

Quarterly Journal of Ideology 21 (3&4) Dec 1998 (published Dec. 1999); p. 63-95.

Hans-Joachim Niemann

In Pursuit of Relativism

Nicholas Rescher's Method of Double Writing

Summary

The relativistic belief, that there can be no tolerance if we continue to make a difference between right and wrong has become an influential ideology. So there is a great interest to reveal the objectivity of Western science as being a mere illusion. The idea behind is well expressed by Paul Feyerabend: "If not even the natural sciences are a realm of reason ..., how are we to demand, that the quite less strict disciplines like history, politics, poetics, or dramaturgy should be subjected to rigid rules?" This paper is going to criticize the methods of a new version of this "scientific relativism" established by Nicholas Rescher. Rescher is skillfully doing what I call *double writing*: the scientifically trained reader identifies a harmless but quite superfluous *trivial relativism*, meanwhile those who are not used to philosophical quibbling are made to believe to have got a lot of arguments in favor of a *revolutionary scientific relativism*, which would mean a breakdown of objectivity and therefore a catastrophe in science.

1. Populism in philosophy

Populism in philosophy¹ is just as popular and successful as populism in politics where it ensnares the dissatisfied and those, who are constantly bothered by envy and those who suffer from fear of conspiracy. They are confirmed in their convictions and preju-

dices. They are made to hope old enemies could be defeated. For this they gratefully reward the politicians with glory and power.

In philosophy the matter at stake is reputation and success with the public. The strategy of populism is performed in a similar way as in politics by strengthening the readers as much as possible in their philosophical prejudices. In addition the ambition of the philosophical authors is aimed at this without getting uninteresting for professionals. Which kind of prejudices are to be satisfied isn't difficult to find out. The predominant paradigms impose themselves on everybody. It is more difficult to resist such philosophical fashions. And it is almost impossible not to take note of them. Nowadays e.g. a far-reaching influence is established if one emphasizes the fundamental differences between Westernized and other cultures. Those who lament the predominance of science in Western society, those who claim the priority of emotions over rationality will get approval. Those who enlighten us that enlightenment couldn't but become the opposite of that what initially was wanted to achieve, will get a great number of listeners. Those who claim that reason and science cannot solve the problems they have created, will find an interested audience. After the turn of the century things may turn the other way around. Meanwhile those who intend to publish and having in mind a large number of copies will be inclined to deal with a variety of topics of this sort.

The psychological complex, which makes populism possible and which explains its different manifestations, has long been known. It was identified by Sigmund Freud who called it *infantilism*, a kind of refusal to be grown-up². Although Freud belongs to the most widely read authors of the world his doctrine of infantilism has not met with any great approval. As infantilism he tried to explain and to treat the denial of reality as

something only seemingly real. Freud's treatment was to establish an "education towards reality" and to make science a backbone of human life.³

Today one could take a further step by interpreting infantilism as the desire to get rid of the burden of responsibility. We feel this burden when we have to face the facts, when we have to make decisions, when we realize a deficiency of reason or an insufficiency to understand science. We also feel this burden when we should partake in political responsibility or when we have to sustain the demands of future generations. We are thankfully freed from the burdens of reality, if one ensures us there is no real world at all, science has no more credit than any other myth, society is not capable of being improved, safeguarding the future will be done in vain, and too much knowledge is confusing. If, in addition to this, he refers to facilities which are at our disposal without any effort, e.g. offering maxims of a kind which boils down to 'follow your feelings', 'follow your intuitions', 'do what all people do', 'hand over responsibility to God or fate or others', he will have won completely. - If we do give him credit. The greater pressure of reality we have to bear, the more are we willing to accept populistic offers.

In the field of philosophy the three most essential promises of freeing us from responsibility are these: (i) We need not take any decision in the often agonizing questions of morals, because there is in the one way or the other no rational decision possible. (ii) One can get rid of the alarming idea that the philosopher must understand and take into account the latest results of science, if science is not concerned with truth but with methods to solve special practical problems. (iii) The exertion to solve any problems in a sensible way will vanish, if one interprets reason no longer as a common method of solving problems but as the specific method of a particular philosophical school.⁴

Populism in philosophy requires literary talent to a high degree, because two various groups have to be served with a good response: The small circle of professionals and the large number of readers who are convinced the scientific analysis will be done by the former. If one wants to engineer success one must give either group a chance of seeing things their way. It is a most difficult task to increase one's reputation on the one side and not to lose it on the other, which may be accomplished in different ways. The often preferred way is the method of *double writing*⁵ which will be critically analyzed here.

The famous book by Thomas S. Kuhn "The Structure of Scientific Revolutions"⁶ may serve as an example: Has Kuhn intended more than to describe prosaically the progress of science from a historical point of view? Or did he approve of and recommend the process of how different schools are competing and fighting? In the first case he hasn't done anything which could harm his reputation in the scientific community. He has only discussed a thesis which is possibly false (and most probably it is false⁷). In the second case he has moved on the side of those, who have hoped science, which is often so difficult to understand, could finally be revealed as a higher form of irrationalism. It is his fellow researcher in the philosophy of science, Paul Feyerabend, who asks these questions: "Are we here presented with *methodological prescriptions* which tell the scientists how to proceed; or are we given a *description* ... of those activities which are generally called 'scientific'?" and "are his [Kuhn's] followers among sociologists an unintended side effect of a work whose sole purpose is to report 'wie es wirklich gewesen' [how it really was⁸]?" Feyerabend's impression is "I venture to guess that the ambiguity is intended and that Kuhn wants to fully exploit its propagandistic potentialities."⁹

Ten years after having made this analysis which he also applied to Hegel and Wittgenstein¹⁰, Feyerabend published a book written in just the successful style of double writing that he has criticized before. Meanwhile "Against Method"¹¹ is translated in more than 18 languages¹². It gave the motto 'Anything goes!' to the post-modern generation four years earlier than Lyotard did¹³. Publishing this book Feyerabend was in no way disloyal to himself, because he came to believe that all methods are alike and permitted. Why not choose the most successful one?

Nevertheless Feyerabend revealed an ambiguous attitude to his method of ambiguity. In his book he defends the principle of "Anything goes!" as the "only *one* principle that can be defended under *all* circumstances and in *all* stages of human development. It is the principle: "*anything goes.*"¹⁴. Years later he never tired of repeating that "anything goes!" was none of his own maxims but a historical fact which his opponents in the philosophy of science could have known, had they only been a little more learned in history.¹⁵ He also tries to argue away the suggestion that he had confirmed the contemporary relativism voluntarily. From now on he called relativism a specter¹⁶ and its influence on politics as "downright criminal"¹⁷. On the other hand he doesn't deny that his writings were significant in this regard¹⁸. Willy-nilly Kuhn and Feyerabend have become the fathers not only of the 'post-modern era' but also of modern philosophical populism¹⁹.

