

JONATHAN COHEN

Laurence Jonathan Cohen 1923–2006

LAURENCE JONATHAN COHEN was born in London on 7 May 1923, and died on 26 September 2006. He was one of two sons of Israel and Theresa Cohen. Israel Cohen was a journalist and writer who served as general secretary of the World Zionist Organization during the 1930s. Jonathan's mother was born Theresa Jacobs. She came from a Sephardi family that settled in England in the seventeenth century. Like her husband she was active in the World Zionist Movement. Israel and Theresa Cohen were orthodox Jews who observed the Sabbath and Holy Days and attended synagogue regularly. Although Jonathan gradually became less strict in his observance, he remained committed to his Jewish origins both in his private and his public life.

Jonathan Cohen was educated at St Paul's School, London where he excelled at mathematics and classics. He went up to Balliol College, Oxford, in 1939 planning to read Greats. But after four terms at Balliol he was recruited in 1941 to Bletchley to learn cryptography and Japanese. He served from 1943 to 1945 as a Lieutenant in the Royal Navy assigned to listening and decoding stations maintained by Naval Intelligence first in Mombasa and then in Colombo. Cohen, with another cryptographer and lifelong friend, Hugh Denham, together explored the jungles of Ceylon on bicycles. On one leave, he and Denham travelled to North India and Nepal, and trekked over the mountains into Tibet.

At the end of the war, Cohen decided against accepting an opportunity to join the Foreign Service. In mid-November of 1945, he returned instead to Balliol. According to his own testimony, his motivation for returning to Balliol and to an academic career 'was a desire for sufficient leisure, and the right critical *ambiance*, to write a book on political

philosophy'. ('From a historical point of view', in *Probability and Rationality: Studies on L. Jonathan Cohen's Philosophy of Science*, ed. Ellery Eells and Tomasz Maruszewski, Amsterdam: 1991, p. 22.)

Cohen received first class BA degrees from Balliol in 1947 in Classical Honour Moderations and Literae Humaniores according to the shortened wartime courses and MA (1947) and D.Litt. (1982) degrees from Oxford. He became an Assistant in the Department of Logic and Metaphysics at Edinburgh University. In spite of his interest in political philosophy, his discussions with his contemporary colleagues, most notably Errol Bedford, Peter Heath and Ernest Gellner, at Edinburgh, prompted him to publish papers in 1949–51 on topics in linguistic analysis such as the relativity of philosophical analysis to natural language, the redundancy theory of truth, the meaning of token-reflexive expressions, the structure of purposive explanation and the logic of moral reasoning. While at Edinburgh, he participated in the intellectual life of the city becoming a member of The Speculative Society, a prestigious debating club founded in 1764. He also made contact with colleagues engaged in the empirical study of language and attended a seminar by the Danish grammarian Hjelmslev.

In 1950, Cohen became a lecturer at the Dundee campus of the University of St Andrews where he attended meetings of the St Andrews Linguistic Circle. In his 1991 retrospective essay, he wrote:

... the impression began to grow that there were flaws, or at best serious oversimplifications, in many of the bold and dogmatic statements that analytical philosophers had made, and were still making about human language. It was as if the very same thinkers who strongly condemned *a priori* theorizing about empirical checkable features of Nature were quite ready to theorise *a priori* about empirically checkable features of language. ('From a historical point of view', p. 22)

During this period, Cohen became aware of seventeenth-century efforts to reconcile linguistic theory with philosophical analysis that were unfamiliar to analytical philosophers of the time. 'To put the record straight', Cohen published a paper in 1954 on artificial languages that were devised for various purposes during the seventeenth century ('On the project of a universal character', *Mind*, 63 (1954), 49–53).

Thus, while his book on political philosophy was nearing completion (*The Principles of World Citizenship*, Oxford, 1954), Cohen was contemplating the writing of a book about language and meaning.

