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THE PRACTICE OF EVALUATION AND POLICY ANALYSIS

- I. Modern Philosophical Critiques of Positivistic Styles of Evaluation and Policy Analysis
- II. Critical Evaluation Applied: Derivative Recommendations for Practice in the Contexts of Technology Assessment and Environmental Impact Analysis

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* Many people's suggestions have helped me to write and rewrite this paper. Earlier drafts were seen and commented on by Dudley Burton, Bayard Catron, Frederick Collignon, Jan Dekema, Larry Hirschhorn, Martin Krieger, Judith de Neufville, Seymour Neustein, Polly Pharr, Michael Teitz, and Melvin Webber. I would be grateful for any further comments and criticisms of this working paper. Please send these to me at the Department of City and Regional Planning, University of California, Berkeley, 94720.

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Project for Cost Benefit Analysis and Evaluation of Rehabilitation Services

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FOREWORD

In this paper, John Forester explores approaches to policy and program evaluation based on theories of knowledge other than the traditional scientific method. He critiques the assumptions about learning, knowing, and understanding which underlie evaluation based on experimental design, such as advocated by Edward Suchman in his classic book, Evaluation Research. He traces the implications for the activity of evaluation and policy analysis of other philosophical schools, and then develops a set of questions and an organizational strategy for making any evaluation study more sensitive to its biases and limitations. This paper constitutes a beginning step toward what could be a major reexamination of the methodological underpinnings of evaluation and policy analysis as currently practiced in government.

The paper was written by Mr. Forester, a doctorate candidate in social policy planning in the Department of City and Regional Planning at the University of California, Berkeley, in conjunction with a larger research project evaluating nonemployment impacts of social and rehabilitation programs. The paper can be viewed as an approach to improving the ability of evaluation activity to recognize and effectively deal with what too often are labelled, "intangible" benefits and costs of program interventions. The research is funded by a grant from the Social and Rehabilitation Service of the U.S. Department of Health, Education and Welfare.

Frederick C. Collignon, Ph.D.
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I. MODERN PHILOSOPHICAL CRITIQUES OF POSITIVISTIC STYLES OF EVALUATION AND POLICY ANALYSIS

INTRODUCTION: THE GUIDING IMAGERY OF THE PRESENT

Program evaluation is the attempt to monitor and assess the performance of social services and social action programs. If public and private sources alike are to make sound decisions regarding the allocation of funds to alternative programs, there must be approaches and methods with which the relative effectiveness and "productivity" of those programs can be evaluated.

Everything should be so simple -- for such evaluation is difficult to say the least. Often, even the very definition of the "client" of the program can be difficult to pin down. The development of "output measures," for schools and health services, for example, is anything but simple. And the understanding of "cause-effect chains" -- just how a particular program actually works -- rarely shows up in any simple and straightforward model.

Still, of course, vast resources are allocated to such services and programs even while their evaluation is lacking or altogether nonexistent. And though some sectors of government spending, e.g., defense appropriations, seem somehow relatively immune from such pressures, the pressure for careful evaluation of the "outputs" of social programs mounts.

For many years such students and critics of planning and social programs as Sir Karl Popper have advocated "social experimentation."¹

Such suggestions take root in the immensely powerful imagery of experimentation in the physical sciences. Indeed, the roots of modern sociological positivism may be traced at least as far back as Auguste Comte.² In recent years following Popper's suggestion, perhaps the most significant contribution to positivistic social analysis has been Donald Campbell and Julian Stanley's work on Experimental and Quasi-experimental Designs for Research. In sum, the guiding vision here is that of modern positivism: through applying the strict procedures of careful observation, measurement and control, (social) behavior might be understood scientifically just as physicists are able to do with behavior in their own field. But, of course, immediate problems such as the difficulties of working with experimental control groups arise, and thus we find Campbell and Stanley's work something of a watered-down, "second-best" social positivism.³

¹Neglecting the political aspects of the "free criticism" of communities of scientists, Popper has suggested that such criticism constitutes "scientific objectivity" and offers a "cure for the social sciences." He writes, "A social technology is needed whose results can be tested by piecemeal social engineering." (Italics in original), The Open Society and its Enemies, Vol. II, pp.217-222. Popper has developed these ideas more fully in The Poverty of Historicism. See Footnote 3. In a recent New York Review of Books, Sheldon Wolin points out the illusory character of an apolitical "objectivity": "The concept of the scientific community has about the same mythological status as its sister concept, the 'voluntary association.' Each was discovered just when it was beginning to disappear and to be replaced by bureaucratic organizations. Organizations are not communities, but structures of power and interest." NYRB 2/6/75 p. 15. More recent continuities with the Popperian spirit are found in the work of Donald Campbell; see below.

²For this history, see, e.g., The Coming Crisis of Western Sociology, Alvin W. Gouldner, Basic Books, N.Y. 1970. cf. The Alienation of Reason, Lesek Kowlakowski, Doubleday 1968, for a concise history of positivistic thought.

³For example, one of many discussions of the shortcomings of experimental and quasi-experimental research in the policy analysis context can be found in John O. Wilson's "Social Experimentation and Public Policy," Public Policy, Winter (p.24) 1974, Vol. XXII. Unfortunately, and self-contradictorily, Wilson concludes with imperatives and false promises

Nevertheless, the imagery of the physical sciences, combined with the relativistic insecurities of social scientists (nb.) and their emulation of their counterparts in the physical sciences -- all this makes positivistic (more generally, "scientistic") social science and evaluation styles still the dominant paradigm of research and analysis in those fields.^{4,5}

of "rigorous experimental conditions." cf. Alice Rivlin, Systematic Thinking for Social Action, Brookings, 1971. Within the domain of the philosophy of science, perhaps the most brilliant and devastating critique and reformulation of Popper's program of experimentation exists in Imre Lakatos's "Falsification and the Methodology of Scientific research Programmes," in Criticism and the Growth of Knowledge, I. Lakatos and A. Musgrave, ed., Cambridge University Press, 1970.

