FEYERABEND'S IRRATIONAL SCIENCE

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Feyerabend claims that tact and not logic determine the content of a concept and the permissible changes. Science has always been a matter of contextual plausibility, and not a context independent "organon of thought." But Feyerabend nowhere explains what he means by "rational," he simply assumes that this is self evident and precise. He fails to provide criteria, let alone procedures for the improvement of research programs and hence for progress in science. Renouncing "logic," a scientific language cannot even formulate problems that call for agreed upon solutions. He claims that the attempt to make science more "rational" and more precise is bound to wipe it out[1]. At the same time he insists on being "critical": this means that we do not simply accept the phenomena, processes, institutions that surround us but examine them and try to change them. Such criticism he considers to be not merely a matter of argument; it is facilitated by a proliferation of traditions and ways of expression. We have a plurality of theories, systems of thought, forms of life, frameworks from the very beginning. The tradition of separate objects for example and the experience confirming it are not tradition independent "facts," they are part of special traditions. Tact and not logic determine the content of a concept and the permissible changes. Conceptual matters are similar to matters of style, or of correct usage which means that they must be learned by "immersion" as a child learns a language, and not by the study of abstract principles. Having learned the practice, the members of a historical tradition are capable of reactions that far exceed any account which they or a student of their tradition might be able to give. The explanation they provide are far more varied than any collection of tests that one might succeed in assembling at a particular time. Notions with clearly defined intensions such as "science" are incapable of capturing distinctions between elements (subtraditions) of a historical tradition[2]. In a

historical account refutational logic no longer applies to the extent that the meaning of relevant concepts undergoes transformation over time.

This is by no means merely an academic matter. Feyerabend emphasizes how readily logical conditions are used as a means of enforcing consent. While logical connections of a certain sort are applied by the rationalists in this manner, they are no more than partial abstractions of a particular historical tradition. Reason can at most reform a tiny part of our natural or social environment. Rationalism did not introduce order where before there was chaos and ignorance; it introduced a special kind of order established by special procedures. Feyerabend insists that it is common sense and not the ideology of the intellectuals that determines whether something exists and what properties it has. Thus science has always been a matter of context dependent plausibility, and not of a context independent "organon of thought."[4] He believes that theories of scientific rationality have beclouded our understanding of science and have occasionally interfered even with the business of science itself. Thus, Popper's demand to look for refutations leads to an orderly development only in a world in which refuting instances are rare. It becomes impossible to apply refutational logic if theories are surrounded by an "ocean of anomalies." Feyerabend therefore agrees with Kuhn that science be treated as a historical tradition not subject to external rules[5]. Understanding a period in science is like understanding a stylistic period in the arts. There is an obvious unity but it cannot be summarized by a few simple rules and the rules that guide it must be found in detailed historical studies. The most one can hope for is a number of partial and overlapping interpretations. The solutions will always be imprecise because unlike the sections of a theoretical tradition which all share certain basic concepts, the sections of a historical tradition are connected only by vague similarities.

Feyerabend nowhere explains what he means by "rational," he simply assumes this to be self evident and precise. In economics, decision theory and game theory, rationality is often identified with some kind of utility maximization. A rational agent in this sense knows what his alternatives are, and what his preferences are about possible outcomes. But is is an important characterization of scientific activities that they may lead to new discoveries which cannot be

known in advance, and these may have in turn further consequences that are even more difficult to predict[6]. Feyerabend maintains that each tradition, each form of life has its own standards for judging human behavior and these standards change with the problems that the tradition is constructed to solve. Rationality is not a boundary condition for traditions, it is itself a tradition and not always a successful one. As a result of his rejecting rational standards however Feyerabend is unable to choose conflicting traditions and so he accepts them all – hence his principle of proliferation. Actually this principle reflects his own pluralistic culture in which science exists side by side with superstitions of all kinds that are even partly recognized as such. He attacks the Popperian rationalists for not being critical enough. They simply take it for granted that their own traditions of standard construction and standard rejection are the only conditions that count[7]. But Feyerabend's own principle of proliferation fails to provide procedures for the possible elimination of theories. While he admits that exclusiveness is necessary for the full development of a tradition[8], his principle of proliferation effectively prevents any such consistency from coming about. Feyerabend insists without argument that only individuals exist, and that only they have properties worth protecting. This however is an altogether dogmatic claim; it is by no means obvious that people have a self evident right to live as they see fit. While both Mill and Popper have attempted to justify this claim rationally, Feyerabend rejects their arguments without offering any justification of his own. If he is right no such argument is possible because no version of experience contains a logic or a more general system for the production of statements on the basis of other statements. At the same time he maintains that it is possible and indeed necessary to improve a life form and its specific language. But he fails to provide criteria, let alone procedures for any such program.