In the following I would like to criticize a new variant of philosophical populism using a contemporary example. Before starting I should concede that it is absolutely rightful to write *popularizing* books to please different groups of readers. So it is my concern only to criticize those authors who apply the recipe but ruin the cake. More exactly I am concerned only with those who represent the state of the art in science and philosophy

in an awry way, which in the case of great response is transferred back from public opinion to the scientific community. Such is the situation we face with Kuhn and Feyerabend: the vulgar version continuously supersedes the correct scientific version. When finally only the vulgar version is discussed and accepted by the scientific community, this cannot even be changed by the denials of the authors²⁰.

Populism in philosophy here refers to an article of *Nicholas Rescher* in place of numerous other papers: "*Our Science as O-U-R Science*" published in his book "*A Useful Inheritance: Evolutionary Aspects of the Theory of Knowledge*"²¹.

Nicholas Rescher is an author of high reputation. He has published more than 50 books and many widely discussed papers²². Analyzing and qualifying his "scientific relativism" in the end as pointless means no judgment on his other writings. On the other hand the article at stake is no slip one should ignore, but actually an artistic composition of which Rescher published seven different versions with nearly the same contents from 1984 to 1996 (additional some translations). It is not taken out of context. Two versions were published as scientific papers²³. A shortened and rather revised version Rescher delivered as a speech on an international colloquium²⁴. Four more versions are added to different books of Rescher, e.g. to the first of three volumes of his *opus magnum* "*A System of Pragmatic Idealism*"²⁷.

The main point why I am going to subject Rescher's essay to a scrupulous analysis is that it circulates an untenable message that, because of populistic means, sounds very appealing and is therefore easily appreciated by many readers. Rescher's essay was uncomplainingly accepted by the scientific community, overlooking or accepting his quite typical populistic method of double writing. So his paper may be useful at least in this regard: to identify the philosophical populism of our days, to analyze it as one

regard: to identify the philosophical populism of our days, to analyze it as one example of many and to give a name to this phenomenon.

2. One example of many: Nicholas Rescher's "Scientific Relativism"

"Those who read in the 'book of nature' are nearer to God's creation than those who choose the indirect way of reading the Bible. Once this was Galileo's sagacious way of arguing allowing scientists to integrate scientific results into the occidental conception of the world even if they challenged the clerical opinions. The monopolistic clerical interpretation of the world was gradually abolished and finally completely abandoned to be replaced by a scientific approach.

350 years later the metaphor of the 'book of nature' is used again by Nicholas Rescher. However, the fight is no longer against the church but even more along with the church and against science to win back the lost terrain: Nature is said to be as well a kind of text as the Bible or Plato's dialogues are. One can always read them in different ways.

In Rescher's view our largely scientifically ingrained knowledge is not only the result of one of many different versions of reading the 'book of nature' but, what is even more, it is a deception. Reality is distorted by the methods of research. So our view of reality doesn't mirror the true reality. The fact that scientists in different parts of the world often get the same results is merely the consequence of biological similarity of all men. From a cosmic point of view which Rescher favors, as well as from the point of view of "lobsters and bees" which Rescher happens to have in mind, intelligent creatures of different natural origin should live with a sort of science and knowledge not similar to ours. Returning from his journey to strange worlds Rescher announces "our Western science is but one of many competing ways of conceptualizing the world's processes"²⁸

One easily recognizes the above-mentioned 'post-modern' doctrine which since Kuhn and Feyerabend has spread about classrooms, feature pages and political speeches in a kind of intellectual seeping-process. Paul Feyerabend's relativism rejects the possibility of making a decision between right and wrong in science and, as a result, this relativism has important political consequences. People are only willing to follow this kind of logic: even if the best of rationality, the 'Western'²⁹ science, is unable to make universally valid claims, then morals and law, sociology and politics won't even more so capable of doing that³⁰. On this groundwork of Western philosophy representatives of Eastern dictatorships called for 'regional pluralism' instead of universal human values³¹.

Rescher's position is at the end of this intellectual seeping-process: The writings of Kuhn and Feyerabend are not mentioned but their results are taken as common knowledge; the widespread and popular interpretation of their books is adopted uncritically; the refutation of their central points by striking scientific criticism³² is ignored; the revocations Kuhn and Feyerabend later admitted are not taken into consideration³³.

In Rescher's opinion a world of objective knowledge is impossible, because of a well-known special effect in quantum-mechanics saying that nature and methods of research cannot be disentangled. Going far beyond Heisenberg who claimed interaction of experiment and investigator only in the fields of microphysics Rescher puts forward the general thesis of an *universal interaction* between nature and investigator³⁴, although he does not refer to any scientific research. So it is philosophical research that leads to the next revolution in physics, presupposing that Rescher is right.

Many relativists cherish false hopes in Heisenberg's principle of uncertainty, so I should add some remarks on it. The principle of uncertainty concerns only a special

field of physics and even there the objectivity of physics has never been violated. Uncertainty in Heisenberg's formula means just that there is a theoretical limit in the precision of measuring. An investigator who tries to get a higher precision than Heisenberg's principle permits can do so, if he regards only *one* parameter, but what he wins here he will lose at the same time regarding another 'conjugated' parameter of measuring . This was often interpreted as a kind of subjectivity in physics, because in the early days of modern physics some scientists believed what in no textbook is mentioned any longer, that nature without the inquirer would contain both parameters in high precision. In contrast to this false interpretation of Heisenberg's principle Rescher not only denies the objectivity in microphysics but also the objectivity of physics and science at all.

3. The method of double writing

There is a great interest in the central doctrine of objectivity of Western science as being a mere illusion. In Rescher's case there is a special feature. He refers to it as common and well-founded knowledge expressed by sociologists of knowledge. Therefore at first sight it is not clear, whether those thesis is maintained by himself. When he is putting forward claims based on arguments Rescher only claims something rather trivial, namely that in any other human or extraterrestrial civilization the circumstances of research - i.e. the preferred issues, the mode of expression, the incompleteness of information - could be completely different from what is known to us. Ultimately, this leads to a very harmless relativism, ambitiously called "scientific relativism", which Rescher had better called "trivial relativism in science", because it is of no significance either to epistemologists or to all those people who advocate cultural relativism. What actually we are interested in is a particular *scientific theory* which is applicable and valid in one

of two different cultures and wrong in the other. Unfortunately Rescher's "scientific relativism" does not concern any definite scientific theory.

Criticism could end here, but it doesn't, it is just starting. Rescher gives us another interesting presentation of two kinds of theses: first those which are founded on arguments, and those which are not, but instead have become familiarized by continually repeating them. I will give some evidence below. By this method of multiple repetition Rescher's second thesis conveys the idea just mentioned, that different cultures and cosmic creatures should come to different explanations of identical things and that therefore their science is completely different from ours.

