusion which others, of very different cast of mind, have come to, likewise. I believe I may say there is no tenable opinion regarding human knowledge that does not legitimately lead to this corollary. Indeed, most everybody will admit it until they begin to see what is involved – and then most people will draw back. Fallibilism will not be admitted by persons incapable of philosophical reflection. It will not be admitted by minds developed exclusively in the direction of action and accustomed to claiming infallibility in matters of business. It will not be admitted by those who fear its consequences for science, for religion, or for morality. . . . But I will take leave to say that they had better not try to manage science that way. Indeed, it is precisely among those animated by a spirit of science that the doctrine of fallibilism should find its supporters. (Peirce, 1896, p. 59)

Pragmatist philosophers reject both the correspondence and coherence theories of truth. William James, for example, distinguished between a proposition and the states of affairs it purports to describe, arguing that states of affairs are neither true nor false, but simply, *are*. The correspondence theory – what James called the "copy-view" of truth – wrongly implies that a proposition confers special status on a state of affairs; states of affairs are indifferent to our attitudes toward them, and our propositions neither add nor detract from their existence or quality.

To pragmatists, the correspondence and coherence theories assume an unacceptably static view of truth. According to James, we make propositions true or false by employing them in a fruitful search for meaning. This is sometimes called an *instrumentalist theory of truth* – truth is an instrument to serve people, not vice versa. A true proposition leads us along prosperous verification paths, providing what James calls a "worthwhile leading" - it does not frustrate dynamic progression along intellectual pathways. When a proposition frustrates our search, we call it "false," toss it unsentimentally onto the rubbish heap, and replace it with more agreeable propositions we now call "true." In this way, truth is not a static attribute of propositions, but a dynamic and unfolding process of meaning-creation.

The pragmatist, like the Berkeleyan subjectivist, argues that we experience only perceptions (yellow, sour, textured, motionless), not objects (lemon). I may not know whether lemons exist as separate extended entities, but I do know that I am experiencing a family of yellow, sour sense impressions. According to Peirce:

Direct experience affirms nothing – it just is. There are delusions, hallucinations, dreams. But there is no mistake that such things really do appear, and direct experience means simply the appearance. It involves no error because it testifies to nothing but its own appearance. (quoted from Rescher, 1980, p. 27)

On the other hand, some fallibilists (Pyrrhonists, for example) have been willing to doubt not only the reality of subjective appearances, but the truth of analytic statements and tautologies. A Pyrrhonist may argue, for example, that “ $2 + 2 = 4$ ” is not a necessary mathematical relation but an empirical accident or a linguistic custom, i.e., that there are possible worlds in which $2 + 2$ does not equal 4, or where $2 + 2 = 4$ is nonsense, or where the concepts “mathematics,” “number,” “equality,” or “language” do not exist, or where an infinite variety of other possibilities may obtain, some humanly imaginable and some not. In this “strong-form” fallibilism, no proposition is necessarily true, not even $a=a$, and neither does its correspondence with empirical observations thus far, nor its coherence with other propositions, make it true. Contemporary pragmatist philosopher Richard Rorty put it as follows: “Those all-important a priori concepts . . . might have been different. We cannot, of course, imagine what an experience or a practice *that* different would be like, but we can abstractly suggest that . . . the inhabitants of the Fortunate Isles, or the mad, . . . might thus be conscious of a different ‘world.’” (1972, p. 650)

Fallibilism and belief. To be known, a proposition must be believed. Thus, the proposition “Washington, D.C. is the capital of the U.S.A.” may be true and certain, but I do not *know* it if I believe the capital is Philadelphia. In this way, belief, unlike truth, is not merely an attribute of propositions but also of perceivers, a subjective mental attitude toward propositions.

The subject of belief has produced a wide-ranging literature, from the classical psychology of Schiller's *Problems of Belief* (1924), to technical monographs in epistemology and philosophy of perception (Price, 1933, 1967; Pritchard, 1950, 1967; and Malcolm, 1963, 1967), to classical sociology (Simmell, 1900; Weber, 1922; Durkheim, 1915), sociology of knowledge (Goffman, 1974) and cognitive sociology (Mannheim, 1954; Habermas, 1971).

For Kierkegaard, the enigmatic Danish existentialist, the Greek noun *pistis* (usually translated “faith” or “belief”), and the verb *pisteo* (“I believe”), described subjective mental states incommensurate with external evidence. If a proposition were knowable by objective evidence, belief would be superfluous. Belief only enters the picture when evidence is incomplete. We can either be paralyzed by doubt, or close the evidentiary gap by invoking belief. Belief bridges the gap between truth and evidence, as in the Biblical definition: “faith (*pistis*) is being sure of what we hope for, and certain of what we do not see.”