A pervasive theme of the book would be the diversity, amid systematic interconnectedness, of the different conceptions of linguistic meaning appropriate

to historians of ideas, lexicographers, translators, logicians, etc. In particular it seemed that both the historical or sociological dimension of the subject and also the formal-logical one were considerably undervalued by the current [as of the early 1950s] orthodoxies at Oxford. ('From a historical point of view', p. 23)

In order to remedy what he regarded as his own relatively elementary understanding of modern logic, Cohen applied for a Commonwealth Fund Fellowship (later called a Harkness Fellowship) for the academic year 1952–3 in order to study in one or two of the centres of studies in modern logic in the United States. He was awarded a Commonwealth Fund Fellowship to Princeton for the Fall semester and Harvard for the Spring.

At Princeton, he attended a seminar led by George Berry on Rudolf Carnap's approach to linguistic analysis and Alonzo Church's advanced seminar on the logic of sense and denotation. He also was a participant in a small discussion group that included John Kemeny and Norman Malcolm. Cohen moved to Harvard for the second semester where he attended C. I. Lewis's seminar on epistemology and metaphysics, Israel Scheffler's course on philosophical analysis and W. V. Quine's course on logic and language that was subsequently turned into *Word and Object*. Quine's seminar, in particular, engaged in a systematic criticism of the modal-logical analyses advanced by Lewis and Church. The status of modal logic became central to Cohen's second book *The Diversity of Meaning* (London, 1962). As we shall see, the formalisation of modal logic and the ideas about the character of laws he proposed in that book became the focus of his original contributions to the discussion of induction and probability.

Cohen met Gillian Slee in 1950 and soon proposed to her. Gillian insisted on waiting until she finished her degree. They married in 1953 while Jonathan was at Princeton. Jonathan and Gillian Cohen were parents to three sons, Stephen, Daniel and Robin, and a daughter, Juliet. They have ten grandchildren. Gillian Cohen has had a distinguished career as a cognitive psychologist. She has written books and articles on memory and the psychology of cognition and has taught at Oxford and at the Open University. During her time at Oxford, Gillian and Jonathan gave a joint series of lectures on the Philosophy and Psychology of Mind, exploring topics such as imagery, problem solving and memory from both a philosophical and a psychological perspective. Gillian Cohen directed Jonathan Cohen's attention to work of Amos Tversky and Daniel Kahneman that he subsequently and famously called into question.

Cohen was active at St Andrews until 1957 when he returned to Oxford as a Fellow of the Queen's College. He remained at Queen's throughout his subsequent career until his retirement in 1990. During his tenure at Queen's, he held visiting appointments at the Hebrew University in Jerusalem, at Columbia, Yale and Northwestern Universities in the United States and at the Australian National University.

Cohen was elected a Fellow of the British Academy in 1973 and served as Chair of the Philosophy Section from 1993 to 1996. He was a Corresponding Member of the Hellenic Society for Philosophical Studies in 1975, a Member of the International Academy of Philosophy of Science in 1984 and Honorary Professor, Northwest University, Xian, China in 1987. He has been secretary and president of the British National Committee for Logic, Methodology and Philosophy of Science, President of the International Union for History and Philosophy of Science, President of the British Society for the Philosophy of Science, President of the International Council of Scientific Unions and served on committees of several other national and international scholarly organisations.

For several years after his official retirement he served as placement officer for the philosophy faculty at Oxford. He maintained his philosophical interests, reading, reviewing and attending seminars. He was also able to devote more time to gardening. Cohen was an avid gardener. His home, Sturt House, was a horticultural showplace. He also supervised the gardens at Queen's.

Cohen's first book, *The Principles of World Citizenship* (Oxford, 1954), is a sustained argument for a 'mundialist' outlook that promotes every opportunity for developing a global polity. The participants in Cohen's global polity 'are to be described as versatile and protean beings, whose diversity of outlooks and attitudes is not to be compassed within the bounds of a single ideology. They have this in common, that they are all fallible, yet all capable of reasoning with one another. So that at its best their social organization, like their science is a cooperative endeavour which profits by the number of those taking part and the variety of their outlooks.'