Rescher at first defines science similar to epistemologists like Popper: "Only if they are pursuing such goals as description, explanation, prediction, and control of nature will they be doing science"³⁵. Now something unusual happens: the following chapter wherein we expect some explanation is written as though it were done by another person. Without any rejection of the common conviction of science as an instrument for explaining the world, to which Rescher had agreed shortly before, and without trying to use this concept of science to elucidate to us, how there can be different theories for the same phenomenon, Rescher now starts an unrestrained speculation about the different facades of science peppered with a lot of partly bizarre and partly banal examples³⁶: Science is different, because some cultures are more interested in social processes, or because they fail to know magnetism, or because marine creatures are not doing crystallography. Bees and lobsters come to useful knowledge by virtue of categories unimaginable to us; worms and whales tends to choose strange epistemological goals, because they have different organs of sense. The reference to creatures endowed with telepathy is good enough to take this as an evidence for a new epistemology³⁷. I had better let

Rescher blether by himself: "Accordingly, their natural science might deploy explanatory mechanisms very different from ours. Communicating by some sort of telepathy based upon variable odors or otherwise 'exotic' signals, they might devise a complex theory of empathetic thought-wave transmittal through an ideaferous aether."³⁸

Why unusual means of communication should compel us to do in future without the familiar nomological-deductive explanations as the most striking feature of all science Rescher doesn't elucidate. The epistemological problems are not discussed at all. Perhaps one could defend the trivial relativism by the insights Rescher gains from his excursions into strange worlds in this way: if they could do so, bees would run a particular kind of science. However, the state of art in epistemology would not be led any further by such knowledge.

Later I will add a lot of evidence to justify this thesis: Rescher's argument meets only the trivial relativism but not the bold assertion that objectivity in science is merely an illusion. Even this is not exactly the point of my criticism. I shall focus on the special intention and style of double writing, which makes the reader believe scientific relativism has been proved, though it has not.

Rescher is doing this skillfully with a kind of picture-puzzle, wherein

(A) the scientifically trained reader, astonished about the big fuss, sees a tutelage in *trivial relativism*, which is, as I said, nothing more than the fact that physics in a way is dissimilar to chemistry, meanwhile

(B) those who are not used to philosophical quibbling are made to believe to have got a lot of arguments in favor of the *revolutionary scientific relativism*, which means a strange thing like of the sort, as I might put it, that in one culture earth has one moon,

in the other earth has two moons, and the discrepancy does not arise only because one side is erroneous or both are.

These different theses are not distinguished by Rescher and both are called "scientific relativism".

To give the impression that his arguments concern the revolutionary scientific relativism Rescher specifically deploys particular stylistic means. In his short 25-page-essay both theses are inextricably confused and repeated in no less than fifty variations. His arguments are scattered between the theses and also repeated several times. On looking more carefully they support only the uninteresting trivial relativism, while they are formulated in a way which gives us the impression as if the revolutionary scientific relativism were the favored and supported thesis.

4. Two theses and fifty variations

This dual strategy is conveyed through the numerous sermon-like repetitions and should be critically analyzed. Therefore I should like to go into details and to illustrate Rescher's method by quoting all his fifty variations of the thesis of scientific relativism. Except for few examples they all are ambiguous, favoring the interesting thesis and allowing nevertheless the retreat to the simple thesis of trivial relativism any time. Thereafter I will discuss Rescher's arguments, because on closer examination they only concern the trivial relativism, which has never seriously questioned by anyone. Now to Rescher's theses, most of them interpretable in two versions. Perhaps I should say in advance that the often mentioned interaction of scientist and nature which seems to uphold scientific relativism is compatible with normal theory of science, because theories are man-made constructions. However, Rescher withholds what could demolish his

relativism: only those of many possible speculations are called 'scientific' that are selected after thorough testing³⁹.

1. "...in cognition, process [means investigation, experiment] and product are reciprocally interwoven" (78)⁴⁰ - 2. "...our scientific picture of nature is the product of an interaction in which both parties, both nature and ourselves, make a formative contribution."
- 3. "...the respective inputs of the two parties simply cannot be separated from one another..." - 4. "The question of physical reality depends on the question 'Detectable and discernible by whom?'" - 5. "...the issue is one that is inevitably relativized to the nature-interactive resources and instrumentalities at the disposal of investigators." - 6. "...reality is a relational reality - a matter of interaction between the world and its investigators" - 7. Our knowledge about the world is "a function of the manner of our evolutionary attunement to nature." - 8. "...our facilities for discernment reflect our mode of emplacement within nature." (79) - 9. "...the kinds of scientific issues we can address" are relativized by "our evolved enmeshment in nature's scheme of things." - 10. "The regularities of nature that can be discovered by us depends on who we are." - 11. "Our reality (reality as we know it) is something whose nature is relativized to us humans" - 12. "Reality-as-we-know-it is something relational, though of course reality as such is not." - 13. "...the 'shape of our knowledge' in natural science is something interactive that hinges every bit as much on the evolved medium of their emplacement as on the constitution of the objects themselves." - 14. "Our empirical inquiries do not afford us a picture of 'reality in itself', but rather as a matter of 'reality as it presents itself to us inquirers of a certain particular sort' [means human beings]" - 15. "Natural science is, in an important sense, our science..." - 16. Natural science is "providing investigator-relative results that differ with different modes of interaction between investigators and

their natural environment." - 17. "... inquiry yields results that are inherently relational..." (80) - 18. "... reality 'as we picture it' is a complex composite in whose constitution we ourselves play an uneliminable role through the particular characteristic of our evolutionary attunement to nature." - 19. "... the modus operandi of investigators always crucially condition the sort of information that their science is in a position to provide about the world." - 20. "...reality is not itself mind-independent..." - 21. Reality is ... "an inquiry-relative empirical reality". - 22. "... a view of reality as experientially accessible 'from the human point of view'." - 23. Reality is ... "species-relativized". - 24. "The science of a different civilisation would inevitably be closely tied to the particular pattern of their interaction with nature..." (85) - 25. "Sociologists of knowledge tell us that ... our Western science is but one of many competing ways of conceptualising the world's processes." (88) - 26. "Science is ... inevitably a matter of a transaction or interaction in which nature is but one party and the inquiry being another." (90) - 27. "...there is no reason why *cognitive* adaptation should be any more uniform than *behavioural* adaptation." (92) - 28. Mode of thought ..."reflects its biological heritage." - 29. "...we cannot disentangle the respective contributions of nature and the inquirer." - 30. The book of nature: "Like other books, it is to some extent a mirror: what looks out depends on who looks in." (93) - 31. "The 'science' of an alien civilisation may be far more remote from ours than the 'language' of our cousin the dolphin is remote from our language." - 32. "...the 'hard' physical sciences have something of the same cultural relativity that one encounters with the 'softer' social sciences..." - 33. "This interaction is a two-sided process to which each party makes an essential contribution..." - 34. "...there is no single definitive way of knowing the world." - 35. "Our 'scientific truths' are not necessarily those of others." (94) - 36. "Natural science ... is something that is, in

principle, endlessly plastic." - 37. "Science "...of a remote civilisation would be something very different from science and technology as we know it." - 38. "Each inquiring civilisation must be expected to produce its own, perhaps ever-changing, cognitive products..." - 39. "... the possible sorts of 'natural science' are almost endlessly diverse." (95) - 40. "There is ... good reason to see natural science as species-relative." - 41. "... our science is limited precisely by its being our science." (101) - 42. "... knowledge is bound to be relativised ultimately to the kinds of experiences we can have." - 43. "Our science is destined to reflect our nature..." - 44. "The 'scientific truth' that we discover about the world is *our* truth..." - 45. Science "... is bound to be conditioned by our human mode of emplacement within nature." - 46. Cognitive and scientific evolution are ..."a complex network leading to very different destinations." (102) - 47. "... cognitive evolution ... carries different civilisations into thought-worlds ever more remote from each other." - 48. "This approach supports a scientific realism ... that is relativistic in that its insistence on the multi-faceted nature of the real means that any science will reflect its deviser's particular 'slant' on reality" - 49. "... knowledge of reality is always (in some crucial respect) cast in terms of reference that reflect its possessor's cognitive proceedings." - 50. "All that can ever be known of reality is mediated through conceptions that reflect how this reality affects us."