For Kierkegaard, like Peirce, empirical evidence and probabilities always fall short of complete knowledge. Kierkegaard, however, also took the strong-form view that we are no more certain of the existence of gravity than of the existence of goblins. When we step confidently out the front door, assured that we will not fly into space, we may justify our confidence by an appeal to past frequencies or probabilities, but there always remains a gap of uncertainty that can be filled only by irrational belief, or faith. This view, that all knowledge is premised on ideology or faith, has been enormously influential in 20th century philosophy, with echoes also in philosophy of science, as with Feyerabend:

Science is much closer to myth than a scientific philosophy is prepared to admit. It is one of the many forms of thought that have been developed . . . and not necessarily the best. . . It is inherently superior only for those who have already decided in favor of a certain ideology. (1978, p. 15)

The fallibilist neither accepts nor rejects such arguments, but reasons as follows: if beliefs are private, and genuineness of belief cannot be determined objectively or subjectively; if different

people hold different genuine beliefs on the same proposition; if the same person holds different genuine beliefs at different times (and inconsistent beliefs at the same time); and if epistemologists cannot establish criteria for genuine belief, nor even that justified true belief is a sufficient condition for knowledge; then beliefs are indeterminate, and knowledge is foreclosed.

In the fallibilist view, “knowledge” is a term of art, a technical expression that guarantees that something or other is the case. As such, the fallibilist finds it peculiar that our common sense and scientific language invoke the term “knowledge” when the demonstrable propositional attitude is, at best, opinion. Wittgenstein wrote as follows:

We just do not see how very specialized the use of “I know” is – For “I know” seems to describe a state of affairs which guarantees what is known, guarantees it as a fact. One always forgets the expression ‘I thought I knew.’
(Wittgenstein, 1995, p. 83)

And yet knowledge claims do persist, and their prevalence seems to warrant explanation. Why, in particular, do *social scientists* cast their beliefs as knowledge? The belief theory of French sociologist Raymond Boudon, which draws heavily on Georg Simmel’s *Theory of Money* (originally published, 1900), and on cognitive sociology, attempts to explain the shared beliefs of social scientists, and supports a fallibilist interpretation. Boudon divides social science theories of belief into two categories: those founded on *causes* (Type 1 theories) and those founded on *reasons* (Type 2 theories). Social scientists invoke *causes* to explain the beliefs of individuals or cultures in critical, objective terms. Marx, for example, hypothesized that social class imposed collective beliefs that social actors were not aware of, and from which they could not escape; Freud explained neurotic states by invoking hidden causes such as ego, id, sexual repression and childhood experiences; and Levy-Bruhl (1975) explained the magical beliefs of tribal cultures as their unconscious enactment of a prelogical intellectual state.

By contrast, social scientists invoke *reasons* (Type 2 theories) to explain their own beliefs, or the beliefs of individuals or cultures with which they feel an intellectual alignment or personal sympathy.

In other words, researchers use causes to explain unwarranted false beliefs (e.g., delusions and superstitions), and reasons to explain true beliefs, or warranted false beliefs. Thus, for example, scientists usually attribute their own errors (such as the belief in phlogiston) not to their own unconscious repressions or prelogical states, but to the ordinary and progressive dialectic evolution of scientific understanding.

Although Type 1 and Type 2 explanations often sound similarly scientific, they could not be more different in intent – causes are critiques, and reasons are, for all practical purposes, excuses. The differences become clearer if we reverse the normal procedure, excusing unfamiliar beliefs and critiquing sympathetic ones, as in Feyerabend's critique of scientific discovery, or Durkheim's Type 2 explanation of magical beliefs. Durkheim held that our own scientific beliefs are essentially superstitious, not differing in kind from the magical beliefs of the so-called primitive cultures. For example, in the face of disconfirmation, modern scientists use the same "falsification avoidance" strategies – denial of results, insistence on replication, accumulation of anomalies, auxiliary hypotheses, etc. - that "primitive" tribes long ago perfected.

But Durkheim's approach is atypical. According to Boudon, every culture's external world is glued together by causes, its internal world by reasons. Our own beliefs are always warranted, even if false, but everyone else's are suspect; or, as William Rozeboom expressed it in an article entitled "Why I Know so Much More than You Do" (1967), our "first-person epistemology" is infinitely forgiving, and our "other-person epistemology" harshly exacting.

In Boudon's theory, we use reasons to insulate ourselves from damaging, paradigm-shattering criticisms, sealing off an environment in which only within-paradigm critiques are admissible, a ground where we can safely expand our pet beliefs, biases, and superstitions. In such a world, it would not seem presumptuous to cast beliefs as dogmatic knowledge claims – our beliefs are supported by reasons long since immunized from challenge, and even our errors are warranted.

