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THE DIFFERENCE BETWEEN EVERYDAY KNOWLEDGE, IDEOLOGY, AND SCIENTIFIC KNOWLEDGE*

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In his article Bunge contrasts scientific and nonscientific knowledge, and exemplifies the philosophical and methodological principles of the former by criticizing examples of nonscientific conceptual frameworks or belief systems. I agree with his fundamental ideas concerning the criteria that go with methodological scepticism. In my contribution I will describe the differences between scientific and nonscientific thinking, experience, and knowledge from the psychological point of view. I will also add a distinction between a scientific and a nonscientific perception of the world by introducing *everyday knowledge* as a special kind of nonscientific experience, different from ideological or magical thinking and belief systems.

In my short response to Bunge's paper, I will limit myself to comparing some particularities of a scientific and nonscientific perception of the world with regard to everyday knowledge as a special kind of nonscientific knowledge. The comparison will take into consideration the differences concerning (i) the conditions influencing the development of concepts and the characteristics of the use of concepts, (ii) formal characteristics of conjectures and hypotheses, and (iii) features of hypothesis testing. Furthermore, I will outline some typical aspects of technological/practical knowledge, specifically (iv) technological rules and (v) their evaluation (see Table 1).

DEVELOPMENT AND USE OF CONCEPTS

New *notions, concepts, and schemes* are developed during *ontogenesis*, and depend on psychological laws of cognitive development and experience (Seiler & Wannenmacher, 1983). Piaget invested a great part of his work in the study of cognitive processes and the way their interaction with experience leads to the construction of notions and concepts. The biological function of the progressive acquisition of more differentiated and more general concepts seems to be to increase the ability to orient to the surrounding world and to "extend" one's environment. Their development can be described and explained by complex psychological conditions. They are linked with everyday experience—constituting or influencing its possibilities and boundaries. In everyday life such naive notions are useful labels for food, weather, illnesses, emotions, etc. These notions represent the basic elements of sound commonsense and are limited in their power to describe features of the world by their source in naive experience.

*Commentary on M. Bunge (1991) A Skeptic's beliefs and disbeliefs, Vol. 9, No. 2, pp. 131–149.

Scientific notions, variables and parameters are built up by following methodological rules. (1) They have to meet certain criteria such as precision. (2) If their semantic content is not of a formal order but concerns aspects of reality, they can be linked with reality through scientific observation and explicit interpretation of theoretical terms. Their function is an extended knowledge of some features of the world, representing the elements of theoretical generalizations. The application of scientific concepts to reality through *systematic observation* is ruled by methodological standards, which are not necessarily the same in all branches of science. They are developed within the different sciences and meet "state of the art" science-specific demands. But they have the common aim of approximating objectivity, reliability, and validity. Measurement techniques are a part of these standards.

Ideological concepts and notions, however, cannot be connected with reality. Their function is often rather more emotive than informative, and they are often important for the ruling of communities, societies, or individuals. They may be evolved for subjective security or the propagation of fascinating ideas, rather than for the growth of knowledge through methodological scepticism.

CONJECTURES, HYPOTHESES, AND HYPOTHESIS TESTING

Everyday knowledge conjectures are sensitive to naive (subjective) experience, insofar as they are open to correction within the framework of naive experience. This kind of knowledge enables people to make some modest forecast, for

Table 1. Comparison of different kinds of representation of the world

	Ideology/mythology	Everyday knowledge	Scientific knowledge
Development and use of concepts	Depends on ideas of their creators	Depends on psychological laws of concept learning	Depends on methodological rules
Hypothesis	Insensitive to everyday or scientific experience	Sensitive to everyday experience	Sensitive to scientific experience
Testing of hypothesis	Appeals to belief with rhetoric and persuasion	Follows psychological laws of naive perception and information processing	Follows methodological rules and the logic of experimentation
Technological rules	Insensitive to any evaluation	Sensitive to everyday evaluation	Sensitive to scientific evaluation
Evaluation of technological rules	Through persuasion/rhetoric and suggestion	Through everyday experience depending on psychological laws of naive experience	Through scientific evaluation following methodological rules

example, a weather forecast, or to get some useful ideas about the connection between nutrition and health.

Whereas *scientific hypotheses* are sensitive to scientific experience, *ideologies and magical thoughts* are insensitive to both everyday and scientific experience.

Naive expectations are tested by naive experience. Some aspects of perception, of sampling and of inference, among other things, play a role within this unsystematic experience. The confrontation of conjecture with reality is based on accidental samples and follows laws of naive perception and laws of psychological information processing. The psychological processing of information has been studied in different areas, and many particularities of these processes are known today. For example the halo or the primacy effect are aspects of information processing in the context of social perception that lead to specific errors in the testing of naive expectations by naive experience (Brophy, 1983).