⁴The social scientist's dread of relativism has at least two important components. First, the very acknowledgement of a problem of cognitive relativism in the context of policy issues would immediately demand explicit attention to ethics -- and if anything, of course, the social scientist wants to be scientific, grounded, not caught up in an apparent metaphysical mire of "ethics." Secondly, the spectre of relativism strikes at the heart of the identity and security of the social scientist as scientist. Thus we find a somewhat perverse flight from moral and political questions -- the very question of the problem of relativism can be taken as the leading example -- to the institutionally more secure roles of academe, or the broader social scientific community.

⁵Habermas's Knowledge and Human Interests is an extensive critique of "the absolutism of pure methodology" erected by positivism (pg.5). This absolutism is "scientism"; Habermas writes, "Scientism means science's belief in itself: that is, the conviction that we can no longer understand science as one form of possible knowledge, but rather must identify knowledge with science." (pg.4). Eric Voeglin has drawn out the implications of this as follows:

The destruction worked by positivism is the consequence of two fundamental assumptions. In the first place, the splendid unfolding of the natural sciences was co-responsible with other factors for the assumption that the methods used in the mathematizing sciences of the external world were possessed of some inherent virtue and that all other sciences would achieve comparable success if they followed the example and accepted these methods as their model. This belief ... became dangerous (only) because it combined with the second assumption that the methods of the natural sciences were a criterion for theoretical relevance in general. The second assumption is the real source of danger. It is the key to the understanding of positivistic destructiveness ... For this second assumption subordinates theoretical relevance to method and thereby perverts the meaning of science. p.4, The New Science of Politics. University of Chicago Press, 1971 (1972).

Nonetheless, there is dissension in the ranks, and such scientism draws increasing criticism. Other styles of analysis, with other philosophical foundations, are emerging, and these may allow or stimulate some advances in social evaluation to be made. At the very least, an increased eclecticism may quite literally help some services to survive, services whose benefits or "outputs" an overly narrow positivism may have been unable to measure. The literature which critiques strict positivistic inquiry is growing and is now quite substantial: what is hardly developed, though, is work reflecting the contributions to alternative and possibly complementary philosophical schools or methodological positions.⁶

The following few pages will briefly indicate what these schools may be taken to be, how they point to flaws in modern positivism, where significant parallels and directions for further work may lie, and what problems in "positive evaluation" the schools may help us to clarify. Finally, using ideal-typical constructs, an imagery of a style of "critical evaluation" will be counterposed as a complement to the contemporarily dominant style of scientific "positive evaluation."

FOUNDATIONS FOR ALTERNATIVE AND SUPPLEMENTARY APPROACHES

The issue here is not the acceptance or rejection of positivistic styles of analysis. Alternative positions show us complementary methodological moves we can make. As evaluators and analysts we need to save the power, but move beyond the inadequacies, of positivistic modes

⁶Martin Krieger has explored and discussed several such alternatives in his article, "Some New Directions in Planning Theories," *AIP Journal*, May 1974, pp. 156-163. Compare in the January issue, 1974, "Knowledge and Action: A Guide to Planning Theory," by John Friedmann and Barclay Hudson.

of inquiry. Bases for such opportunities lie in the substantial literature in modern philosophy devoted to so-called "theories of knowledge." The major philosophical movements of the twentieth century suggest ways in which we can do stronger criticism, analysis, and evaluation.

Five modern schools of thought may be taken as alternatives and reactions to modes of positivistic inquiry. These are: phenomenology, existentialism, pragmatism, Marxism, and modern language philosophy.

We can here briefly note major authors in each and indicate the nature of their contributions to our problems of planning and policy analysis. These pages, of course, do little justice to the intellectual histories of these philosophical movements and developments; the intent here is only to sketch very briefly complementary positions and so to point to substantive and methodological alternatives for policy analysis and criticism.

Modern phenomenology largely emanates from the work of Edmund Husserl and Martin Heidegger. Where Husserl attempted to save traditional philosophy by finding a bedrock upon which to develop a theory of knowledge, the task of his student, Heidegger, was no less than to explore the meaning of Being, allowing an understanding of human being to be reached as well. While the difficulty of Heidegger's work makes it largely inaccessible for the non-philosophic audience, Husserl's work has been developed in connection with the sociology of meaning and action by Alfred Schutz. How do human beings share and interpret a meaningful world, and how are meanings generated and structured? What does our understanding of the interestedness of human being show us about our participation, our knowing and being in the world? These are central themes and concerns of those working in the tradition of modern phenomenology.

Phenomenologists call attention to the problems of the apparency and givenness of our lived worlds, whether for the "man in the street" or the social scientist. The positivist does not -- cannot, as positivist -- fundamentally question the givenness of data: the phenomenologist does. The positivist cannot easily describe what it is to be-in-a-situation; such is the focus of the phenomenologist. Where people's experiences count, such work will be of obvious importance for evaluation and design.

The positivist may try to tell us when someone is in the location they call "home"; the phenomenologist tries to tell us when and how it is that we can be "at home" -- whether in the particular physical locations of our homes, or not. The positivist can document numbers of complaints or criminal records: the phenomenologist may accept this, but in addition, speaks to what it is for us to be in trouble. The scientific notion of space is rooted in feet or metres; the phenomenologist goes further to address how it is that persons thousands of miles apart can be quite close.

Existentialist work follows the nineteenth century writings of Søren Kierkegaard, and those of Jean-Paul Sartre, following Heidegger, of contemporary times. Taken broadly, modern existentialism calls attention to the human condition -- the experiences of community, of despair, of guilt, the problems of death, alienation, authenticity and anonymity, and especially, problems of freedom and responsibility.

A human being may be defined by her possibilities and by what she does; her freedom may lie in how she makes commitments, in how she acts. The positivist can model scales of utility and "rational choice"; the existentialist takes us where the positivist cannot go -- again,

the problems of responsibility, of guilt, of community, of anxiety and fear. The positivist can model or attempt to catalogue and correlate behavior; the existentialist confronts us with the problems and possibilities of human freedom. Remembering the deceptive emulation of the "hard sciences," it is interesting to recall the line of Sartre: "Freedom is the irreducibility of the cultural to the natural."