Of course, social scientists are aware of cognitive biases, but scientific errors are rarely attributable to bounded rationality, judgmental biases, reification, abstracted empiricism, validity or reliability. In Boudon's theory, our data can be perfect, our logic flawless, our research design inassailable, but our conclusions wrong-headed. Our critique-free environment in some ways helps us to advance (like a Kuhnian paradigm), but it is nonetheless a thick illusion, or, in Boudon's terms, a protective bubble of "self-persuasion."

Fallibilism and certainty. If a proposition is less than certain then it is not known, i.e., formal analysis disallows the formulation "I know x, but I'm not certain of x." Although we commonly regard certainty, like belief, as an attribute of perceivers rather than of propositions, this is not the kind of certainty required – no matter how certain a person may subjectively feel about a true, believed proposition (as with the gambler's certainty about the outcome of future America's Cup races), subjective certainty alone cannot produce knowledge – the perceived certainty must be warranted by the evidence.

For objectivists and subjectivists, warranted certainty is an absurdly strict requirement for knowledge claims, defining away any possibility of knowledge. Thus, they propose alternative, "common-sense" evidentiary tests, such as "probable," "beyond reasonable doubt," or a "reasonable person" standard. They would argue, for example, that the proposition "Organizations have governance structures" is so evident that any reasonable person would accept it as certain, and hence it is known. Some objectivists have even gone so far as to assert a moral duty to reject skepticism, and to admit "obviously true" propositions as knowledge.

Along these lines, Chisolm (1988) proposed a 13-point "epistemic hierarchy," or ascending scale of justification, ranging from "certainly true" (+6) to "counterbalanced" (0) to "certainly false" (-6). Intermediate levels include terms such as "probable" (+1), "evident" (+4) and "reasonable to disbelieve" (-3). By focusing the debate on evidentiary standards, objectivists and subjectivists alike

affirm that, at some evidentiary level - e.g., above +4 or below -4 (p. 367) - it is reasonable for philosophers to classify propositions as certain. In this way, the conventional debate resembles legal wranglings over standards for convicting defendants, e.g., “the preponderance of the evidence” or “beyond reasonable doubt.” (Lucey, 1976)

It is on the subject of certainty that fallibilists unveil their full arsenal of metacritical argumentation. The “data transcendence” argument, for example, asserts that every knowledge claim requires unobtainable evidence. Factual knowledge claims are of three types: (1) *Classifiers* (“This is a lemon”; “This is a machine bureaucracy”); (2) *Attributors* (“Lemons are sour”; “Charismatic leaders are proactive”); and (3) *Relaters* (“This lemon is fresher than that one”; “Small organizations are more adaptive than large ones”). But because lemons, leaders and organizations do not admit of finite classification, description or relation, no knowledge claim can be exhaustively tested. For example, someone may propose “This is a lemon,” but empirically a lemon reacts one way in boiling water, another when frozen, another if left to rot; it tastes one way if eaten fresh, another when baked into cookies. The variations - of position, time, treatment, etc. - are endless, yet if our “lemon” fails even one test we will not be able to classify it with certainty. Because we cannot conduct an infinite number of empirical tests and, in any event, some tests preclude others (e.g., baking precludes rotting), knowledge claims transcend the available data.

Philosophers in the Pyrrhonist tradition raised arguments known as “tropes,” or “modes of perplexity.” These tropes, first described by Laertius and Sextus Empiricus, were resurrected in Renaissance philosophy by Francisco Sanchez and Montaigne, and have emerged in contemporary epistemology through philosophers such Popkin (1980) and Stough (1969). The tropes include observations on the “era dependence” of knowledge (that knowledge claims conform to intellectual fashion) and limitations of human sense faculties (i.e., that what humans call knowledge is an artifact of human sense faculties, which might have been different in strength, number or quality). They also

note the tendency of empirical research to explain the reductionist “how” but not the universal “why,” thus leaving the most profound questions unremarked. According to Wittgenstein, “The modern conception of the world is under the illusion that the so-called laws of nature provide an explanation of natural phenomena. . . treating them as something inviolable, as God and Fate were treated by the ancients.” (quoted from Monk, 1990, p. 136) Cambridge literary critic and theologian C. S. Lewis expressed a similar sentiment as follows:

The laws of Nature explain everything except the source of events. But this is a rather formidable exception. The laws, in one sense, cover the whole of reality except – well, except that continuous cataract of real events which makes up the actual universe. They explain everything except what we would ordinarily call “everything.” The only thing they omit is – the whole universe. (Lewis, 1970, p. 78)