Instead, he appeals to implicit techniques prevalent in any cultural or scientific tradition. He rejects philosophical discussions of "method" as inadequate because they are mere verbal abstractions. What really happens in science, he believes, is a playful and quasi instinctive adaption to problems and circumstances that are not always fully understood. Revolutions bring about a change of paradigm, but if we follow Feyerabend's account of such change, we

cannot say that they have led to something better. Scientists abandon a paradigm out of frustration and not because they have arguments against it[9]. But he fails to explain why there should be frustration if different paradigms remain incommensurable. He agrees with Kuhn on the desirability of tenacity in retaining a paradigm even when there are data which are inconsistent with it[10], while such tenacity is pointless if there is no need for any sort of rational consistency. If we accept a multiplicity of mutually inconsistent theories as Feyerabend demands, we must conclude with Wittgenstein that each language is "in order" as it is. Renouncing "logic" in scientific language we do not have "problems" either. In a pluralistic universe that is guided by the principle of proliferation, there is no more sense to hold teaciously to any theory or research program than to abandon it. He believes that the principle of tenacity is reasonable because theories are capable of development, because they can be improved[11]. But if tenacity does not amount to a rational standard, we remain unable to recognize any such development or improvement. If research programs do not provide any logical criteria, each such judgment remains isolated and subjective. Feyerabend rightly identifies Kuhn's insistence on tenacity with the need of a rational background for argument[12], while he himself lacks any such frame of reference.

This makes him deny the traditional view that a simultaneous acceptance of contradictory statements leads to nonsense. The better theory, he insists, will also provide better standards of rationality and excellence[13]. But unlike Lakatos for example he does not provide criteria for identifying the better research program and we are therefore at a loss how to proceed. For Feyerabend a change of paradigm becomes and end in itself. Once however contradictory statements have been legitimatized, we lack rational grounds for either evaluating, choosing or developing theories and traditions. Rationality, according to Feyerabend, is nothing but a change of interest and publicity[14]; but it then becomes impossible for him to identify progress in science. His demand for tenacity is in inevitable conflict with his principle of proliferation. He wants a methodology and a set of institutions that enable us to lose as little as possible of what we are capable of doing and which force us as little as possible to deviate from our natural inclinations[15]. Yet such a romantic approach to science by no means settles what our natural inclinations are. Very

few scientists past or present would consider an indiscriminate proliferation of views and procedures to be in accordance with their natural inclinations. In attacking Kuhn's doctrine of "normal science," Feyerabend rejects in favor of intellectual diversity not only the professed practice of most scientists but even the criteria of selection inherent in all historical accounts. The trouble is that he treats science at the same time both as a life form creating its own logic and as the subject matter of a developing and progressive historical process. But once the survival of hypotheses becomes divorced from logic, we abandon all rational criteria for criticizing, choosing or developing theories and research programs. After he has renounced consistency, Feyerabend fails to show how to identify progress in science. His "criticism" finally means that he does not like certain views or styles, yet without rational arguments to support this, such a position turns quite dogmatic and arbitrary.

Originally he had accepted the Popperian doctrine that science advances in a critical discussion of alternative views. At some point however he lost his faith in argument and came to accept Kuhn's principle of tenacity which allows for incommensurability among theories. In his account of scientific development proliferation sets in even before a revolution has taken place, yet it is at the same time instrumental in bringing it about [16]. But if proliferation is the natural state of affairs, he fails to explain why any research program should ever be in difficulties. All philosophical criticism ever does is show up inconsistencies of one sort or another, and once they are accepted, all attempts to criticize or improve theories become quite pointless. The mere offering of different opinions or life forms is no ground for argument and therefore for improvement and without such at least implicit rational standards there can be neither progress nor even problems in science. That standards are not *always* adopted on the basis of argument had been pointed out already by Popper. Feyerabend however takes the self defeating position that all argument is useless. He wants a struggle between conflicting world views and life styles; he prefers catastrophic changes, frequent disappointments of expectations, crises in the development of our knowledge. These, he believes, change and perhaps multiply our reaction patterns (including patterns of argumentation) just as an ecological crisis multiplies reactions. Science, in Feyerabend's view, is not entirely man created;

it is also part of our evolution[17]. Since Darwinian evolution is not a rational goal oriented process, neither is science. Arguments do not tend to prevail over social conditioning, let alone the forces that shape our evolution as a species. The unconscious deviations from the straight path of rationality which we observe in actual science may therefore be inevitable. New theories, while often better and more detailed than their predecessors are not always rich enough to deal with *all* the problems to which their predecessors have given a definite and precise answer. Feyerabend believes that in the evolutionary pattern, the growth of knowledge, and more specifically, the replacement of one comprehensive theory by another involves losses as well as gains[18]. But ascribing either losses or gains to science presupposes some rational standards.