Cohen did not pursue his political vision in his subsequent writings. By his own testimony, he felt obliged to address topics pertaining to language and meaning of interest to the community of analytic philosophers that had burgeoned in the British Commonwealth and the United States. Yet, even though Cohen's 1963 book *The Diversity of Meaning* covers many of the issues about meaning of concern to analytic philosophers at

the time, the focus of his attention was on meaning change—a topic that was only slowly gaining attention. According to Frege, who had developed a view of mathematics as a branch of logic independently of Russell and Whitehead and who remained a central figure in the discussion of semantics even after support for his ‘logician’ philosophy of mathematics declined, meanings don’t change. Only the language expressing such meanings does. Cohen challenged this view. For example, according to intellectual historians who study conceptual change it is ‘meanings that vary their language-words rather than language-words their meanings’ (p. 21). Cohen’s book is given over to explaining this somewhat enigmatic thesis and its ramifications for logic, metaphysics, epistemology and scientific and legal methodology.

An important part of his project was the provision of an account of analyticity, the a priori and natural necessity that furnished a background for his important ideas about inductive support and Baconian probability. Discussion of these ideas cannot avoid consideration of linguistic contexts where modal expressions like ‘It is necessary that’ or ‘It is possible that’ are prefixed to sentences like ‘4 is greater than 2’ and ‘the number of books in Locke’s *Essay* is greater than two’. There are four books in Locke’s *Essay* so the substitution of ‘The number of books in Locke’s *Essay*’ for ‘4’ in ‘4 is greater than 2’ should preserve the truth of the latter sentence as it does. But when each of the sentences is prefixed by ‘It is necessary that’, the first is true and the second false. The prefixing of a modal expression creates a ‘non extensional context’ or ‘referentially opaque context’ (where substitution of co-referential expressions fails to preserve truth value) out of an extensional one (where substituting co-referential expressions preserves truth value). A good theoretical grip on how to address non-extensional contexts was one of the challenges that logicians exploring the philosophy of language took up.

In a paper published in *The Journal of Symbolic Logic* in 1960, and then in *The Diversity of Meaning* in 1963, Cohen proposed a formalisation allowing for several levels of necessity—in particular logical necessity, analytic necessity and physical necessity—and employed the formalism to identify multiple grades of non-extensionality.

Nearly three decades later, Cohen reported that in 1964 he considered abandoning the requirement that prefixing a proposition with a modal operator of any level implies that the proposition is true. It occurred to Cohen that by relaxing this ‘alethic condition’ in the case of physical necessity, one could consider a range of necessities below physical necessity (‘From a historical point of view’, p. 25).

In *The Diversity of Meaning*, Cohen sought to defend a conception of natural necessity according to which a hypothesis in science is not a conjecture (as it was for Charles Peirce) but is judged true by the inquirer in a manner that is immune to verification or falsification by empirical considerations. In this sense, it is judged true a priori. Such hypotheses are not, however, analytically true. Analytic propositions are true (or false) in virtue of meaning alone. Neither the truth-values nor the meanings of such propositions are open to revision. Like analytic propositions, the truth values of statements of natural necessity are immune to empirical criticisms. But the meanings of statements of natural necessity are subject to empirical criticism.

Many authors have observed that laws of nature are often structured so that they have two components: a formula or law, and a scope. Consider Newton's inverse square law of gravity. One could, of course, take the law to assert that the inverse square formula governs all physical bodies. So construed, Cohen acknowledged, the law need not be a priori true. But the domain of applicability might be more restricted. It could include interactions between pairs of terrestrial bodies, pairs of celestial bodies or pairs of celestial and terrestrial bodies. Newton undertook to check whether the inverse square law applied in all three domains.

Cohen proposed to understand the inverse square law to be claiming that the formula applied in some domain without specifying the domain. When so construed, the inverse square law is, according to Cohen, a priori true. That is to say, the inverse square formula would not be given up in the face of recalcitrant data as long as its applicability in some important domain has not been refuted.