Fallibilism and organizational research

Because the fallibilist view arises in the spirit of balancing, rather than replacing, opposite views, it does not imply or advocate the replacement of prevailing epistemologies. Fallibilists recognize that objectivist assumptions inform common sense and transport the enterprise of objective science, and that subjectivism expresses a perceptually-grounded antithesis that helps researchers understand the subjective, existential nature of conscious experience. Indeed, fallibilists are not above using subjectivist arguments to refute objectivist knowledge claims, and vice versa. Where objectivism and subjectivism have critiqued one another as thesis and antithesis, fallibilism enters the scene as a metacritique of the objectivist-subjectivist debate, not as synthesis. Fallibilism reminds us that existing perspectives reflect epistemological decisions that might have been made differently; that existing perspectives constrain as well as facilitate; and that the epistemological resources of fallibilism remain untapped in organizational research.

Fallibilism has no significant presence in organizational research, but its methods (balancing of opposites, suspicion of appearances, suspension of judgment) and modes of argument (thick illusion, the wheel, the tropes) suggest lines of potential contribution. One contribution would entail

the technical analysis of organizational propositions using the methods of symbolic logic - their logical forms, subject-predicate relations, propositional attitudes, etc. Which theories of truth (correspondence, coherence, instrumental) do organizational researchers explicitly or tacitly accept? What kinds of propositions – synthetic, analytic, *a priori*, *a posteriori* – dominate organizational discourse? What foundations – rational, empirical or otherwise – do organizational researchers use to justify knowledge claims? In what sense do organizational researchers regard their claims as true and warranted? The questions are many, but they cannot be taken seriously in the absence of a fallibilist critique – non-knowledge must exist as a possibility. This technical research agenda, and the application of formal propositional calculus to the social sciences, is an enormous enterprise, but there is evidence of an emerging interest in this agenda (see, for example Powell, 2001), and it represents a long-neglected opportunity for understanding organizational epistemology.

We have already noted how fallibilism lays particular emphasis on ambiguities of propositional attitudes, e.g., the tendency to express belief states as knowledge. As such, we could envision a vigorous fallibilist agenda around the social psychology of knowledge claiming. What conditions cultivate the arguably reckless expression of far-reaching, unprovable knowledge claims, whether among organizational actors or the researchers who study them? What are the psychological preconditions and consequences of knowledge dogmatism? The relevant research questions are empirical, and they extend well beyond the bounds of organizational sociology. For example: How do the knowledge claims of organizational research differ from those found in physics, biology, economics or theology? What differences exist in their theories of truth, empirical appeals and foundational arguments? In their degrees of dogmatism, as measured by syntactical constructions? Debates on whether organizational research resembles science or superstition rarely appeal to empirical evidence, though the knowledge claims of all fields are widely available for analysis. Survey methods, such as Naess's propositional surveys and "dialogue analysis" (1968, pp. 110ff) facilitate

such work, and a number of traditional subjectivist methodologies (e.g., ethnomethodological and hermeneutical methods) could contribute to a far-ranging project of comparative epistemology.

From a fallibilist point of view, knowledge claims are inseparable from their claimants, and indeed tell us more about their claimants than about the phenomenon in question. As Wittgenstein put it: “The expression “I know” gets misused. And through this misuse a queer and extremely important mental state seems to be revealed.” (1995, p. 82) One such mental state (or “propositional attitude”) is faith, and it may be the case that organizational propositions resemble theology more than science, invoking constructs (e.g., structure, culture, leadership) of dubious ontological status. This has been noted before, but alongside this hypothesis many other explanations are possible – organizational researchers might assert knowledge claims on aesthetic grounds, for convenience, or novelty, or based on the authority of other believers (see, for example, Barry and Elmes, 1997). And different research domains might exhibit different attitudes – e.g., theoretical sociologists may prefer aesthetic or idealist foundations of knowledge, whereas a business-centered domain such as “strategic management,” emphasizing prescription and practitioner application, may rely on pseudo-empirical justifications and pronouncements from authorities like Michael Porter, Henry Mintzberg or Gary Hamel.

One way to synthesize the expected contributions of a fallibilist view is suggested in Figure 1, which depicts Boudon’s theory of social science beliefs on two dimensions: mode of explanation and alignment of beliefs. Using Boudon’s terms, objectivists produce two kinds of theories: causal explanations (causes) for phenomena with which the researchers are psychologically or culturally unaligned (Type 1), and rationalizations (reasons) for phenomena with which they are aligned (Type 2). Subjectivist researchers also produce Type 1 and 2 theories, but their point of differentiation is to rationalize, on grounds of subjective validity, beliefs or phenomena unaligned with the researchers’

own beliefs. In Figure 1, we refer to these propositions (such as Durkheim's interpretation of tribal beliefs) as "Type 3" explanations.