Feyerabend denies this by maintaining that every stage in the development of knowledge poses a kind of observational basis to which one pays special attention and from which one receives a multiple of suggestions. Contrary to Piaget however he believes such stages in the development of knowledge to be reversible and under voluntary control. He wants the process of explanation not to be burdened by a demand for conceptual continuity[19] but lacking continuity there can be no explanation nor learning of any kind. This is indeed why science has adhered to verification or falsification by observational evidence as the standard method. The fact that science is our own creation does not render us immune to its social consequences. The trouble is that Feyerabend cannot quite make up his mind whether science is our own creation or part of our evolution as a species. He rejects Popper's evolutionary theory of knowledge who proposes a Darwinian epistemology[20] and insists that having been produced by man, knowledge can be made to obey all our wishes. This makes science irrational, for even its most basic constituents such as the laws of logic, or the laws of arithmetic, or the use of argument as an instrument of progress must be regarded as temporary phases which are in need of improvement and which will be overcome at a later stage. After Darwin the process of evolution is no longer regarded as a goal oriented process[21] and it is this abandoning of the rational model in the explanation of evolution that makes Feyerabend reject it also in science. But giving up science as a goal oriented process excludes the notion of progress as well and thus undercuts

Feyerabend's whole argument. He admits that the historical products of science are surprisingly efficient, as if they had been planned with a definite aim in mind but considers such apparent rationality to be misleading. There is no "method" since what happened is in no way a consequence of conscious planning. Thus, while the world of theory is a social world built by scientists who have to decide what to keep and what to eliminate [22], he fails to povide standards to accomplish this.

From Wittgenstein Feyerabend had learned that there is more to a culture than can be expressed in language. Standard logic he believes to be a very simple and dull part of science considering the vast richness in which actual innovative reasoning takes place. Logicians stipulate that science must be in terms of their favorite logical system, while actual science is split into numerous disciplines each of which may adopt a different attitude toward a given theory. The basic value judgments of an experimentalist will differ from those of a theoretician, a biologist will look at a theory differently from a cosmologist. Such value judgments, Feyerabend holds, are only rarely made for good reasons [23] while at the same time he insists that there can be no good reasons for such basic decisions. What Kuhn or Lakatos take to be normal science is neither the result of research nor part of scientific practice; rather it is part of an ideology in the opinion of Feyerabend. Lakatos's methodology of research programs is introduced with the purpose of aiding rationalism and the results of historical research are overruled the moment they conflict with what the scientist should do. Feyerabend takes it for granted that scientists make the right decision by instinct. The standards of scientific research, he maintains, are too weak to condemn *any* action as "irrational." The fight between conservatives and innovators for example is not governed by rational standards; all we can say is that one program was accepted while the other receded into the background. We cannot say that the acceptance was rational or that a rational development has taken place. Still, there is little doubt that appeal to observation and argument play *some* role in bringing about a paradigm switch. To say with Feyerabend that such judgments are completely arbitrary and subjective is certainly an oversimplification.

Feyerabend rejects *all* transpersonal or transcultural standards, including Laudan's problem solving model which admits that rationality is parasitic on progressiveness [24]. Feyerabend denies in parti-

cular that there is any such model for the whole of science: there are all kinds of problems that demand different types of solution and they do not have necessarily anything in common. Studying the regularities of a historical period is like learning a language; it does not mean studying rules in a rational and abstract manner. Rather, it means immersing oneself in a practice and being guided by an intuitive ability to initiate and improvise [25]. Scientific discourse obeys laws and standards that have little to do with the naive models which philosophers of science have designed for that purpose. Feyerabend therefore agrees with Kuhn that such strategies have much in common with revivals of faith; they are not "rational." The Copernican revolution shows that in intellectual matters it is explanation, faith, hope, or simply ignorance of problems and not actual performance that explains pursuit. Changes in allegiance, i.e. a socio – psychological process is primary, while calculations of performance, "rationality" comes after it and depends on it. Performance has no direct influence on acceptance [26]. By removing themselves from the actual innovative process of scientific research, philosophers lost the ability to make contributions to science as they had done in the time of Aristotle, and in this way philosophical speculation became crude and unrealistic. A scientist deals with concrete difficulties and he judges assumptions, theories, world views, rules of procedure by the way in which they reflect his problem situation. His judgment may change from one case to the next. A philosopher, on the other hand, believes that the very generality of his inquiry gives him the right to impose the achieved results on all subjects. Kuhn has made us realize that scientific practice, even the practice of the natural sciences, is a tightly woven net of historical traditions. This means that general statements *about* science, statements of logic included, cannot without further ado be taken to agree with scientific practice and at the same time give a historically correct account of it.