American pragmatism represents a strong reaction against rampant formalism, abstraction, and related "philosophical" vices. Though rooted in the earlier work of C.S. Peirce, pragmatism finds its most accessible expression in the work of William James and John Dewey. What is truth? What good is a philosophical analysis? What is the true meaning of a complex or difficult expression? C.W. Churchman has answered this succinctly, (to paraphrase) "for the pragmatists, truth is the answer to the 'so what?' question." In James we find the direct request -- the demand -- that conceptual work be clear and have clear "payoffs," "cash value": what counts is the difference made by an expression, an analysis.⁷

Now, if we respond, "fine, but who says just what difference is really made?", we shift the discussion. At this point the pragmatist position becomes stronger, not weaker -- for here the appeal is

⁷For example, on "truth" James wrote, "The essential thing is the process of being guided. Any idea that helps us to deal, whether practically or intellectually...that doesn't entangle our progress in frustrations, that fits, in fact, and adapts our life to the reality's whole setting will agree sufficiently to meet the requirement. It will hold true of that reality." Pragmatism, p. 140.

Abraham Kaplan put it more simply and at the same time indicated the ambiguities of the pragmatists: "Pragmatism approaches (all ideas) ...by asking, not 'what does it mean?' but rather 'what is it supposed to do?'" For its meaning lies in its purpose, or rather, in the way in which it works to fulfill its purpose." The New World of Philosophy, p. 16.

made to a community of persons who can test, teach, and criticize one another, but to whom pragmatics, the differences made, count. Of rationalist and empiricist alike James asks, "So what? What's the payoff?" By so doing, the pragmatist intent serves to check rampant scientism or formalism. Pragmatist arguments point not only to questions of payoffs and so values and interests, but also to questions of the community of inquirers and the social bases for knowledge as well.⁸

Only in recent times has the political climate in this country allowed Marxist scholarship a more open forum. Fundamental to Marxist work are an understanding of the active, social nature of man, producing and reproducing his world, and an understanding both of historical change and of the historical context or totality in which any apparently isolated "fact" may be understood.

Marxist work calls attention immediately to the socially embodied meaning of problems or ideas -- as do the pragmatists; but unlike the pragmatists, Marxists go further to articulate analyses of social structure centered in relations of production. Through this attention to social structure and the conflict-ridden relations of social classes, Marxists appeal to a developed philosophy of history which in turn provides a basis for assessing strategies, for determining or judging "what works."⁹

⁸See, e.g., Richard Bernstein's discussion of the pragmatism of Peirce and Dewey, in Praxis and Action, 1971, e.g., pp. 199, 224. Although pragmatists may devote more concern to understanding the social bases of knowledge, the community of inquirers, than many in more positivistic veins, Wolin's criticism remains. (Footnote 1) The demand for a theory of the community of inquirers is a demand for an articulated philosophy of history, a theory of embodied, dynamic context.

⁹Cf. Here the famous Marxist-Pragmatist debate on the morality of revolution, Their Morals and Ours, Leon Trotsky, John Dewey (George Novack, ed) Pathfinder Press, New York 1973 (1969).

With an emphasis upon (class) man as active agent, Marxist work continually provides a criticism of abstraction-run-wild, or of the "commodification" or reification of social life. By questioning the historical roots of apparently immutable social forms, e.g., "the laws of the marketplace," Marxist work focuses attention upon possibilities of organization and structural change. Further, the attention to historical roots undercuts the traditional empiricist's "givenness" of data; knowledge and perspectives of evaluation are historical, social, changing in the context of existing social structures.

Positivists can have neither models of man nor of history but rather propositions and "laws" of change. Marxist work gives a centrality to the social nature of human activity and the existing historical conditions, again, the social structural conditions of production, control, and possibility in which man lives. Where the scientific inclination is toward static descriptions and solutions, Answers, the Marxist orientation raises the fundamental questions of historical contingency, the social bases for methodological investigation itself, and the possibilities for furthering human freedom.

Modern language philosophy grows out of the work of G.E. Moore, John Austin, and Ludwig Wittgenstein, who radically superceded the earlier language analysis of Frege, Russell, and Wittgenstein himself. In the early work, language was understood to be a picturing system in which a concept signified an object in the world; the structure of language was thought to mirror the structure of the world. But "pictures can be variously interpreted," understood and applied; modern language philosophy stresses the shared social activity of language. Through sharing the use of words, we act together, communicate, and represent

the world to one another. We learn language and the world together; the two are inseparable, for we know as we know in and through our languages. We understand our words, our analyses, through their (social, moral) uses -- not because they serve us as pictures of an empirical world. Ask, for example, what "efficiency," "justice," "tomorrow," "if" or "absence" pictures. The moral and political implications of Austin's and Wittgenstein's work have been explored more recently by Stanley Cavell and Hanna Pitkin.¹⁰ In contexts of policy analysis and evaluation, we are politically, as well as technically, responsible for the use of particular modes of expression and representation, for our use of particular languages.

These five schools share significant areas of concern. Where Marxists devote attention to the historical nature of man, Wittgenstein bases our knowledge of language and the world upon historically given and learned "conventions," and the existentialists call attention to human temporality. The positivist cannot have an understanding of the constitutive nature of history to human being and experience, to having a world, inhabiting a world.

Then, too, Wittgenstein continually shows us the activity of language, of sharing worlds: Marxists show us the practical nature, and with the pragmatists, the conscious producing nature of man, where the existentialists also confront us with the problems of understanding

¹⁰See Wittgenstein and Justice, Hanna Pitkin, UC Press, 1972 and Cavell, Stanley "The Availability of Wittgenstein's Later Philosophy," in G. Pitcher, ed. Wittgenstein, Anchor, 1966, and Cavell's "Must We Mean What We Say? , in Ordinary Language, V.C. Chappel, ed. Prentice Hall, 1964, also in Cavell's book by the same (article) title.

human action. A strict commitment to positivism -- were that possible -- would mean the denial of human action itself. As we shall see, in the same vein, positivistic evaluation and analysis may hide from our view possibilities and strategies of policy action.

Yet another convergence comes with the self-consciousness of schema of representation. The attention to modes of representing is strongest in phenomenology and language philosophy; in Marxist work we find the centrality of the theory of ideology. While positivists may indeed recognize the limited nature of their measurement capacities, that remains incidental to the fundamental claims of the school regarding the power and promise of "scientific" inquiry.¹¹ And just those claims, asserting the separability of knower from known, are rejected by phenomenologist, pragmatist, Marxist, "language philosopher" alike.