The importance of understanding the law in this fashion is that it becomes a directive for inquiry. When confronted with data that seem to contradict the law, one is instructed to retain the law and seek a more accurate specification of its domain of application. The truth of the law remains unquestioned. Its meaning is subject to critical scrutiny. The meaning of the law remains incompletely specified until the domain has been identified. Specifying the domain is a task for empirical inquiry and inductive reasoning that seeks to comply with the directive.

Even if the original discoverer of a law thought it applied with complete and unrestricted universality, we do not have to surrender the law altogether when we find that his claims on its behalf were exaggerated in certain respects. By calling it a law we profess sufficient respect for it to believe that its truth is no longer at issue but only its scope of application (*The Diversity of Meaning*, p. 297).

Cohen concluded *The Diversity of Meaning* with a discussion of the prospects of developing an account of inductive confirmation based on the idea that confirming a hypothesis is rendering its meaning (its scope of application) more precise than it previously was. This thought relates Cohen's logic for grades of necessity developed in an article that appeared in *The Journal of Symbolic Logic* in 1960, and in *The Diversity of Meaning* in 1963, to an epiphany Cohen reported having in 1964 concerning grades of necessity that require abandoning the alethic condition.

The Implications of Induction (London, 1970) presented an account of inductive support according to which the inductive support of a hypothesis is determined by the severity of the tests the hypothesis has passed. A test of a hypothesis 'All Rs are Ss' controls for some circumstances or variables and, perhaps, not for others. By controlling for a variable X, one means examining instances of R under circumstances X for all 'variants' X of variable X to check for the presence of S. Cohen maintained that whether a variable is relevant or its rank in an ordering of variables with respect to relevance is given by the inquirer's background information and the problem being addressed. With such background in place, the inductive support afforded by the results of data reporting the results of a battery of tests is given by a sequence of tests of increasing severity that it has passed. The least severe test is no test at all. It consists of examining instances of R under normal circumstances to determine whether they are Ss. In the absence of a non-S in this sample, the generalisation 'All Rs are Ss' has a lowest or grade $1/n$ inductive support. If the test includes determining whether counterinstances are or are not present among 'variants' of the most important variable (among the n relevant variables recognised), passing the test means that the generalisation has been supported to degree $2/n$. More severe tests will control for the second, third, etc. most important variables as well. The information E supports the generalisation to level i/n if E reports that the generalisation has survived not only the default 'test' but $i-1$ tests of increasing severity. Even if a hypothesis fails a test at level j , if it has passed all tests up to level $j-1$, it has positive support of degree j/n . At least we can say, it is true in domains of application covered by those tests. In the spirit of *The Diversity of Meaning*, the 'meaning' of the hypothesis judged a priori true has been clarified empirically.

The insight Cohen reported having in 1964 is that the structure of inductive support assessments so conceived could be represented with the aid of modal operators satisfying a modified version of Cohen's modal logic for representing degrees of necessity. In Cohen's original modal

system, if A is necessary to some positive degree, it is true that A. And it is also a thesis that if A is necessary to some positive degree, it is necessary to every lesser degree. Cohen retained both requirements for positive degrees of necessity at least as great as physical necessity. He retained the second condition also for degrees of necessity less than physical necessity—i.e., for propositions that enjoy some positive inductive support. But the first condition was abandoned for such propositions. Just because a proposition receives positive inductive support, it does not follow that it is true. Cohen closed *The Implications of Induction* with a presentation of the modified version of his modal logic.

Cohen demonstrated that Inductive Support so conceived could not satisfy the requirements of the calculus of classical probability. This merely technical point acquires its philosophical and scientific interest from Cohen's contention that the testing of hypotheses in scientific inquiry is based on controlling for relevant variables in an orderly manner. If one is sympathetic with Cohen's understanding of this claim as it bears on scientific practice and legal reasoning, the technical point becomes a first rate philosophical insight.