The admitted success of science remains thus a mystery for Feyerabend. To claim that science is irrational yet successful is to assume a preestablished harmony between our instincts and the universe. He admits that any such claim has to be decided not by philosophical speculation but by scientific investigation. But while he rejects the demand for all over consistency in science, he cannot permit the semantics of a theory to be permanently separated from its

practice. He agrees with Wittgenstein that we make assertions not only by formulating a sentence or a theory but also by using a language as a means of communication. Contrary to Wittgenstein however, Feyerabend believes that it is possible to invent novel life forms and the language which express them from scratch. The impression that every fact suggests one and only one interpretation arises whenever a fairly general view was held long enough to influence our interpretations, our language, and therefore our perceptions, and when during that period no alternative picture is ever seriously considered[27]. He rejects "rules" both in behavior and in the quest of knowledge (which he treats as a kind of behavior). This means that at times interpretations will have to be considered which do not "fit" the phenomena and which clash with what is immediately given.

Unlike rules however, Feyerabend considers theory building to be "natural." He emphasizes the similarities of theory construction and the ways an infant acquires his first language. A small child passes through various conceptual stages which are only loosely connected with each other. Earlier stages disappear when new stages take over[28], and Feyerabend maintains that in the development of science a similar discontinuity exists between successive developmental stages. But it is possible to rearrage our observational world to fit out theoretical preconceptions only up to a point. And it is such resistance to unrestricted proliferation of opinions and styles which constitutes the essence of a rational approach. In the actual practice of science it is in fact *never* the case that "anything goes," even though Feyerabend is perfectly right in insisting that nothing should be a priori excluded. He follows Mill and Popper in holding that ideas are often rejected before they are able to exhibit their real strength. But unlike them he is *never* in a position to eliminate a theory even for the time being. A temporary setback for a theory, a point of view, an ideology, must not be taken as a reason for eliminating it. A science interested in finding the truth must retain all the ideas of mankind for possible use, or to put it differently, the history of science is an essential part of scientific method[29]. Feyerabend traces historical method as applied to knowledge all the way back to Aristotle and contrasts it with mere logic. The success of a new theory or philosophy may lead to a decrease of rationality and understanding.

Feyerabend insists that people have an inalienable right to live as they see fit. Proliferation is for him primarily an instrument of institutional reform, and as such he applies it to science. What is perceived at first only vaguely and indistinctly becomes definite; initially unrelated impressions are combined into wholes even when many of the constituting impressions are missing. In this way instruction in a language can increase the number of perceptions which count as verifying its ideological background. At the same time Feyerabend rejects the conservative argument that if an idiom is being used and has been used for a long time it has thereby proved its mettle [30]. His own principle of tenacity however proceeds on the very same assumption, namely the idea that we can find out the merit of a theory only by developing it. He admits that if a statement does not exclude anything, if it is valid in all possible worlds, then it is incapable of selecting situations out of the real world in which we live and is therefore dead weight [31]. Now his own principle of proliferation turns out to be of this sort; by refusing to exclude any theory or opinion it cannot tell us how to proceed in any given situation. Even a historical account requires selective criteria to focus on what merits our attention and thus constitutes the subject matter of our narrative.

Originally Feyerabend was of the opinion that theories and languages should not be changed unless there were pressing reasons for doing so [32]. But because of his difficulties with the principle of tenacity he came to advocate proliferation for its own sake. He did this not so much for epistemological as for moral and political reasons. A research program, he believes, is no more than a specific style of doing science. The methodological unit to which we must refer when discussing questions of test and empirical content is constituted by a whole set of partly overlapping factually adequate but mutually inconsistent theories. Feyerabend considers scientific efficiency to be of less consequence than a rich human life. This choice concerns the quality of our lives – it is a moral choice [33]. If science however is really a life form, it has created a logic according to which such moral questions do not arise. He believes that every interesting discussion, i.e. every discussion that leads to an advance in knowledge, terminates in a situation where some decisive changes in meaning have occured. As a consequence Feyerabend has considerable difficulties in distinguishing between "respectable" scientists and cranks. The

difference, he argues, does not lie in the fact that the former proposes what is plausible and promises success, while the latter suggests what is implausible, absurd, and bound to fail. We never know in advance what is going to be successful and what will fail. The distinction between the crank and the respectable thinker in the opinion of Feyerabend lies in the research that is done once a certain point of view is accepted. What makes a scientist respectable is his readiness to "develop" his views and to argue with his opponents. It is this further investigation, the details of it, the knowledge of the difficulties of the general state of knowledge, the recognition of objections which distinguish the "respectable" thinker from the crank[34]. But if the respectable thinker must be prepared to argue, rational standards of some sort are certainly presupposed.

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