Double writing is not completely sustained by Rescher. The proposition 48 e.g. looks like a total retreat behind the easily defensible barricades of the trivial relativism (A), but this impression doesn't match with other sentences, in which the thesis (B) predominates, e.g. the propositions 35 and 44, where something is said about truth. One can go along with the idea that other creatures live in a particular reality, e.g. a bat in a tower. However, the statement that our *truth* is different from what other creatures

found out as a truth should have been formulated more cautiously. If we find all entries to the tower blocked, then this truth is pertinent to bats as well, provided it happens to be true. Neither *our* truth nor *their* truth does depend on the different methods of realizing it.

5. Rescher's arguments in favor of the scientific relativism

Assuming the non-trivial thesis (B) was not only talked into us but was really held by Rescher, are his arguments valid and sound? Can they support the non-trivial relativism, even if Rescher himself neglects a clear argumentation in favor of thesis (B)? In the following I will examine, whether the nine arguments put forward by him support the non-trivial relativism, while they undoubtedly support the trivial relativism.

*Argument (1): Different viewpoints result in different sciences.*⁴¹

Those who don't discover magnetism will have no theory of magnetism says Rescher.⁴² They need not, and so one can agree that in this sense they could have a science different from ours. Colloquially, physics is a rather different science than chemistry. However, each of them is science regarding epistemological methods as a criterion of science. Their objectivity and compatibility does not depend on the subjectivity of the choice of issues, but on testing theories from independent viewpoints. And this objectivity does not vanish when Rescher takes up a cosmic outlook, from where the human perspective seems to him 'species-relativized'. Quite the reverse is true: examination of theories is more objective and convincing if it is also done by the strangest creatures with the most extraordinary methods, provided they are interested in truth⁴³.

The version (B) of relativism is by no means made plausible. Because there are no B-arguments to prove, it remains to examine the consequences of this theory. If two theo-

ries concerning the same things are true and different at the same time, this could mean e.g. that the known model of the atom, assumed it is true, is true only for human beings. Then for all men the uranium atom would contain 92 protons, but in the mind of extraterrestrials (if they have anything like mind) perhaps only 89. Although Rescher doesn't deny the existence of only *one* reality which he even describes as "mind-independent"⁴⁴, he tries to make us believe things of the sort that for extraterrestrials our model of uranium with 92 protons is false, even if they are concerned with the same atoms in the same conditions, and if our theory is true in the human world. This is absurd but nevertheless inconspicuous, because Rescher does not discuss examples like that, and because no theory at all is demonstrated as to be true and 'species-relativized' at the same time.

*Argument (2): Different data make different laws.*⁴⁵

Rescher asserts "the laws we find are bound to reflect the sorts of data we can get hold of"⁴⁶. What is meant by this? Is a law formulated without sufficient data describing nature as well as a law that has been tested and improved by a lot of empirical data? Scrupulous formulations could easily reveal absurdities, but this is not the matter Rescher likes to get involved in. Only vaguely do laws have anything to do with data. They "reflect" data. Nevertheless the relationship between laws and data are well-known, but Rescher doesn't allow himself to get involved. Regarding the results of six decades of philosophy of science there can be no question of "reflecting". As far as the *metaphor of the mirror* is touched on and if Rescher may possibly refer to it: the theory of Konrad Lorenz dissents strongly from what Rescher says⁴⁷ and Richard Rorty's philosophy using "the mirror of nature"⁴⁸, should he refer to it, is thoroughly refuted⁴⁹.

To save Rescher's theory of data-dependent laws one could argue false data are the cause of false laws. However, this means an enormous triviality, which is contrary to Rescher's fifty incantations he employs to cast doubt about the objectivity of science.

Argument (3): Different investigators using diverse categories of understanding could establish divergent sorts of science.⁵⁰

What is really meant by this? Rescher does not give any satisfactory explanation. His reference to William James' "were we lobsters or bees" we would have "categories unimaginable by us" is a nice fairy tale we wished to be continued. Instead of this we get some vague mentions of the inconceivable. From the aspect of the unimaginable everything and nothing is possible. As for lobsters we even can agree: those who don't know how many beans make five will have a different science. However there is no need to believe that their science is like the Western science, to which so many alternatives allegedly exist.⁵¹

Argument (4): Different sensory perception is supposed to establish a particular science.⁵²

Kant and his "forms of sensibility" are mentioned and forgotten immediately after. Ignoring Kant's warning about senseless metaphysics, which had ruined parts of philosophy in his times, Rescher speculates about how one could establish a completely distinct science by different sense organs, e.g. a highly sophisticated olfactory organ.

Unfortunately Rescher overlooks the fact that our scientists with their instruments are more advanced in their capacity to smell than any dog, they analyze the polarization of light better than any bee, they measure the geomagnetism more precisely than any pigeon. He also fails to notice the fact that the character of science is exclusively founded

on method, not on instruments, sensors or sensory organs. To put forward theories about reality and to test them is what constitutes science. Certainly, one could change this definition, but in this case one had better formulate such a definition explicitly. If Rescher had done so, I am afraid, nobody would be interested in his "scientific relativism".

*Argument (5): Different concepts establish different sciences.*⁵³

Fancying strange outlandish concepts and categories like those of James' bees we are supposed to think there is no communication possible with their bearers.⁵⁴ However, what scientific concepts are good for is nothing more than that scientists know, whereof they are talking, so that everybody can understand and examine their statements. Concepts like that of 'wood', 'stone', 'water', 'atom', 'magnetism', and categories like 'space', and 'time', refer to reality, the objective existence of which is not even denied by Rescher.⁵⁵ Concepts can contain theories as the concept of 'atom'. Such implicit theories can be made explicit. Then they say something about nature that can be tested by every living being, provided it is able to do science.

If concepts are not understood, they can be translated and explained, at least to those who are concerned with the same things as we are, and who are able to understand the matter, to which the concepts refer. For others there is no cause to give explanations. A "supra-conceptual vantage point"⁵⁶ is not necessary for this. What at all is a 'supra-conceptual vantage point' supposed to mean? To translate from German into English no 'supra-language' is necessary. Here Rescher comes near to the dictum of Martin Heidegger of that no French mind can grasp his works. If it is to be doubted whether translations of concepts are possible, one should refer to the relevant literature and prove

their validity. Instead of this Rescher prefers to shorten the discussion by appraising his statement as a "near-trivial truth"⁵⁷.