These areas of convergence pose at once problems which positivism cannot address, problems basic to social activity and social life, and so problems whose study promises to "make a difference" in our ability to evaluate social programs and services. So we can now highlight problems of "positive evaluation" which these schools of thought illuminate and clarify for us. We refer to the following as the "Pitfalls of Positive Evaluation":

¹¹The misplaced primacy of the commitment to experimental method can be found in positivistic strains of pragmatism. Horkheimer notes Peirce's claim that "nothing that might not result from experiment can have any direct bearing upon conduct, if one can define accurately all the conceivable experimental phenomena which the affirmation or denial of a concept imply." Horkheimer continues to develop the critical flaw of this scientific position; he asks, "How is it possible to subject experimentation to the criterion of 'being conceivable,' if any concept -- that is to say, whatever might be conceivable -- depends essentially on experimentation?" (p. 48, Eclipse of Reason). It is a little much to ask all concepts and claims to be finally judged on the basis of experimentation, when this criterion itself demands (social, moral) justification.

The Pitfalls of Positive Evaluation

1. Data are not simply "given"; the choice of appropriate data and the proper mode of specification of the chosen data are issues which are necessarily ignored within positivistic systems. Marxists and phenomenologists especially call attention to this classical empiricist fallacy.
2. Choices of units of analysis must be made -- but may always be made differently. Were there true "simples" of which our world were constituted, we would need pay no attention to our languages mirroring those "simples." Such belief in fundamental units is the atomistic fallacy. We represent through multiplicities of particular learned and variably shared languages -- for whose use we are responsible.
3. Evaluators search for the true outputs, e.g., of health and education programs. The questions are, "What is health?" "What is education?" We act as if the real outputs are there (somewhere) but hidden. Wittgenstein pulls us back from the "what is ...?" question to ask the rather more political and moral question, "what counts as ... and in whose language?" With this understanding our program of research and analysis, our "what is ...?" question, changes. The danger here is that of the ontological fallacy. Wittgenstein shows us that "our grammar tells us what kind of object anything is"; and as our grammars are socially shared and practiced, the evaluator's attention to language is not idealistic, does not suppose "reality is just in our heads."
4. In the physicists' laboratory, the ceteris paribus condition can be constructed; the relevant contexts can be "held constant." In the social and political world, we have history -- contexts move and shift, people act. Furthermore, the very choice of a totality or context in which a social program is to be understood is politically and morally problematic. Positivistic claims in the social world run the risk then of the historical or contextual fallacy.
5. We may lose sight of human beings in our use of our indicators of income, years of education, yearly hospital visits, and the like. Consider the blinders, and tragedy, of a student's remark, "But, but, I can't talk to him, he's a professor!" The commitment to a method can be a commitment to an understanding of man. And one person's heuristic method may become the reality of another person who uses the first's results. "If we write or speak of persons as objects, we are likely to treat them so as well" (to paraphrase Pitkin).¹² Marxists call attention to the commodification of

¹²Pitkin, Hanna Wittgenstein and Justice, p. 321.

social relations; Wittgenstein warns that "We predicate of the thing what lies in the method of representing it."¹³ Belief in the adequacy of positivism here is the objectification fallacy.

6. Faced with a powerful model, we may say, "yes, that's how it is; it must be so, of course!" We are persuaded -- not to say, taken in -- and as Wittgenstein says, "concepts force themselves upon us." Although certainly not a problem only for those in the tradition of positivism, strict belief or claims here become the positivist's representational fallacy.¹⁴ Wittgenstein uses the fascination and power of Freud's work as an example; he notes the power of the mythology, "yes, it must be like that," and wants to be persistent in asking "couldn't the whole thing have been differently treated?"

¹³Wittgenstein, Ludwig, Philosophical Investigations, #104, p. 46.

¹⁴The outstanding statement of "the representational fallacy" remains Thomas Kuhn's The Structure of Scientific Revolutions (second edition, 1973 (1962), University of Chicago Press. Kuhn stresses the shared activity of representation; communities of scientists learn and share "paradigms." A more difficult but excellent development of the problems Kuhn raised appears in Criticism and the Growth of Knowledge, Lakatos, I, and Alan Musgrave, ed. Cambridge University Press, 1970.

Two quotes of John Wisdom may illustrate the relevance of these problems for us. Pointing out the potential contributions of the philosopher and the metaphysician, Wisdom poses the analogy: "The psychoanalyst also tries to bring into the light models which dominate our thought, our talk, our feelings, our actions, in short our lives." (Philosophy and Psychoanalysis, Philosophical Library, 1953, p. 275).

In an essay "Paradox and Discovery" Wisdom warns again of what we stand to lose if we ourselves become lost in particular systems of representation, particular perspectives or ideologies. He writes: "...we are told that if we wish to find the truth, we must become as little children.

"This is all very well, but after all, one who understands was not born yesterday. He is a person with experience and one who sees things now in the light of that experience. The trouble is that the concepts, without which we do not connect one thing with another, are apt to become network which confines our minds. We need to be at once like someone who has seen much and forgotten nothing, and also like one who is seeing everything for the first time.

"It is, I believe, extremely difficult to breed lions. But there was at one time at the Dublin Zoo a keeper by the name of Mr. Flood who bred many lion cubs without losing one. Asked the secret of his success,

7. Positivistic analysis and language exclude -- and cannot cope with -- questions of responsibility and morality, thus questions of human agency. Here positivism gives us the reification fallacy. Do both people and "variables" act? Where positivism obscures and hides from our view our own responsibility, existentialism, pragmatism, Marxist philosophy, and language philosophy give us back moral questions -- not "God's answers," but ourselves as moral actors. And that is no small or insignificant gift.
8. The spirit of positivism is to find Answers. Modern positivism is more modest than that of Comte: theology is excluded. Still, the classical search for truth persists; positivistic social scientists pursue the Verifiable Propositions. Social experimentation emulating classical physical science denies the politics of answers -- someone, whether person or government body, decides or accepts what is "good enough," "exact enough," in a particular answer. Similarly, "Answers" do not decide the future cases and circumstances in which they are applicable. Such evaluation founded upon such beliefs prevents attention precisely to the social and political context in which it occurs. This is the simplistic learning fallacy.
9. Positivistic evaluation can pretend simply to monitor program operations. Yet evaluation occurs in social languages, and these languages are activities that persons share. What is communicated in which manner to which persons at what time are variable: evaluators are responsible for how they perform. These responsibilities are obscured by the passive observer fallacy, the belief in the passive inactive monitor. All five schools discussed show us this fallacy.
10. Positivistic evaluation maintains the tenuous distinction between explanation and description, and in the pursuit of "explanation" the positivist can be heard to complain of typologies and descriptions "but it doesn't tell one what to do" (if a particular goal is desired). This wish reflects a flight from responsibility, for it runs roughshod over the logical and practical necessity for operational directions

Mr. Flood replied, 'Understanding lions.' Asked in what consists the understanding of lions, he replied, 'Every lion is different.' It is not to be thought that Mr. Flood, in seeking to understand an individual lion, did not bring to bear his great experience with other lions. Only he remained free to see each lion for itself."