Fallibilism also employs Type 1, 2 and 3 approaches, but its unique contribution is in producing "Type 4" explanations – causal explanations of beliefs or phenomena closely aligned with the researchers' own beliefs. Unlike objectivism or subjectivism, fallibilism proactively locates or creates perspectives from which organizational researchers' beliefs appear alien or unfamiliar and, from these alternative perspectives, subjects *researchers' beliefs* to causal critique. This search for unfamiliar perspectives runs thematically through all elements of fallibilist epistemology, from technical propositional analysis to comparative epistemology to the social psychology of knowledge-claiming. In sum, whereas subjectivism contributes to organizational research by making alien perspectives seem familiar, fallibilism can contribute by making researchers' familiar beliefs seem alien.

Although fallibilism is not fundamentally subversive, another potential contribution is in encouraging organizational researchers to reconsider the legitimacy of the larger "objectivist vs. subjectivist" enterprise. This need not entail full-scale epistemological overhaul - in organizational research, simply acknowledging one's epistemological assumptions would be a step in the right direction. In the leading journals, these assumptions are mysteriously absent, and it is unclear whether organizational researchers are unaware of their own epistemological assumptions, or choose not to discuss them, or regard epistemology as irrelevant, or bothersome, or beyond their expertise, or regard epistemological issues as having been settled long ago. There are many possibilities, but simple disclosure would be a welcomed and achievable beginning.

Postscript

In sum, we believe that objectivist-subjectivist debates in organizational research fail to capture the frailty and complexity of knowledge, lacking in particular the diversity and metacritical balance

provided by a fallibilist critique. Whereas existing perspectives tend to produce increasingly extreme opposing ideologies, fallibilism returns to fundamental epistemological questions: What can be known? What is claimed as known? What are the relations between knower and known?

We should point out that fallibilism too has its objectors, and its own natural enemies. The leading objection to fallibilism is that if nothing is provably true or certain, then fallibilism too must succumb to this uncertainty – but as noted earlier fallibilists concede this point readily, seeing no contradiction in suspending judgment on fallibilism itself, as on all other things. As already discussed, fallibilism's contribution is not to synthesize objectivism and subjectivism, but to raise objections applicable to the larger epistemological debate.

Of fallibilism's natural enemies, the most vehement are the realist, common sense philosophers following in the footsteps of Thomas Reid, Dugald Stewart and G. E. Moore. Moore, with characteristic sense of humor, began his lecture opposing fallibilism as follows:

I am at present, as you can all see, in a room and not in the open air; I am standing up, and not either sitting or lying down; I have clothes on, and am not absolutely naked; I am speaking in a fairly loud voice, and am not either whispering or keeping quite silent; I have in my hand some sheets of paper with writing on them . . . I have made these assertions quite positively, as if there were no doubt whatever that they were true . . . And I do not think I can be accused of dogmatism or over-confidence for asserting these things . . . (1995, p. 58)

As Peirce observes, objectivists have always rejected fallibilism, but they - like subjectivists - need fallibilism as a corrective to their own intellectual extremity. In our view, fallibilism introduces a much-needed intellectual humility and diversity into the debate, at the same time establishing a legitimate alternative assumption-ground from which to interpret organizational research. It neither contradicts existing views nor has conflicting ambitions, but by stimulating these views to epistemological introspection may open new and original pathways of research than can only deepen and enhance our appreciation of organizations. Fallibilism does not annihilate other epistemologies and has not done so in philosophy itself. Fallibilism offers organizational research a novel and

interesting ground for self-examination and self-renewal, and we encourage researchers not only to recognize its legitimacy, but to explore the implications of fallibilism for their own research.