But then, changing the theme to the trivial relativism, he still explains his 'near-trivial truth' in greater detail including whales and worms to explain his relativism. However, a question of the kind whether the concepts of geologists are different from those of ornithologists (or strange extraterrestrials) is completely irrelevant to the question of whether different cultures can come to the same knowledge *about identical things* in the same world. Unfortunately Rescher doesn't focus on knowledge about identical things, but only on the possibility of different knowledge about the world, where the trivial version is obvious. In this way he manages to sustain that the "one-world, one-science argument" is not tenable any longer⁵⁸.

Argument (6): Contemporary science cannot explain future science. Older theories cannot explain younger ones. So there is indeed one world with different sciences. ⁵⁹

Certainly, our contemporary science would seem like magic to the ancient Greeks. What today is believed as truth the ancient Greeks could not explain by their means. In this way it is plausible that we cannot explain future science with our means, if it were known to us (it would be all Greek to us). However, who has ever maintained that the older theory must be able to explain the newer one? The older theory is obsolete, because it was mistaken and therefore it was replaced by a newer one. How should it be possible that a faulty theory could explain the corrected one? If it were possible the old theory would be the better one and would not have been replaced by any other theory.

And as for this absurd demand, to make the impossible possible, why should anyone be forced to the conclusion, that "Western science" is only one of many possible sciences, which would be rivals to Western science, if they were existent?

At best Rescher's argument seems defensible in this way: former types of sciences are different, because they were dealing with false theories. Our contemporary science will be obsolete in the future, because it contains mistakes as well. It is not this triviality Rescher wanted to elucidate. Probably he wanted to say: what is true today, will be wrong tomorrow⁶⁰. However, he cannot give any evidence for this. So he confines himself to strengthening his believers by the method of multiple repetition.

Argument (7): "Things cannot of themselves dictate the significance that an active intelligence can attach to them."⁶¹ "The things are the same, but their significance is altogether different."⁶²

Similar to Rescher's first argument the significance we give to the things, is said to determine the field of research. Subjective criteria are of importance, but they cannot change the character of science. Those who are interested in the love-lives of butterflies receive other results than those who are studying the backside of the moon. One could say they operate "different sciences". To conclude from this the result that serious competitors to Western science are possible, is one of the many false conclusions which are to uphold Rescher's "scientific relativism".

Argument (8): Different cultures bring forth different sciences, even if nature is always the same. "Human organisms are essentially similar, but there is not much similarity between the medicine of the ancient Hindus and that of the ancient Greeks."⁶³

After all two cultures with two different sciences? But what is the kernel of the differences? Does one of them claim men have a heart, while the other asserts there is a stone in the breast? Does the fact that treatments are possible in many ways say anything about the incommensurability of the related sciences? Science is concerned with theoretical statements, statements concerning reality. It is here where the critical comparison has to start. Unfortunately theories are not what Rescher is interested in. So the argument of different practices in various sciences is of no significance to his purposes, because two sciences can be completely different in the trivial meaning if one neglects theories. Different sciences as a consequence of different theories about identical things are possible, if at least one of them is flawed. But as I said, Rescher does not concern himself with theories. Arguments are mentioned briefly so as to give his theses a certain plausibility. They are actually correct only in the hollow sense of trivial relativism.

Were the issue at stake discussed more intensively, the reader would possibly be diverted from the popular prejudice that other cultures would have a different and probably better sort of science, if they had been protected from Western influence. The latter is apparently something Rescher tries to make his readers believe. Though he declares to have distinct visions of those novel sciences, he fails to give evidence to his "scientific relativism" by bringing to light at least one single example of such a theory which is true and at the same time contrary to one of the hundreds of thousands of medical, geological, biological, physical or chemical theories of 'Western' science. His poor example of ancient medical science is quite unconvincing. It only shows how one can make use of the popular dreams of Eastern miracle cures.

*Argument (9): Because there is no definite interpretation of written texts like the Bible or Plato's dialogues, nobody can be hopeful that the 'book of nature' would be less ambiguously interpretable. "Even this textual analogy is overly generous."*⁶⁴

Apart from the fact that objective interpretation is possible, Rescher overlooks that the interpretation of texts is quite different from scientific research, which is concerned with the invention and testing of theories.

The text metaphor for natural science is not an invention of Rescher. So merely using it is not enough. Rescher had better make clear why it is valid again despite the thorough rejection e.g. by Hans Albert⁶⁵ and why this textual analogy is supposed to be "overly generous". Why? What else could happen more disastrously to science than discovering that reality - e.g. the question of whether the earth has one moon or three - is more ambiguous than the words in the Bible? In the view of Rescher science should be confused and in serious difficulties. However, even if Rescher succeeds in making his subjective opinions understood, he fails to find sound arguments for his exciting theories.

6. How scientific is Rescher's "scientific relativism"?

Is Rescher's "scientific relativism" scientifically defensible? Because he doesn't refer to relevant literature like that of William v. O. Quine, Donald Davidson, Hilary Putnam or Richard Rorty one should be allowed to focus on his own arguments as I did. After all there is no evidence except for the trivial relativism of the kind: an ethnologist lives in a world (of science) unlike to that of an entomologist.

What about Rescher's scientific approach? Are the speculations testable, on how lobsters, bees, whales and worms would operate science?⁶⁶ - Certainly not, because any

speculation can be confronted with its opposite. Exuberant fantasy is useful, if restrained by just as much highly imaginative criticism.

When Rescher adorns himself with physics he does not always seem to know what he is speaking about. His pompous talk of an "intellectual red shift" refers to a presumed "spatial red shift that carries different star systems ever farther from each other"⁶⁷. The astro-physical red shift, however, has no influence on the distance of stars, but is a shift in the *spectra* of receding stars or galaxies⁶⁸.

When Rescher tries to make an impression by mathematical calculations, he become lost in thoughtless speculations, which share with mathematics only the numbers. So he calculates the probability of "the number of civilizations that possess a technologized science" in the universe⁶⁹: For inventing science on a proper planet there may be 12 obstacles to overcome with a probability of one percent. So science arises with a probability of 10^{-24} (i.e. 0.01 to the power of 12). Multiplied with the number of appropriate planets, which is estimated to be 10^{22} , the chance of inventing once more science in the universe is very small ($10^{22} \times 10^{-24} = 0.01$). Conclusion: there is no other science, only our science. - With magic calculations like that one can prove all and nothing.

When an author maintains "x is possible" and refers to another author who said "x is impossible", then the reader might hope for a clarification. He hopes in vain in the case of Rescher's attempt to put himself in the position of lobsters, bees and other strange beings, to report about their experiences, citing Thomas Nagels paper "*What is it like to Be a Bat?*"⁷⁰, where Nagel proves that kind of thought-experiments to be meaningless. In addition, and differently from Rescher, Nagel doesn't doubt that a scientist from Mars would have the same science as we have. Nagel particularly stresses that the ob-

jective nature of things could be understood by them. Only their personal experiences would be different. So Nagels paper could have been appropriate to explain the trivial relativism and to refute the scientific one.