The importance of the insight was substantially enhanced when Cohen brought his concept of inductive support to bear on the elucidation of the concept of inductive probability. In *The Probable and the Provable* (Oxford, 1977), Cohen maintained that probability evaluates the degree of provability or inferential soundness of reasoning. This in itself is not a new idea. A general law may be understood as supporting a rule of inference: 'From the information that initial condition R has taken place, infer that an outcome of type S will occur.' Similarly, one may understand a statement that the chance of an outcome R occurring on a trial of kind S is equal to r to be supporting a rule: 'From the information that a trial of kind R has taken place, infer that an outcome of kind S will occur with probability r .'

Cohen's innovation was the novel observation that there are at least two formalisms whose applications can be considered gradations of provability or probability: (i) the kind structured according to the classical calculus of mathematical probability that Cohen associated with Pascal; and (ii) another kind exhibiting quite a different structure that he associated with Bacon.

According to the Pascalian kind of probability, the degree of provability of a proposition and of its negation ought to sum up to a fixed value—typically set at 1. If h is proven to some degree k short of the maximum 1, the difference between 1 and k represents the degree to

which the negation of h can be proven. If h is assigned a grade of probability near 1, its negation should be assigned a degree of probability near 0. Probability so conceived extends the notion of proof as deciding the truth or falsity of a proposition. There is no 'incompleteness'.

Baconian probability corresponds to a type of proof that allows for such incompleteness. To assign 0 degree of probability to h is to hold that h is not provable to any degree, which is not to say that its negation is provable to some degree. Thus, both h and its negation could be assigned Baconian probability 0 when there is no basis for deciding the issue between them one way or the other to any degree. If a proposition carries positive Baconian probability, its negation carries 0 probability. The Baconian probability of a conjunction $h \& f$ is the minimum of the Baconian probabilities of its conjuncts. If a set K of propositions each carries positive Baconian probability, so do the deductive consequences of K . If the elements of K each carry a Baconian probability at least as great as some positive threshold α , so do all the deductive consequences. This stands in sharp contrast to the Pascalian requirement that the probability of the conjunction should be the product of the probability of h and the probability of f given h .

The distinguished American epistemologist, probabilist and statistician, Henry Kyburg, had pointed out that if propositions should be accepted if their probabilities reach a certain threshold, where the probabilities are classical probabilities of the sort Cohen called 'Pascalian', the set of acceptable propositions could not be closed under logical consequence. (See H. Kyburg, *Probability and the Logic of Rational Belief*, Middletown, CT, 1961.) Kyburg brought the point home by posing the so-called 'lottery paradox'. If a lottery in which one ticket is to be drawn from a thousand is fair, it is argued that 'ticket j will not be drawn' has a probability 0.999 which is presumably high enough for acceptance. This is so for every value of j from 1 to 1,000. If the set of accepted propositions is closed under deduction, one should accept the claim that no ticket will be drawn. This conclusion contradicts the claim that the lottery will be conducted. Kyburg abandoned the demand that the set of acceptable propositions should be closed under deduction. And so have a great many writers subsequently.

Baconian probabilities are assigned the conclusions of inferences licensed by inference rules alleged to hold with full generality and licensed by physically necessary generalisations. The Baconian probability assigned 'This is an S ' inferred from 'This is an R ' is equated with the rank of the generalisation 'Whenever R , to infer S ' in an assessment of

inductive support. Cohen contended that the principles of inference that ground degrees of provability in the sciences are hypotheses possessing natural necessity of the sort mentioned above where the grade of natural necessity or inductive support depends on the severity of the tests that the hypotheses have passed. The Baconian probability of R given S is then equated with the inductive support afforded by the data to the rule licensing inferences from S to R. Cohen showed how such a notion of probability exhibits the Baconian structure sketched above.

Cohen offered a compelling case holding that both in the natural sciences and in the law, one should accept a proposition if its Baconian probability is sufficiently high rather than the Pascalian probability (or the interval valued variant that Kyburg and those that followed him had adopted). According to both approaches, a verdict may be rendered concerning the truth of a proposition only if its probability is sufficiently high—as, for example, when a verdict of guilty in a criminal case is warranted only if one can establish guilt beyond a reasonable doubt.