In the context of discovery, many kinds of intuition, fantasy, and motivation may play a leading role; however, in the context of justification the *scientific testing of hypotheses* follows methodological rules. These rules include standards of concept use (observation)—as mentioned above—standards of sampling, the logic of experimentation, and the rules of statistical inference instead of naive inference. They control in part the tendency for error that occurs in naive experience. Experimentation differs from accidental experience—among other aspects—in the fact that this kind of experience consists not only of observing the world more or less passively. Experimentation provokes the world systematically for answers by experimental interaction with reality, and the answers given by reality are not predetermined a priori by the experimentator.

In turn, *testing of ideologies or magical thoughts* does not usually take place. Such ideas appeal to the belief capacities of humans. The method used is persuasion—sometimes by splendid conceptual coherence, without any connection with the corroborating or refuting of reality, as Bunge argues in his paper—or rhetoric, or some mystifying rituals. Their explanations and predictions are described in a way which protects them against correcting experiences. The "link" between ideas and reality is assured by suggestion, self-fulfilling prophecies, semantic uncertainties or dialectic confusion, and confusing different language levels, for example, if there were "contradictions in reality" a noncontradictory logic would be inappropriate to describe a world full of contradictions. Marxist ideology is an example of the successful resistance of ideological ideas to experience. Even after the economic and political debacle of recent developments in the East and the West, we find philosophers and politicians defending Marxism by explaining that the present decline of Communism is the result of a false interpretation of the true ideas of Marx and Lenin.

TECHNOLOGICAL RULES AND THEIR EVALUATION

Practical knowledge, as a part of sound commonsense, is not bound up in a scientific network. It is however usually open to naive experience and it is tested by a fairly private and unsystematic perception of the world. Practical prescriptions which are part of the system of private behavior rules, are abandoned if subjectively

perceived negative consequences are sufficiently evident. However, the necessary evidence for change or adaptation depends on psychological conditions. All the sources of error that play a role in the subjective testing of everyday conjectures interfere with the naive evaluation processes.

The scientific foundation of technological rules requires an objective, that is, intersubjective, evaluation with respect to the methodological criteria of evaluation research as well as their connection with theoretical knowledge (Bunge, 1985). That is of importance, for example, in medicine, but in other fields of intervention too, such as in technical areas.

Dogmatic practical doctrines or superstitious rituals are technological opinions that are propagated by influential persons as being effective and efficient, despite their being based solely on private or uncontrolled collective experience. This kind of practical knowledge becomes gradually more resistant to correction than commonsense practical knowledge. Psychotherapy offers a vast field of possibilities for irrefutable doctrines with these characteristics (cf., Perrez, 1989).

CONCLUSION

I propose in my short paper to add *everyday knowledge*, as a special variant of nonscientific knowledge, to the distinction between a scientific and a nonscientific perception of the world. This kind of cognitive representation of the world is not to be confused with ideological and magical thinking which is much less vulnerable to correcting experiences. My outline, in distinguishing the three different representations of the world, contains defining aspects, descriptive elements, and hypothetical assumptions. For a further discussion of the above mentioned characteristics it would be necessary to formulate more precise criteria for the demarcation of everyday knowledge from other types of nonscientific belief systems. In my outline the differences between everyday knowledge and other kinds of nonscientific assumptions about the world are, in part, rather more gradual than categorical. In addition, ideology and mythological or other types of superstitious thinking have to be distinguished and can be described by their specific characteristics inside the various routes of nonscientific thinking and belief systems. However *everyday knowledge* is, for me, a special variant of the nonscientific representation of reality which is to some extent open to correction by naive experience with all its sources of error. Other nonscientific belief systems are either more strongly protected against correction or are completely immune to correction. In opposition to scientific experience and knowledge, naive experience may be characterized as being conditioned by psychological laws and as being the result of spontaneous cognitive processes without application of systematic error control strategies. Conversely scientific encounters with reality follow not laws but rules, that is methodological prescriptions developed to control the failures of naive and private experience as far as possible. I assume that this particular variant of behavior, however, still functions within psychological laws. It introduces at a given time, other conditions—developed during the history of science—influencing research behavior. I consider science as a learning activity, including more than naive trial-and-error strategies. Its goal is better knowledge about the world, working

with certain philosophical presuppositions about reality, such as its lawfulness and others described by Bunge, and applying methods for more reliable control of perception, sampling, and information inference processes, if well described empirical conjectures are to be tested. Even if this rule-conditioned behavior, its provisional results, and their correction are vulnerable to other motivations than a better understanding of the world—which may be a subject of the psychology and sociology of science—it guarantees, in the long term, more reliable control of error than other kinds of experience.

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