As mentioned before the word 'theory' occurs very seldom in Rescher's 'scientific relativism'⁷¹. This stylistic mannerism⁷² is followed by Rescher elsewhere as well: in a paper in which Popper's method of scientific progress by means of inventing theories and critical testing is run down as a disastrous flop, Rescher succeeded in writing about Popper's critical method without using the word 'criticism'.⁷³ Unfortunately this has disastrous consequences for the conclusiveness of his arguments. In Rescher's view theories are not important. The epistemological role of theories is discussed only twice: In the beginning he declares that the aims of science are more important than theories⁷⁴ and he maintains theories were "based on the available data" and bound to "reflect the character of our interactions with nature"⁷⁵, something that we called argument (2) above. Apart from this there are three strange theories mentioned (dogs with horns etc.)⁷⁶ to prove that unimaginable science is possible. However, an example of a theory which is true in one culture and wrong in the other is not given.

So Rescher's theory of science is a theory which largely refrains from theories. The character of science is associated with sense organs, concepts, and categories of the investigators instead⁷⁷, to preferences for special issues, and to deficient results caused by missing data. A picture of science like that makes it easy to assert subjectivity in science. You can't force any writer to discuss the papers of Karl Popper, however, in the case of such a revolutionary representation of science a dispute of the contrary scientific opinions would be a good idea. What Rescher has done in earlier books is not helpful here. Especially if such effusive ideas are presented without evidence, one

should like to know, why one is to follow them nevertheless. Rescher's difficulties to find sound arguments are enhanced by the fact that the theory of science has to regard the actual way of scientific research. However, what Rescher presents is quite an unbelievable caricature of what scientists are really doing.

7. Our Philosophy as O-U-R Philosophy

I have tried to clarify that Rescher's attempt to establish "Our Science as O-U-R Science" was not successful, because his "scientific relativism" is untenable. Only the completely uninteresting trivial relativism is justifiable. It is undoubtedly true that science looks different when we change the themes. The more interesting thesis Rescher tries to make us believe by double writing and endlessly repeating the same. What Rescher succeeded in is a further devaluation of science, which was predicted and warned against by Sigmund Freud: "One has tried, to devalue the scientific endeavour radically by the consideration that science, because of depending on the conditions of our organisation, is bound to produce nothing else than subjective results, while the real nature of things will be unapproachable."⁷⁸

Our conception of the world is based on knowledge we owe to science. After centuries of recession the mythological-theological cosmology finally gave up the struggle against natural science. Nobody will any longer dispute the conception of the new world as it took its way since Copernicus. Nobody defies the theory of atoms, even if it is continually improved in detail. Illness is no longer the penalty and doing of wicked ghosts, but caused by well-known grounds, even if much remains unexplained. Thousands of volumes are filled with knowledge which is unquestionable and therefore accepted by scientists as the fundamental principles of science. That knowledge is called objective,

because scientists came to it through independent ways of research. Highly esteemed social reward and increasing reputation is promised to those who discover faults in the fundamental scientific knowledge. Nevertheless this knowledge is nearly unchanging. So we are entitled to build on it our conception of reality, a reality which is possibly true in many details, even if we will never know in what details. Theologians and metaphysicians may ask for the true reality behind the apparent reality, however, in science and everyday life we call reality such knowledge which results from numerous trials of construction and correction. Over and above that the ‘original reality’ is not recognisable and its only function is that of giving an answer to any experimental question if only the question is put forward with sufficient precision. Those who are not prepared to believe that they cannot run their head against a brick wall will sooner or later be taught otherwise *by reality*.

It is certainly true that science has lost a great deal of its reputation since the times of Freud. Science was made use of to provide means and do things that mankind cannot be made to suffer from. However, the many who roar in the chorus against the intellectual disrepute of science and maintain there must be an alternative to science or, as Rescher said, many alternatives, should show us such alternatives. Again in the words of Freud, who predicted today’s situation very well and also the demands for alternatives to science: "Our science is no illusion. But it would be an illusion to believe we could get from elsewhere, what science cannot give to us."⁷⁹

Philosophy is no fool's paradise. Philosophers are responsible. For twenty-five centuries philosophers have been examining, whether arguments are sound and valid. So they are responsible for the use of their own arguments as well. Far too often they are not aware of their responsibility, because they underestimate the significance of their work. Paul

Feyerabend for instance answered to the question of whether his works have had any important effect: "No. Nothing at all."⁸⁰ This is a gross underestimation of the consequences of philosophical ideas. Signals from the ivory tower are well received and often they have even changed the world. There is a way from Hegel to Hitler⁸¹, from Marx to Stalin⁸². The Frankfurt School brought about a kind of cultural revolution, at least in Germany⁸³, and the recent relativism discussed by philosophers furnished the enemies of human rights with guiding principles, as we have learned on the 'Conference on Human Rights' in Vienna 1993 and thereafter⁸⁴. From Herbert Marcuse and recently even from Peter Singer came encouragement to bring violence into the political discussion⁸⁵. Philosophy is not without consequences, so one should make certain of the reliability of one's arguments, especially if one is going to undermine the scientific basis of all human culture.

In the trivial version of Rescher's relativism philosophy as *our* philosophy could be indeed a different one, if we changed issues and methods. So it would be useful to determine the task of philosophy anew: Philosophical criticism should no longer be concerned only with questions of right and wrong, but with the more important question of whether something is significant or not. The information channels are jammed. Populism in philosophy draws attention from important issues to completely trifling ones. Certainly, questions on importance are even more difficult to judge than questions on truth. However, we have to answer the first question first, because it is more important. It is more important, because, if we don't make our choice, we are lost in a virtually endless list of issues we could concern ourselves with. If we fail to consider the significance of problems before we try to solve them, we will probably become entangled in

solving unimportant problems and then we will never proceed to ask questions on right and wrong, concerning problems which are really important.

The scandal of philosophy is not that no progress is made, but that philosophy is prevented from progress by floods of populistic literature. There is only one method that may help us: a sort of criticism that works faster and more effective than the production of scientifically puffed-up banalities, which in a populist way confirm a thankful public in its prejudices and lead it to believe in a completely false state of science.

¹ See also my treatment of this theme in German: "Populismus in der Philosophie - Nicholas Reschers wissenschaftlicher Relativismus" in: CONCEPTUS Nr. 73, p. 271-300 (1995).

² Freud, Sigmund, *The Future of an Illusion*, Norton & Comp. Inc. 1989. In German: *Die Zukunft einer Illusion* (1927), chap. X, in: *Massenpsychologie und Ich-Analyse. Die Zukunft einer Illusion*, Frankfurt/M. (Fischer TB) 1993.

³ It is one of life's ironies that in the hands of his successors Freud's doctrine of a scientifically enlightened world swung to just the other extreme. Those who lie on Freud's couch today, wouldn't like to get more reason or more scientific insight; on the contrary, above all they want to be released from the realities of the situation and to follow their emotions. Now millions of readers cling to the word of psychologists like the well-known Paul Watzlawick: "And the most dangerous delusion of all is that there is only one reality" (Watzlawick, Paul, *How real is real?* Souvenir Pr. London 1983, p. xi). Explicitly he advised also scientists to give up the search for truth: "Radical constructivists [like P.W.] don't see the task of science in discovering 'truth'" (Watzlawick in: *Nürnberger Nachrichten* 7./8.10.1995). Judging from Freud's doctrine that the denial of

reality is the very cause of neurosis and other mental illnesses, Watzlawick's psychology is just what plunges his patients deeper into their misery.