Cohen took the paradoxical sting out of the case of the lottery by replacing Pascalian high probability with Baconian high probability as necessary and sufficient for acceptance. In the case of the lottery, the Baconian probability that ticket *i* will be drawn is 0 as is the Baconian probability that it will not be drawn. The common sensical recommendation that one should suspend judgement concerning the outcome of the lottery could then be supported.

Cohen was by no means the first or the last person to utilise the formalism that shapes Baconian probability. In the late 1940s, G. L. S. Shackle had introduced a notion of potential surprise and its dual, degree of belief, that exhibited formal structure quite similar to Cohen's Baconian probability. But Shackle proposed an application where potential surprise is a measure of uncertainty replacing (Pascalian) probability in the calculation of expectations relevant for the making of decisions about investment portfolios.

In the 1960s, Isaac Levi had shown how to relate surprise and degrees of belief to classical (Pascalian) probability using inductive rejection rules and had shown how to disarm the lottery paradox. But both Kyburg and Cohen complained about the relativity of Levi's solution to a set of potential answers to the question under investigation. Neither Shackle nor Levi anticipated the application of measures having the formal properties devised by Shackle as assessments of grades of provability derived from the inductive support for laws in accordance with Baconian methodology.

Measures with a structure similar to Cohen's Pascalian probability have been introduced into discussions of belief change and non-monotonic reasoning in recent years. Thus, Didier Dubois and Henri Prade introduced measures of possibility that can be used to define degrees of belief and disbelief or surprise. Peter Gärdenfors and David Makinson have introduced a notion of expectation that possesses the structure of Shackle or Baconian measures. Wolfgang Spohn has developed an impressive account of belief change built on ranking functions exhibiting a similar structure. However, none of these authors anticipated the application of Shackle measures as assessments of probability grounded in Baconian methodology.

Cohen's contribution is undoubtedly as controversial as it is important. In any case, it is an impressive achievement linking his reflections on modality in *The Diversity of Meaning* with his ideas about controlled experiment and their bearing on probability judgement.

Baconian probability has relevant application, according to Cohen, in some domains, but by no means all, where notions of probability may be used. The philosopher who emphasised the diversity of meaning not only insisted on this but explored the relations between the prescriptions of rational Pascalian probability judgement and descriptions of the performance of experimental subjects in satisfying such prescriptions.

Much of his discussion of the application of Pascalian probability occurs in the context of his famous critiques (discussed below) of the results of studies undertaken by cognitive psychologists in the 1970s that purported to reveal a deep irrationality in the reasoning about (Pascalian) probabilities on the part of experimental subjects.

Very few philosophers, social scientists, computer scientists or psychologists would maintain that ordinary agents are perfect reasoners. The limitations of memory and computational capacity preclude even the cleverest mathematician from recognising the logical or mathematical implications of a given theory under investigation. Fatigue, distress, and various types of frenzy get in the way of clear thinking.

Since the 1970s, an increasing consensus among experimental psychologists has maintained that human reasoning is infected with a form of original sin that goes beyond these familiar disabilities. Amos Tversky and Daniel Kahneman, in particular, maintained that reasoners about probabilities deploy 'heuristics' of various types that sometimes give good results but also lead such subjects to commit fallacies according to norms of rationality even in situations where the reasoner is in good physical and emotional shape and obstacles to computation are removed. (See

Tversky and Kahneman's papers in *Cognitive Psychology*, 1972, and *Science*, 1974.)

In an article that appeared in *Cognition* in 1979 and in an essay accompanied by peer commentary in *The Brain and Behavioral Sciences* in 1981, Cohen contended that the charge of fallacy is sometimes predicated on an interpretation of the problems as calling for reasoning about Pascalian probabilities where Baconian probabilities might be more appropriate. But he also challenged the allegation of fallacy in cases where Pascalian probabilities are at issue. Sometimes the claim that a fallacy is committed presupposes an uncharitable interpretation of the experimental subject's understanding of the question posed when an alternative construal is ready to hand.