John Wisdom
Paradox and Discovery
 pp. 137-8

to come to an end. There always remains at least the question of how the last operational prescription ought to be applied. The belief in complete operational specification covers over human freedom and responsibility: the operationalist fallacy.

11. Positivistic evaluation pretends that all persons share a firm ground upon which standards of evidence and rules of inquiry rest. Wittgenstein argued for the multiplicity of such foundations as they occur in the various regions of language. Consider for example, how we know: a. the number of poorly housed persons in a country, b. the sound of an explosion and c. who is responsible for a given act. Wittgenstein takes us from the evidential, "How do you know...?" to the far more social and political, "How did you learn...?" Much of Wittgenstein's later work reveals the multiplicities of how we know one another and our world; the belief in one general and universal foundation of knowledge such as the positivistic program is the epistemological fallacy.

THE SIGNIFICANCE OF A CRITIQUE OF POSITIVISTIC APPROACHES

This list of problems attendant to scientific or positivistic evaluation is both tentative and incomplete, no doubt. The fallacies represent problems of analysis which scientific evaluation either hides or ignores, or cannot address altogether.¹⁵ In each case, clarifications are made by one or more of the alternative philosophical schools which have been so briefly discussed. In several of the cases, what is clarified is fundamental human responsibility -- we develop this point in a moment.

We may note in particular the following relatively recent contributions to clarification and problem resolution of Wittgenstein's later work -- and following Wittgenstein, the work of Cavell and Pitkin as noted above. With the phenomenologists, Wittgenstein's attention to the conventions upon which languages rest allows us to question the

¹⁵See the further discussion in Part II, p. 21

actual givenness of data and the lived situation: we can investigate language-games, modes of representation, the grammars of our measures, the ways we learn aspects of our language and the world together.

With Marx and the pragmatists, Wittgenstein shows us the centrality of human activity in having a common world. He shows us in the vein of Marx's theory of ideology that we know our world through the language-games we learn to use.

Pitkin shows us our historical and moral roots in our learned conventions. Elaborating Wittgenstein's "reasons come to an end," as do justifications, Pitkin and Cavell confront us with human responsibility and questions of morality as do the existentialists.

For Cavell and Pitkin especially, Wittgenstein's contribution is to the social, not simply individual, self-discovery and criticism of our own morality -- our present commitments, social responsibilities, and possibilities. This, indeed, may be the overwhelming contribution that the five schools of modern philosophy make to the clarification and "resolution" of the problems of the largely positive -- or, what may be worse, ad hoc -- style of evaluation and policy analysis that now exists. These schools bring back human action and responsibility to the fore -- and here this is not only the responsibility of the evaluator but that as well of the human beings whose social relations, whose lives, are the objects of policy or study. In contradistinction to positivism, these bodies of thought make the questions, the analysis, and prospective assessment of collective moral behavior possible. And to show responsibility is to show opportunity as well as accountability. Positivism can go as far as inferring utilitarian choice criteria, but in going no further, for example to justify criteria or weightings, it denies the

very possibility of responsibility or moral behavior -- for the choice of criteria of social welfare, or an understanding of social obligation are the positivist's untouchables.

The schools discussed thus bring back to us human action and so political life itself, with the plurality and the character of uncertainty and risk so central to our political lives. In doing so, these schools clarify our freedom and the threats to it, where otherwise we may be lost in the scientific manipulation of data.

On the following page we sketch an imagery of a "critical evaluation" to supplement a "positive evaluation"; here we draw more broadly from the schools discussed than we were able to do above. The fundamental point, though, should not be obscured here; the contributions we have discussed amount to no less than the clarification and rediscovery of human action, political life, collective responsibility, and morality -- as they have been covered over and obscured from our attention by the promises of method and technique of positivistic styles of evaluation. Critical evaluation makes moral and political practice possible. Beyond seeking general laws, we uncover and make commitments, we take responsibility and hold one another accountable. This is no matter of idle abstraction and speculation. In our tasks of evaluation and policy analysis, our questions and our calling attention to what's significant and possible, our practice, changes, along with our "philosophical understandings."

Positive and Critical Evaluation: The Ideal-Typical Character of Two Evaluation Styles

POSITIVE	CRITICAL
1. reifies Social, political "forces"; makes technical, scientises	uncovers human agency; makes social, historical, human
2. neglects or isolates from context: treats objects as context-free	reveals context; explores implications of changes in context
3. obscures acceptance, moral consent, learned patterns; implies the learned or conventional to be natural	reveals and questions commitments, responsibilities, conventions
4. claims primacy for experimental method in the absence of an articulated theory of context; claims "ethical neutrality"	makes possible consideration and questioning of moral relations and responsibility in a social world; indicates ethical foundations of methodologies
5. without adequate attention to context, may take for granted existing distributions of power, wealth, status, education, and existing incentive structures;	exposes dynamics of contextual parameters; exposes interests; explores relations of differential opportunities to action
6. often must assume no structural change in the future	brings into question possibilities for change
7. is often mechanistic, dealing with information, energy, information processors	attempts to integrate the material and subjective, social structural and personal, to deal with persons, human concern
8. as a process, method, is taken-for-granted problem-solving answering telling hearing dictating	is self-critical questioning issue-raising questioning asking listening offering

Note: These are ideal-typical characterizations of polar, but not mutually exclusive styles. This is most definitely not to assert, for example, that a critical evaluation style could function without some degree of objectification, or without holding particular contextual parameters constant. Still, the explicit recognition of objectification, limits of language and contextual theories would allow the critical analyst greater freedom of inquiry -- and so design -- than would the positivist's relative neglect of such issues. Because "positive" styles predominate, the characterizations here stress the contributions which "critical" styles offer for our practice.