⁴ Therefore critical rationalists are against founding a school.

⁵ I take this term partly from Paul Feyerabend's "Ambiguity of Presentation", with which he aimed at T. S. Kuhn, Hegel and Wittgenstein: Feyerabend, Paul K., *Problems of Empiricism, Philosophical Papers*, Vol.2, Cambridge - New York (Cambridge University Press) 1981, p. 132-133.

⁶ Kuhn, Thomas S., *The Structure of Scientific Revolutions*, 2. ed., enlarged, Chicago Univ. of Chicago Pr. 1970.

⁷ Kuhn's examples do not justify his own doctrine but Popper's. This is shown by Andersson, Gunnar, *Criticism and the History of Science*, Leiden, Brill 1994.

⁸ An allusion to the dictum of the German historian Leopold von Ranke.

⁹ See note 5, p. 133.

¹⁰ See note 5, p. 132.

¹¹ Feyerabend, Paul K., *Against Method, An Outline of an Anarchistic Theory of Knowledge*, London (NLB) 1975.

¹² Feyerabend, Paul, *Three Dialogues on Knowledge*, Oxford Blackwell 1991, p. 157.

¹³ Lyotard, J.-F., *La condition postmoderne. Rapport sur le savoir*, Paris 1979. This book is generally regarded as the beginning of the post-modern thinking. If one understands this intellectual trend as a turn to pluralism in epistemology and as a relativization of science to only one of many possible ways of gaining knowledge, then Kuhn and

Feyerabend have priority over Lyotard and may be called the fathers of the post-modern era.

¹⁴ See note 11, p. 28.

¹⁵ See note 11, foreword in editions 1982 and after.

¹⁶ Feyerabend, P., *Erkenntnis für freie Menschen*, Frankfurt/M. (Suhrkamp) 1979, p. 118. Here Feyerabend denounced that kind of relativism, which asserts that all traditions are of equal value, but not the one which is a consequence of incommensurability. However with this he tries to make relativism unable to be critically reviewed.

¹⁷ See note 12, p. 154.

¹⁸ "Of course the incommensurability is a boon for philosophers and sociologists", see note 12, p. 154.

¹⁹ See also my remarks in note 13.

²⁰ It is the heart of Kuhn's doctrine that the "conversion" of scientists of different opinions is seldom successful and that this fact is part of the *essence of science*, and not the consequence of a lack of character (see note 6, chap. XII). He withdrew this thesis in his postscript 1969 (see note 6, postscript). From then on he has described "conversion" as a lively discussion aimed at convincing by argument those who hold different views. His last bastion is now the platitude that people don't like to change their beliefs and always are slow in getting used to new thoughts. Kuhn's irrational paradigm shift, that was made a lot of fuss about and is still conveyed as always, gave way to a quite rational dispute. About the in-word created by him he announced 1995: We don't use the word paradigm any longer. (s. Die ZEIT Nr. 18 (1995) S. 42). - As for Feyerabend: he

in 1979 dissociated himself from the motto of the post-modern era. From then on he explained "anything goes" as a misinterpreted joke (see note 16, p. 83 and 87). In 1982 in the foreword to "Against Method" he confessed that "anything goes" was never a maxim of his own, but meant ironical (see the German edition: Feyerabend, "Wider den Methodenzwang", Frankfurt/M. (Suhrkamp) 3rd ed. 1991, p. 11).

²¹ Rescher, Nicholas, *Science as O-U-R Science* in: *A Useful Inheritance: Evolutionary Aspects of the Theory of Knowledge*, Maryland (Rowman & Littlefield Publ.) 1990.

²² See e.g. (a) Sosa, E. (Ed), *The Philosophy of Nicholas Rescher*, Dordrecht (Reidel) 1979. (b) Almeder, R. (Ed.), *Praxis and Reason: Studies in the Philosophy of Nicholas Rescher*, Washington (Univ.Pr. of America) 1982. A collection of various critical essays on Nicholas Rescher's philosophy. (c) *Rescher Symposium*, in: *Philosophy and Phenomenological Research* Vol. LIV, No.2, June 1994, p.377-457.

²³ Rescher, "Extraterrestrial Science", *Philosophia Naturalis* 21, p.400-424 (1984). Rescher, "Nuestra ciencia en tanto que 'nuestra'", *Rev Filosof (Spain)*, 6, p. 1-9 (1993).

²⁴ Rescher, "Natural Science as an Human Artifact" in: *Einheit der Wissenschaften, Internationales Kolloquium der Akademie der Wissenschaften zu Berlin*, Berlin-New York (de Gruyter) p. 487-512 (1991).

²⁵ Rescher, N. *Natural Science as an Human Artifact*, in: *Einheit der Wissenschaften, Internationales Kolloquium der Akademie der Wissenschaften zu Berlin*, Berlin-New York (de Gruyter) 1991, p. 487-512.

²⁶ See note 20; the other essays in the same book.

²⁷ Rescher, "Extraterrestrial Science" in: *Limits of Science*, Berkeley 1984; chap. XI. - Rescher, "The Anthropomorphic Character of Human Science" in: *Scientific Realism*, Dordrecht (Reidel) 1987; chap. 7. - Rescher, "Our Science as O-U-R Science" in: see note 21, chap. 5. - Rescher, "Our Science as *Our Science*" in: *A System of Pragmatic Idealism*, Princeton 1992, Vol. I, chap. 8. - German translations: Rescher, "Unsere Wissenschaft als *unsere Wissenschaft*" *Warum sind wir nicht klüger? Der evolutionäre Nutzen von Dummheit und Klugheit*, Stuttgart 1994. Rescher, "Unsere Wissenschaft als genau unsere" in: *Studien zur naturwissenschaftlichen Erkenntnislehre*, Würzburg 1996.

²⁸ See note 21, p.88

²⁹ I mention the word, but I don't follow its linguistic usage. Much of what is called "Western" culture belongs to all men and so to Eastern and Far Eastern cultures as well, and it is there less easy abandoned than by those who allege to protect others from "Western" influence.

³⁰ This insight in populistic strategies I also owe to Paul Feyerabend. He wrote: "If not even the natural sciences are a realm of reason ..., how are we to demand, that the quite less strict disciplines like history, politics, poetics, or dramaturgy should be subjected to rigid rules?" (Feyerabend, P., *Der wissenschaftstheoretische Realismus und die Autorität der Wissenschaften*, Braunschweig/Wiesbaden (Vieweg) 1978, S. 276, translated by H.J.N.)

³¹ For instance Liu Huaqiu, deputy foreign minister of the People's Republic of China, on the "Conference of Human Rights" in Vienna 1993 (ZEIT-Punkte Nr. 2 Hamburg

1993, S.93). Also Indonesia, Pakistan, Syria, Iran, and Cuba pleaded for "regional pluralism" when human rights were brought up.

³² See note 7.

³³ See note 20.

³⁴ "Our scientific picture of nature is the product of an interaction in which both parties - we investigators and nature herself - make a crucial and inseparable contribution." See note 21, S. 59-61p. 77.