References

- Albrow, Martin, 'The Dialectic of Science and Values in the Study of Organizations, in *Control and Ideology in Organizations*, Cambridge, MA, MIT Press, 1980, pp. 278-296.
- Astley, Graham, Administrative Science as Socially Constructed Truth, *Administrative Science Quarterly*, 30, 1985, pp. 497-513.
- Astley, W. Graham and Andrew H. Van de Ven, Central Perspectives and Debates in Organization Theory, *Administrative Science Quarterly*, 23, 1983, pp. 245-273.
- Barry, David and Michael Elmes, Strategy Retold: Toward a Narrative View of Strategy Discourse, *Academy of Management Review*, 22(2), 1997, pp. 429-452.
- Becker, Howard, *Sociological Work: Method and Substance*, Chicago, Aldine, 1970.
- Berkeley, George, An Essay Towards a New Theory of Vision, in *Berkeley: Essay, Principles, Dialogues*, ed. by Mary Whiton Calkins, New York, Scribner's, 1929a, pp. 1-98.
- Berkeley, George, A Treatise Concerning the Principles of Human Knowledge, in *Berkeley: Essay, Principles, Dialogues*, ed. by Mary Whiton Calkins, New York, Scribner's, 1929b, pp. 99-216.
- Blackburn, Simon, *The Oxford Dictionary of Philosophy*, Oxford, Oxford University press, 1994.
- Blumer, Herbert, *Symbolic Interactionism: Perspective and Method*, Englewood Cliffs, NJ, Prentice-Hall, 1969.
- Boudon, Raymond, *The Art of Self-Persuasion: The Social Explanation of False Beliefs*, Cambridge, Polity Press, 1994.
- Bouwsma, O. K., Descartes' Evil Genius, reprinted in *Certainty*, ed. By Jonathan Westphal, Indianapolis/Cambridge, Hackett, 1995 (original, 1949), pp. 126-136.
- Burrell, Gibson and Gareth Morgan, *Sociological Paradigms and Organisational Analysis*, London, Heinemann, 1979.
- Calas, Marta and Linda Smircich, Voicing Seduction to Silence Leadership, *Organization Studies*, 1991, pp. 567-602.
- Calas, Marta and Linda Smircich, editors, *Postmodern Management Theory*, Aldershot, Ashgate Publishing, 1997.

Carlyle, Thomas, *Sartor Resartus: The Life and Opinions of Herr Teufelsdröckh*, New York, Doubleday, 1937.

Chisolm, Roderick M., The Evidence of the Senses, reprinted in *On Knowing and the Known*, ed. by Kenneth G. Lucey, Amherst, NY, Prometheus Books, 1996 (original 1988), pp. 357-373.

Clark, Michael, Knowledge and Grounds: A Comment on Mr. Gettier's Paper, *Analysis*, 24(2), December, 1963, pp. 46-48.

Clifford, James and George Marcus (eds.), *Writing Culture*, Berkeley, University of California Press, 1986.

Derrida, Jacques, *Of Grammatology*, Baltimore, Johns Hopkins Press, 1976.

Descartes, Rene, From the Meditations, reprinted in *Certainty*, ed. By Jonathan Westphal, Indianapolis/Cambridge, Hackett, 1995, pp. 13-27.

Deutscher, Irwin, *What We Say/What we Do: Sentiments and Acts*, Glenview, IL, Scott, Foresman, 1973.

Douglas, Jack (ed.), *Understanding Everyday Life: Toward the Reconstruction of Sociological Knowledge*, Chicago, Aldine, 1970.

Durkheim, Emile, *The Elementary Forms of the Religious Life*, London, Allen & Unwin, 1915.

Feldman, Richard, An Alleged Defect in Gettier Counterexamples, *Australasian Journal of Philosophy*, 52(1), May, 1974, pp. 68-69.

Feyerabend, Paul, *Against Method: Outline of an Anarchistic Theory of Knowledge*, London, Verso, 1978 (first published 1975).

Foucault, Michel, *Discipline and Punish*, New York, Vintage, 1979.

Garfinkel, Harold, *Studies in Ethnomethodology*, Englewood Cliffs, NJ, Prentice-Hall, 1967.

Gettier, Edmund L. Is Justified True Belief Knowledge?, *Analysis*, 23(6), June, 1963, pp. 121-123.

Gioia, Dennis and Evelyn Pitra, Multiparadigm Perspectives on Theory-Building, *Academy of Management Review*, 15(4), 1990, pp. 584-602.

Goffman, Erving, *Frame Analysis*, New York, Harper & Row, 1974.

Habermas, Jurgen, *Knowledge and Human Interest*, Boston, Beacon Press, 1971.

Hambrick, Donald, Theresa Seung Cho and Ming Jer-Chen, The Influence of Top Management Team Heterogeneity on Firms' Competitive Moves, *Administrative Science Quarterly*, 41, 1996, pp. 659-684.