- II. CRITICAL EVALUATION APPLIED: A. THE CASE OF THE OFFICE OF TECHNOLOGY ASSESSMENT (OTA)¹⁶
 B. THE CASE OF ENVIRONMENTAL REVIEW OFFICES (EROS)

OTA/EROS Methodological Analysis and Recommendations

How do these criticisms of "positive evaluation" take shape in practice? In the next several pages, the activities of technology assessment and environmental impact analysis will be used to provide an operational context for the discussion. After brief descriptions of these assessment activities, the above criticism will be re-expressed in terms of methodological recommendations.

TECHNOLOGY ASSESSMENT: PROBLEMS OF POLICY ANALYSIS

Technology assessment has been conceptually riddled. The dominant conceptual model has been a mechanistic and pseudo-scientific one: some mysterious force, "the technology," causes "impacts" upon "society." Yet there is virtually no widely accepted understanding of

¹⁶These abbreviations will be used in the following pages:

EROS: broadly referring to environmental review offices whose responsibilities include the judgment and review of:

EI studies: environmental impact studies, such as federally required Environmental Impact Statements (EIS) and California's required Environmental Impact Reports (EIR);

OTA: Referring to the Office of Technology Assessment in Washington, D.C.; like EROS, OTA's responsibility is to contract and review:

TA studies: Technology Assessment studies of the impacts of particular technological systems.

Thus the abbreviation "OTA/EROS" will refer to the review offices; the abbreviation "TA/EI study" will refer to the impact analyses.

what constitutes "technology," nor is there much of a shared sense defining who or what may be "impacted." Similarly, there is virtually no theory describing how "the technology" at hand causes its "impacts." Furthermore a strange but familiar schizophrenia appears: technology assessment (TA) studies are contracted expressly to inform political decision-making, yet in content they are hard-pressed to include such political agency.

In the above section, we reviewed several problems which we are likely to run into if our social scientific evaluation and review styles become scientific. The problems of technology assessment at the present time should not be surprising, then. The mind-set of much of TA activity is heavily positivistic or scientific and reflects the same methodological inadequacies. If responsible political life and activity are characterized by social, deliberate action under conditions of risk, a positivistic analytical approach is fundamentally anti-political.¹⁷ Were TA activity purely an exercise of logical ordering, a strongly positivistic approach to TA analysis and evaluation might well be justified. OTA, however, is fundamentally political -- in its form of organization and in the form and content of the TA studies which it contracts and passes on to the Congress and the public more generally.

¹⁷We use "responsible political life," i.e., the word "responsible," even though the phrasing is redundant; the sad and telling comment here is Sheldon Wolin's point: as public life is being more politicized, it is becoming less political. In a society in which politics comes to take increasingly technical or corporate-state form, the broader meanings of "political life" are lost -- in practice. See, e.g., Pitkin, Wittgenstein and Justice, pp. 212-214, and Habermas, "Science and Technology in an Age of Ideology" in Toward a Rational Society.

The anti-political character of scientific inquiry might quite naturally be expected, then, to dis-serve rather than promote the effective functioning of OTA. The danger can be simply and briefly demonstrated by considering the "fallacies" of the supposed applicability and adequacy of positivistic inquiry for the analysis of social and political options. Given the brief "theoretical" development of Part I above, these fallacies can be indicated as they apply to the functioning of OTA. Each fallacy provides the basis of a warning; each represents an area of assumptions that can strongly bias analysis and lead to the neglect of important social "impacts." Each fallacy carries an implicit "watch out for ..." for the policy, program or project analyst. But furthermore, then, each fallacy provides the basis of a corrective recommendation for action on the part of OTA (or more generally, a particular reviewing agency).¹⁸

ENVIRONMENTAL IMPACT ANALYSIS

Unfortunately too similar to the work of technology assessment at the present time, environmental impact analysis is equally lacking in sophistication or theory. Environmental Impact Statements (EIS, and in addition, in California, Environmental Impact Reports, EIRs) abound, as do impact checklists and matrices -- and impact analysts. Still, as in TA activities, the dominant conceptual model is mechanistic; "projects," "impact," "the environment." And though EIS/EIRs have easily become political footballs, they are often written with the "positive" blinders we have discussed.

¹⁸These fallacies might be considered and explored as "devil's advocate" questions for project analysis.

Thus, the recommendations developed here may be equally applicable to those charged with the review of Environmental Impact Statements and Reports. These functions will be referred to here under the heading of "environmental review offices" (EROs), performing parallel impact assessment tasks to OTA. Again, the recommendations serve to redirect the attention and activities of these offices; the recommendations serve to alter both the analytical capabilities of the offices and the policy design abilities, e.g., for project alternatives, as well.

These recommendations can take concrete form in two ways. First, they suggest requirements to be fulfilled by those performing OTA/EROs-contracted studies, evaluations, or reviews. In this form, many of the recommendations call for methodological explicitness and qualification.¹⁹ Significantly, the function of explicitness is not simply that of tempering claims of adequacy of analysis: the explicitness can suggest opportunities either for significant further investigation or for alternative policy (system) designs.

Secondly, these recommendations provide equally the interested citizen or OTA/EROs staff with a set of characteristic questions with

¹⁹For example, Ronald Conley, noting the "many limitations and uncertainties inherent in benefit-cost studies," writes, conservatively, "... they can only provide better information on which to make decisions. It is important, therefore, that each study present a detailed explanation of the importance of missing information, possible errors in the data, and the assumptions underlying the study." Economics of Mental Retardation, Johns Hopkins University Press, 1973.

The Office of Environmental Review in the San Francisco Department of City Planning has taken steps in this direction. They -- on paper and increasingly in practice -- ask that: "All assumptions used in arriving at estimates should be stated explicitly. Raw data and calculations should be provided to the Department for its review and files. All information sources should be footnoted ..." The "fallacies of evaluation" presented here suggest a structured and grounded basis for such mapping of assumptions and data which are of concern.

which to guage the adequacy of a given technology assessment (TA) or environmental impact (EI) study. These recommendations provide a conceptual skeleton for the institutionalized criticism of, and generation of supplementary alternatives to, major evaluations and TA/EI studies.