³⁵ See note 21 p. 82. Different from Popper Rescher needs 'control of nature' as a important feature of science. In Popper's view control of nature is a special technological knowledge, but not constituting science. See e.g. Popper, Karl R., *The Logic of Scientific Discovery*, 9th edition London (Hutchinson) 1977, sect. 12 chap. III.

³⁶ See note 21, p. 82-87.

³⁷ See note 21, p. 85.

³⁸ See note 21, p. 83

³⁹ What I call normal theory of science refers to the well-known canon of literature like Karl Poppers *Logic of Scientific Discovery* (see note 35), the criticism of Lakatos, Kuhn and Feyerabend and the refutation of this criticism, e.g. by Gunnar Andersson (see note 7).

⁴⁰ See note 21. In this section page-numbers are indicated when the page changes.

⁴¹ See note 21, p. 78- 94.

⁴² See note 21, p. 83.

⁴³ See e.g. Popper (note 39).

⁴⁴ See note 21, p. 102.

⁴⁵ See note 21, p. 84, 90.

⁴⁶ See note 21, p. 84.

⁴⁷ The mirror metaphor was introduced into the discussion of philosophy of science 1973 by Konrad Lorenz and 1979 by Richard Rorty. Lorenz proved by a certain view behind the mirror, that our cognitive capacity (the ‘mirror’) doesn’t represent the reality quite sufficiently, otherwise we could not have survived. Lorenz, K., *Behind the Mirror. A Search for a Natural History of Human Knowledge*, Hartcourt Brace & Comp. 1978.

⁴⁸ Richard Rorty’s quite obsolete classical ideal of rationality gives him the impression, philosophers tried in vain to improve the cognitive capacity ('to polish the mirror') to get true and certain knowledge by looking behind the appearance. When he finds out that this is not possible, he becomes convinced from a relativistic position inspired by Hans-Georg Gadamer: "I want now to enlarge the suggestion that edifying philosophy aims continuing a conversation rather than at discovering truth". See Rorty, R., *Philosophy and the Mirror of Nature*, 2. pr., with corr., Princeton, N.J. Princeton Univ. Pr. 1980, p. 373.

⁴⁹ Peter Munz’ criticism is interesting also in regard of populism in philosophy. Munz, P., *Philosophy and the Mirror of Rorty*, in: Radnitzky, G., Bartley, W. W. (ed.), *Evolutionary Epistemology, Rationality, and the Sociology of Knowledge*, La Salle (Open Court) 1987, p. 345-398.

⁵⁰ See note 21, p. 84-85, 87-88, 101.

⁵¹ See note 21, p. 88.

⁵² See note 21, p. 86-87, 95, 102.

⁵³ See note 21, p. 85-88, 102.

⁵⁴ See note 21, p. 84.

⁵⁵ "There is, no doubt, a mind-independent reality..." (note 21, 102; see also p. 78-79)

⁵⁶ See note 21, p. 86.

⁵⁷ Ibid.

⁵⁸ See note 21, p. 89.

⁵⁹ See note 21, p. 88.

⁶⁰ This sounds like a truism, but it is none. One had better say: what *seems* true today, will possibly turn out to be wrong tomorrow.

⁶¹ See note 21, p. 92.

⁶² See note 21, p. 90.

⁶³ See note 21, p. 92.

⁶⁴ See note ibid.

⁶⁵ The objectivity of science is not jeopardized by considerations using the text metaphor; see Albert, H., *Kritik der reinen Hermeneutik*, Tübingen (Mohr/Siebeck) 1994, especially chap. II.

⁶⁶ Whatever Rescher's definition of science may be, he would hardly do without the criterion of testability.

⁶⁷ See note 21, p. 102.

⁶⁸ See even popular encyclopedias, e.g. Bullock A. et al. (ed.) *The Fontana Dictionary of Modern Thought*, Fontana Press 1988.

⁶⁹ See note 21, p. 97.

⁷⁰ Nagel, Thomas, *What is it Like to Be a Bat?*, The Philosophical Review 83 (1974) 435-450.

⁷¹ See note 21, p. 81, 82, 93, 98, 99.

⁷² Is it possibly still more method than a mere quirk? Paul Feyerabend professes frankly: "I feel rather uneasy about his [Kuhn's] attempt to reintroduce theories..." (See note 12, p. 156).

⁷³ According to Rescher Popper's theory of science - "blind variation" of theories and selection of the best - leads straight into a "Laputan chaos", because there is an infinite number of theories (see Rescher's book mentioned in note 21, p. 18). Rescher overlooks the following: out of the infinite number of possibilities only those are selected, which are similar to the theory in question. Often there is only *one* theory necessary to replace the older one, because with some luck the first alternative is better than the old theory. That you grope in the dark is of no importance; you must not know in advance that you will succeed and what the success will look like. See also Popper, K., *Conjectures and Refutations*, Harper 1963.

⁷⁴ See note 21, p. 81.

⁷⁵ See note 21, p. 93.

⁷⁶ See note 21, p. 83, 98, 99.

⁷⁷ See note 21, synopsis p. 77.

⁷⁸ See note 2, S. 157 (translated by H.J.N.).

⁷⁹ See note 2, S. 158 (translated by H.J.N.).

⁸⁰ See note 12, p. 209 (see the German version).

⁸¹ Popper, Karl R., *The Open Society and Its Enemies*, Vol II, 12th edition, London (Routledge & Keagan Paul) 1977. Poppers quotation method concerning Hegel was criticized by Walter Kaufmann ("quilt quotations"), who also questioned the influence of Hegel's philosophy on the Third Reich (Kaufmann, W., *The Hegel Myth and Its Method*, in: *From Shakespeare to Existentialism: An Original Study*. Princeton Univ. Pr. 1980, p.95-128). His criticism met partially Popper, but could not save Hegel. A substantial study of the various intellectual seeping-processes of Hegelianism into Nazi *Zeitgeist* is brought forward by Hubert Kiesewetter (Kiesewetter, H., *Von Hegel zu Hitler*, revised and enlarged 2nd edition, Frankfurt/M. (Peter Lang) 1995.

⁸² See Popper in note 81

⁸³ I call to mind the action groups, the antiauthoritarian education, the leanings towards a kind of direct democracy (in Germany called 'Basisdemokratie'). In the eventful late sixties the books by Theodor W. Adornos and Max Horkheimer went around in underground groups, partly by pirated copies. See Jay, Martin, *The Dialectical Imagination: A History of the Frankfurt School and the Institute of Social Research 1923-1950*, Boston-Toronto (Little, Brown and Company) 1973.

⁸⁴ See note 31.

⁸⁵ Marcuse conveyed the doctrine of violence as an act of defence against the violence coming even from democratic government (Marcuse, H., Popper, K. R., *Revolution oder Reform?* 4. Aufl., München (Kösel) 1976). - In his book "Practical Ethics" Peter Singer justifies to destroy laboratories in which animals are tortured to death, provided it is effective in regard to the animals (Singer, Peter, *Practical ethics*, 2. ed., Cambridge Univ. Press 1993, chap. 11, p. 313). This kind of violence against things is nevertheless violence against people who dissent.