- Hinton, C. H. *A New Era of Thought*, London, George Allen & Unwin, 1910.
- Holm, Petter, The Dynamics of Institutionalization: Transformation Processes in Norwegian Fisheries, *Administrative Science Quarterly*, 40, 1995, pp. 398-444.
- Hospers, John, *An Introduction to Philosophical Analysis*, London, Routledge & Kegan Paul, 1956.
- Hume, David, *A Treatise of Human Nature*, Oxford, Clarendon Press, 1951.
- Husserl, Edmund, First Meditation: The Way to the Transcendental Ego, reprinted in *Certainty*, ed. By Jonathan Westphal, Indianapolis/Cambridge, Hackett, 1995, pp. 45-57.
- James, William, *Pragmatism*, New York, Longmans, Green & Co., 1907.
- Kahnemann, D. and A. Tversky, *Judgment under Uncertainty: Heuristics and Biases*, Cambridge, Cambridge University Press, 1982.
- Kahneman, D. and A. Tversky (2000) *Choices, Values and Frames*, Cambridge Press, New York.
- Kant, Immanuel, *Critique of Pure Reason*, New York, St. Martin's, 1965.
- Kierkegaard, Soren, *Concluding Unscientific Postscript to the Philosophical Fragments*, translated by David F. Swenson, Princeton, Princeton University Press, 1941.
- Kierkegaard, Soren, *Philosophical Fragments or A Fragment of Philosophy*, translated by David F. Swenson, Princeton, Princeton University Press, 1962.
- Kilduff, Martin and Ajay Mehra, Postmodernism and Organizational Research, *Academy of Management Review*, 22(2), 1997, pp. 453-481.
- Klein, Peter, A Proposed Definition of Propositional Knowledge, *Journal of Philosophy*, 68(16), August 19, 1971, pp. 471-482.
- Klein, Peter, Misleading "Misleading Defeaters", *Journal of Philosophy*, 76(7), July, 1979, pp. 382-386.
- Knights, David, Changing Spaces: The Disruptive Impact of New Epistemological Location for the Study of Management, *Academy of Management Review*, 17(3), 1992, pp. 514-536.
- Kuhn, Thomas, *The Structure of Scientific Revolutions*, University of Chicago Press, Chicago, 1962.
- Laertius, Diogenes, *Lives of Eminent Philosophers: Volumes I and II*, Cambridge, MA, Harvard University Press (Loeb Classical Library), 1931.
- Lehrer, Keith, The Gettier Problem and the Analysis of Knowledge, reprinted in *On Knowing and the Known*, ed. by Kenneth G. Lucey, Amherst, NY, Prometheus Books, 1996 (original 1979), pp. 75-88.
- Lehrer, Keith and Thomas Paxson, Jr., Knowledge: Undefeated Justified True Belief, *Journal of Philosophy*, 66(8), April 24, 1969, pp. 225-237.

- Levy-Bruhl, L. *The Notebooks on Primitive Mentality*, Oxford, Basil Blackwell, 1975.
- Levy, Steven R. Misleading Defeaters, *Journal of Philosophy*, 75(12), December, 1978, pp. 739-742.
- Lewis, Clive Staples, The Laws of Nature, from *God in the Dock*, 1970, pp. 77-79.
- Lucey, Kenneth G., Introduction, in *On Knowing and the Known*, ed. by Kenneth G. Lucey, Amherst, NY, Prometheus Books, 1996, pp. 9-28.
- Lucey, Kenneth G., Scales of Epistemic Appraisal, reprinted in *On Knowing and the Known*, ed. by Kenneth G. Lucey, Amherst, NY, Prometheus Books, 1996 (original 1976), pp. 301-309.
- Malcolm, Norman, *Knowledge and Certainty: Essays and Lectures*, Englewood Cliffs, NJ, Prentice Hall, 1963.
- Malcolm, Norman, Knowledge and Belief, in *Knowledge and Belief*, ed. by J. Phillips Griffiths, London, Oxford University Press, 1967, pp. 69-81.
- Mannheim, Karl, *Ideology and Utopia*, London, Routledge & Kegan Paul, 1954.
- Monk, Ray, *Ludwig Wittgenstein: The Duty of Genius*, London, Jonathan Cape, 1990.
- Montaigne, Michel de, An apology of Raymond Sebond, from *Essays*, vol. 2, trans. By John Florio, London, J. M. Dent & Sons, London, 1948.
- Moore, G. E. Certainty, reprinted in *Certainty*, ed. By Jonathan Westphal, Indianapolis/Cambridge, Hackett, 1995, pp. 58-80.
- Morgan, Gareth, and Linda Smircich, The Case for Qualitative Research, *Academy of Management Review*, 5, 1980, pp. 491-500.
- Naess, Arne, *Scepticism*, London, Routledge & Kegan Paul, 1968.
- Ouspensky, P. D. *Tertium Organum: The Third Canon of Thought*, New York, Vintage, 1982 (original published 1920).
- Parker, Martin, Post-Modern Organizations or Postmodern Organization Theory?, *Organization Studies*, 13(1), 1992, pp. 1-17.
- Peirce, C. S. The Scientific Attitude and Fallibilism, in Justus Buchler, ed., *The Philosophical Writings of C. S. Peirce*, Dover, New York, 1955, pgs. 42-59; originally published 1896.
- Perrow, Charles, *Complex Organizations*, Glenview, Ill, Scott, Foresman, 1972.
- Pfeffer, Jeffrey, *Organizations and Organization Theory*, Boston, Pitman, 1982.