Theoretical Criticism of Positive Evaluation and Corrective Recommendations; the cases of:

- a. Office of Technology Assessment TA-study Review
- b. Environmental Review Offices' EIR/EIS Review

1. Make Data Choices Explicit; Give Sources, and Directions for Further Fact-finding (The Empiricist Fallacy: The Givenness of Data)

Data are not simply given: they are chosen for particular purposes and interests. Particular data are considered important enough to be collected and analyzed. Which data are appropriate? Which of plausible importance have not been presented? What data may yet become important in the near future? These questions are unanswerable within the framework of a positivistic or scientific analysis. At issue here is not only the adequacy but the selection of information presented.

Recommendation II.1: OTA/EROs should require that each TA/EI study attempt to specify excluded data which might be considered most appropriate and important for study, and why, for whose interests and concerns, they may be so. TA/EI studies should indicate possibly relevant data which are not presented for detailed analysis in the work submitted. Such data, for example, are often excluded on grounds that they lie "beyond the scope" of the particular study, or that they are "difficult" to collect.

2. Specify Levels of Population Groups Considered and Other Levels of Aggregation (The Atomistic Fallacy: The Units of Analysis)

"Units of analysis" are chosen: they are variable and not self-evident. Who or what is being represented in the analysis? What do the levels of aggregation hide? Is the analysis, for example, that of classes, individuals, groups, organizations, polities? Each represents a commitment of the analyst that this unit of analysis ought to be considered; we need to ask and be reminded of the benefits of others.

Recommendation II.2: OTA/EROs should require that each TA/EI study explicitly indicate: a) its major units of analysis, e.g., the populations studied, b) alternative units or levels of aggregation which might have been chosen, and c) what the costs of the choices made might be.

3. Specify Which Measures are Considered Important (The Ontological Fallacy: The Medium of Measures)

We mystify technology assessment and environmental impact studies when we treat a "technology," a "project," or "its impacts" as objects, as things. We need to ask, explicitly, "what is sufficiently important to count as a component of 'the technology,' 'the project,' or to count as 'an impact' (consequence)?" We need always to ask, "which measures, e.g., unemployment rate, racial incidence of benefits, income, energy consumption, are being used here?" -- and so be alerted to what may be ignored or left out of the analysis. The TA/EI analysts have chosen these measures in a particular study; are these sufficient?

Recommendation II.3: OTA/EROs should require that each TA/EI study include a specification of significant measures used. One form this might take would be a "Social Benefits and Costs Summary Page," which would indicate in everyday language the major measures used in the TA/EI study.

4. Specify Likely Significant Changes in Policy/Project Context (The Historical-Contextual Fallacy: The Failure of Ceteris Paribus)

Technological systems and building projects are implemented and constructed in changing historical circumstances; the world is changing as the system or project is developing. TA/EI studies must be sensitive to ranges of likely developments "in the environment" of the project or technological system that may impinge upon the effective and equitable operation of the system. "Site and Setting Descriptions" should be forward looking. The politically problematic choice of this environment,

totality, or context lies beyond the bounds of positivistic or scientific inquiry.

Recommendation II.4: A contextual monitoring system or set of contextual indicators (social, economic, political, physical) should be suggested as an integral part of any substantial TA/EI effort. TA/EI studies should indicate the implications for alternative system designs, given a range of likely contextual changes.

5. Specify Particular Difficulties in Measurement of "Impacts"; Indicate Possible Alternative or Supplementary Considerations (The Objectification Fallacy: The (In)adequacy of Measures)

Forcing attention to measures will allow OTA/EROs and the public to avoid becoming lost in one system of measures. The specification of alternative measures and dimensions of the "technology," "project," or "its impacts" can supplement narrow accounting schema whose use alone might obscure problems and possibilities from attention. Where the "ontological fallacy" (#3) reminds us of the analytical commitment to specific measures, here the "objectification fallacy" reminds us of their necessarily limited adequacy, and so makes alternative measures an open, morally and politically problematic question for the TA/EI analysis.

Recommendation II.5: OTA/EROs should require each TA/EI study to specify possible alternative or supplementary measures that reasonably and legitimately might have been used as well. Implications of probable differences in result should be indicated.

6. Specify the Dominant Perspective in Measurement of Impacts -- and The Major Conflicting Perspective (The Representational Fallacy: The System of Measures)

Just as particular measures may be only partially adequate, entire systems of representation, e.g., free-market economics, may be incapable of dealing with particular problems, e.g., equity. Shifting

the focus from single measures to applied-world views, paradigms, and systems of measures, each TA/EI review (and OTA/EROs) should attempt to gauge the adequacy of the TA/EI study by systematically considering the results of applying alternative systems of representation.

Recommendation II.6: OTA/EROs should require that each TA/EI study indicate: a) its dominant analytical perspective, and b) its major limitations as reflected in criticism and analysis in contemporary literature. Given the generalized anarchy of TA/EI methods -- ranging across computer simulation, matrix techniques, cost-benefit accounting, and panel "techniques" ("expert opinion and intuition") to extensive checklists -- such attention is crucial to TA/EI activity.

7. Make Social, Economic, Political Responsibility Explicit: Specify the Major Actors Who Can Shape Policy/Project Impact (The Reification Fallacy: The Denial of Human Agency)

Positivistic or scientific analysis cannot represent and cope with human responsibility or morality. Here variables interact -- not persons, human actors in a social world. Such reification lies at the heart of the mechanistic understanding -- the mystification -- of analyzing "the impacts of a technology" (or "project"). Allusions to pseudoscientific cause-effect models often deny the political nature of the spread of consequences of technological systems, and so mislead attempts at regulation or re-design.

Recommendation II.7: In a world where policy decisions have consequences, OTA/EROs should require that TA/EI studies and evaluations explicitly identify the accountability and responsibility of major actors -- persons or collectivities -- associated with the program or socio-technological project at hand. The specification of accountability allows social relations, rather than mysterious technological or "natural" forces, to be subject to criticism and change.