Cohen elaborated on his view in chapter III of *The Dialogue of Reason* (Oxford, 1986). In this book and in the earlier articles, Cohen embedded his views concerning the empirical work by cognitive psychologists in a view of human rationality and the relevance of intuition in the criticism and defence of principles of rationality. Cohen maintained that it is a fact that norms of rationality regulate human deliberation and conduct. The norms constitute a competence analogous to the competence grammarians in Chomsky's school attribute to language speakers to discriminate between grammatical and non-grammatical utterances and inscriptions by an appeal to intuition. No doubt human reasoners fail to satisfy the requirements of rationality. But such failure presupposes their having a competence to conform to the normative theory of rationality. More crucially, the types of failure to satisfy these norms are not to be understood as the result of being subject to the dictates of certain 'heuristics' along the lines explored by Tversky, Kahneman and their associates. They are due rather to failures in the processing of information.

Cohen's views aroused much heated controversy among the acolytes of Tversky and Kahneman. Yet, many of his insights have resonated with philosophers, psychologists and social scientists who have not been mesmerised by these authors and their followers.

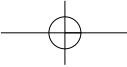
Cohen produced one final book related to his contributions to the understanding of probability. *The Philosophy of Induction and Probability* (Oxford, 1989) reviews the ways in which interpretations of the formalisms of Pascalian and Baconian probability may be applied in accounts of ampliative inductive reasoning. Cohen pointed to a consensus among many authors as to the relevance of a variety of instances to the enhancement of the support for hypotheses. He compared the efforts of authors who relied on Pascalian probability in the evaluation of induc-

tive support to accommodate the importance of variety of instances and contrasted these methods unfavourably with evaluations based on the method of relevant variables appealing to the kinds of structures that he had already begun sketching in *The Diversity of Meaning*. The method of relevant variables of course employs Baconian rather than Pascalian probability judgement.

His last published book, *An Essay on Belief and Acceptance* (Oxford, 1992), addresses the question: Is the Mind active or passive? There are those following Hume and including Quine who think of knowledge as a species of belief where belief is a passive phenomenon—a disposition to have feelings of conviction among other things. Those who think of scientific inquiry as entailing an active engagement with ‘the situation’ as John Dewey would say might think of a belief as the assertion made at end of inquiry that converts the problematic situation into a determinate one. Cohen, interested as he was in a Baconian methodology that called for testing aimed at circumscribing the domain of applicability of hypotheses, sought a way to recognise a mode of active circumscription. He proposed a distinction between non-voluntarist notions of belief and voluntarist notions of acceptance. He explored the ramifications of his distinction for belief-desire explanations of action. He sought to identify the contexts where knowledge may be taken as a species of belief and as a species of acceptance, by considering the question: Should a jury render a verdict according to what its members believe or what they accept? He brought his distinction to bear on questions of self-deceit and asked about the relevance of subjective probability to strength of belief and considered a very rich budget of topics to which his distinction could be relevant.

Cohen’s central and original contributions are to the philosophy of inductive reasoning. But, like any serious philosopher, Cohen undertook to relate his own contributions to a broader spectrum of issues. Not only did Cohen succeed in doing this, he did so in an original manner that exhibited his resolute determination to face up to the consequences of his insights no matter how controversial they might be.

Cohen pursued his agenda in an elegant and good natured manner that won the admiration of those who were his friends whether they agreed or dissented from his views. He was a great teacher. The graduate students he supervised willingly testify to his influence on them. One of the students who took tutorials from him reports:



186

Isaac Levi

He taught me about living courteously and with dignity and good humour in difficult circumstances—Jonathan Cohen was a kind good man, and the best of tutors.

Courtesy, dignity and good humour marked not only his relations with his students but with his colleagues—including those with whom he was engaged in earnest controversy.

ISAAC LEVI
Columbia University

Note. I thank Dr Jonathan Adler and Dr Gillian Cohen for invaluable help concerning a number of biographical details.