- Pfeffer, Jeffrey, Barriers to the Advance of Organizational Science: Paradigm Development as a Dependent Variable, *Academy of Management Review*, 18, 1993, pp. 599-620.
- Pollock, John, The Gettier Problem, reprinted in *On Knowing and the Known*, ed. by Kenneth G. Lucey, Amherst, NY, Prometheus Books, 1996 (original 1986), pp. 89-101.
- Popkin, Richard, Scepticism, *The Encyclopedia of Philosophy*, vol. 7, New York, MacMillan, 1967, pp. 449-461.
- Popkin, Richard, *The History of Skepticism from Erasmus to Spinoza*, Berkeley, University of California Press, 1979.
- Popkin, Richard, *The High Road to Pyrrhonism*, San Diego, Austin Hill Press, 1980.
- Popkin, Richard, *Intellectual Autobiography: Warts and All*, from *The Sceptical Mode in Modern Philosophy*, ed. By Richard Watson & James Force, Dordrecht, Martin Nijhoff, 1988, pp. 103-149.
- Powell, Thomas C. Competitive Advantage: Logical and Philosophical Considerations, *Strategic Management Journal*, Sept., 2001.
- Price, H. H. *Perception*, London, Methuen, 1933.
- Price, H. H., Some Considerations about Belief, in *Knowledge and Belief*, ed. by J. Phillips Griffiths, London, Oxford University Press, 1967, pp. 41-59.
- Pritchard, H. A. *Knowledge and Perception*, London, Oxford University Press, 1950.
- Pritchard, H. A. Knowing and Believing, in *Knowledge and Belief*, ed. by J. Phillips Griffiths, London, Oxford University Press, 1967, pp. 60-68.
- Rescher, Nicholas, *Scepticism: A Critical Reappraisal*, Oxford, Basil Blackwell, 1980.
- Rorty, Richard, The World Well Lost, *Journal of Philosophy*, 69, 1972, pp. 649-655.
- Rozeboom, William, Why I Know So Much More than You Do, *American Philosophical Quarterly*, vol. 4, 1967, pp. 281-290.
- Sanchez, Francisco, *That Nothing is Known*, trans. By Douglas F. S. Thomson, Cambridge, Cambridge Press, 1988.
- Saunders, John Turk and Narayan Champawat, Mr. Clark's Definition of 'Knowledge', *Analysis*, 25(1), October, 1964, pp. 8-9.
- Schiller, Ferdinand C. S. *Problems of Belief*, London, Hodder & Stoughton, 1924.
- Sewell, Graham, The Discipline of Teams: The Control of Team-based Industrial Work through Electronic and Peer Surveillance, *Administrative Science Quarterly*, 43, 1998, pp. 397-428.

Sextus Empiricus, Outlines of Pyrrhonism, from *Sextus Empiricus, vols. I-IV*, translated by R. G. Bury, London, Heinemann, 1961.

Silverman, David, *The Theory of Organisations*, London, Heinemann, 1970.

Simmel, Georg, *The Philosophy of Money*, London, Routledge & Kegan Paul, 1978 (original, 1900).

Sosa, Ernest, Skepticism, in *The Cambridge Dictionary of Philosophy*, ed. by Robert Audi, Cambridge, Cambridge University Press, 1995, pp. 738-741.

Stough, Charlotte, *Greek Skepticism: A Study in Epistemology*, Berkeley, University of California Press, 1969.

Stroud, Barry, *The Significance of Philosophical Scepticism*, Oxford, Clarendon Press, 1984.

Turner, Ralph, *Ethnomethodology*, Baltimore, Penguin, 1974.

Unger, Peter, *Ignorance: A Case for Skepticism*, Oxford, Clarendon Press, 1975.

Van Maanen, John, *Tales of the Field: On Writing Ethnography*, Chicago, University of Chicago Press, 1988.

Walsh, W. H. *Metaphysics*, London, Hutchinson & Co., 1963.

Weber, Max, *Economy and Society: An Outline of Interpretive Sociology*, New York, Bedminster Press, 1968 (original, 1922).

Westphal, Jonathan, editor, *Certainty*, Indianapolis, Hackett Publishing, 1995.

Wittgenstein, Ludwig, On Certainty, reprinted in *Certainty*, ed. By Jonathan Westphal, Indianapolis/Cambridge, Hackett, 1995, pp. 81-103.