8. Specify Major Uncertainties, Risks and Opportunities of Impact; Make the Implicit Political Decisions Concerning These Explicit (The Fallacy of Answers: The Politics of Knowledge)

Much of evaluation research generally, and TA/EI studies more subtly, reflects a search for Answers to the questions, "how does (a) technology affect society? How does a given system or project work? How will it impact social life?" Posing analysis in this fashion denies the political interpretation and use, the application, of the results of any TA/EI analysis. At the extreme, political problems of interests, choice, and possibilities become obscured behind a supposed search for context-free knowledge.

Recommendation II.8: OTA/EROs should beware of political accountability obscured by formal argument, or by TA/EI studies claiming too easily, "we do not yet know enough" (to halt or implement a system). That very claim is moral and political, not simply "scientific."

9. Make the Report or Assessment Understandable to the Public; Make it an Exploration, a Teaching Tool, and an Analysis to Inform Decision (The Fallacy of the Passive Observer: The Abuse of Objectivity)

TA/EI studies may be used as after-the-fact rationalization for decisions already made, or they may be timed to explore actual decision possibilities. Their language and organization may be technical and virtually inaccessible, or addressed to an informed lay citizenry. How the TA/EI study is communicated is politically significant.

Recommendation II.9: OTA/EROs should require TA/EI studies to be in language widely accessible to the general public. OTA/EROs should make no pretense of strict observational or analytical neutrality. They should recognize forthrightly the inherent political and ethical character of TA/EI studies, and attempt, then, to take broad advantage of their pedagogic options, but serve as well to advance TA/EI competence by demonstrating method and exposing pitfalls. OTA/EROs should attempt to learn from the successes and failures of their reviewed studies.

10. Specify Major Policy/Project Decision Alternatives: Make Major Design Opportunities and Responsibilities Explicit (The Operationalist Fallacy: The Denial of Responsibility)

Overly zealous analysts have hoped that careful research could "tell us what to do." If only because that message would still have to be applied, complete operational specification -- denying the responsibility for and the politics of the form of decision -- is impossible. Analysis is necessary, but not sufficient for informed decision.

Recommendation II.10: OTA/EROs should expect and require TA/EI studies to clarify alternative options and their social significance, but not, in addition, to generate full operational specification of what may be done. Conversely, OTA/EROs should beware of "informational" overload in TA/EI studies which thereby obscure political accountability and responsibility for decision.

11. Make Explicit the Social, Economic, Political Justifications for Major Models or Perspectives Employed in Impact Analysis -- and Indicate Major Counter-Arguments (The Epistemological Fallacy: The Foundations of Knowledge)

No self-evident, universally shared set of standards for TA/EI study adequacy exists. Differing systems of measures can be expected to make the "same option" appear differently; through differing perspectives we "know" different futures. This "knowledge of the future" required in TA/EI studies rests upon shared, learned systems of measures and languages. But which language and systems of representation are to be in deed used? The question of foundation here is not one of clarifying a universal basis of evidence -- but rather one of clarifying the responsibilities involved in representing a problem or alternative this particular way. Rather than press in vain for some absolute foundation of the "knowledge" generated by TA/EI studies, OTA/EROs should recognize the heuristic, learned and developing nature of models for TA/EI activity.

Recommendation II.11: In their review capacity, OTA/EROs should devote attention to the following questions: "Are the models of analysis in the TA/EI study widely shared? Are they justifiable, and what populations would accept (reject) their justifications? What is the social basis of the analytical perspectives?" (For example, where cost-benefit procedures appeal to a utilitarian tradition for support, Delphi panels -- "organized, expert intuition" -- seem to appeal to mystery)

CONCLUSION

Inherent in the political character of OTA/EROs is the fact that no one can tell these offices fully "what-to-do." Nevertheless, organizational and methodological weaknesses can be isolated, and recommendations can be given to address these shortcomings. The "fallacies" presented here represent traps to which overly technical, formalistic, or positivistic styles of project and policy analysis are subject. The recommendations given suggest operating procedures to overcome those weaknesses; they further pose areas of uncertainty as inherently politically problematic. At this point, further asking of "what-to-do" can become, in the guise of a search for technical solutions, a blinding denial of political debate and action. Ultimate measures of costs and benefits, for example, cannot be had -- for their use, or the application of the instructions for their use would remain a political question to be decided and acted upon, in a political and social world.

OTA/EROs can implement these recommendations to: 1) improve the quality of TA/EI study analyses and evaluations, and 2) clarify and reveal the fundamentally political and moral nature of the analysis, implementation, and on-going operation of large scale socio-technological projects. OTA/EROs are in a position to trade the misleading and mechanistic imagery of the prediction of future impacts of projects

for the alternative exposure and affirmation of our political relations and responsibilities. Where scientific styles of evaluation cannot do so, critical evaluation as sketched above enables us to consider the possibilities and accountabilities of analyst and social actor alike. Where scientific styles ignore altogether or obscure it from our view, a style of critical evaluation reveals the fundamentally moral and political character of social programs, socio-technological systems, and their analyses -- that is, our political activities, our analyses, and evaluations. Where scientific styles neglect the issues discussed here, a critical evaluation style gives them to us as strategic opportunities for policy and project analysis and design.

APPENDIX 1Summary of Characteristic Questions for Policy Analysis
and Program Evaluation, Environmental Impact
and Technology Assessment ReviewDoes This Analysis Tell Us:

1. what possibly (and likely) significant data are not given or analyzed?
2. who are the populations involved and what are the major units of analysis?
3. how the scope has been set? what the criteria of analysis are that define what counts as "the technology," "the project," (the "inputs"), or "its impacts" ("outputs")?
4. what likely important contextual changes may occur that may alter the significance of the bulk of the analysis?
5. what measures, e.g., of benefits and costs, are being used and what alternatives might be?
6. what dominant systems of representation or analysis are being used, what their limits are, and what alternative methods and perspectives might be used?
7. which actors -- persons or groups -- are to be considered accountable agents of change, i.e., politically responsible for possible changes associated with system implementation?
8. that final "Answers" exist? Or that, "we do not yet know enough to act?" how this claim is politically justified in this case?
9. that its only function is to transmit a "neutral" analysis? what of its clarity, style, audience, timing, demonstration value?
10. "what to do" in a manner that substitutes formal argument for the political responsibility and accountability of actors?
11. the political basis, in terms both of constituency and conceptual foundations, of the system of analysis used?

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