

Scientific Aid to Value Judgment

by

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A. INTRODUCTION

1. Thanks to modern science and technology, increasingly powerful instruments are available to humanity. Therefore, human decisions and human action exert more influence on the future of humanity. In terms of actual impact on human fate, the improvement of human decisions is, therefore, increasingly important. Values are a main shaper of human decisions. It follows that the improvement of value judgment is becoming increasingly significant: Because value judgment exerts more influence on the actual future of humanity the improvement of value judgment becomes more important from a "practical" point of view, in addition to the always important moral dimensions of human action.

2. Science is regarded by scientists and laymen alike as a main resource of humanity in facing the unknown. Little wonder that science is therefore increasingly expected to provide help in handling value issues and moral dilemmas. The desire of scientists to become more "relevant" and the personal involvement of many scientists in policy issues strengthen the interface between science, or -- more correct -- scientists, and policy-making. Therefore, the danger exists that overeagerness may distort the correct role of science in relation to value judgment and, in this way, do a misservice to the improvement of value judgment and to the advancement of science alike.

3. This paper is devoted to a concise examination of some relations between MODERN SCIENCE AND MORAL VALUES, namely the possible contributions of science to value judgment within the context of decisionmaking and policymaking. In other words, I am looking on the possibilities, problems and limitations of scientific aid to value judgment within an action orientation. Intellectually, this paper belongs to policy studies or, to use the term coined by Harold D. Lasswell, Policy Sciences. As policy sciences (never mind the name) constitute an integrative approach to sciences from a particular point of view, a look at value judgment from the perspective of policy sciences may well fit into the orientation of an INTERNATIONAL CONFERENCE ON THE UNITY OF SCIENCES. (On the policy sciences approach, see Harold D. Lasswell, A Pre-View of Policy Sciences, N.Y.: American Elsevier and Amsterdam: Elsevier, 1971 and Yehezkel Dror, Design for Policy Sciences, N.Y.: American Elsevier and Amsterdam: Elsevier, 1971. See also the periodical Policy Sciences published since 1970 by Elsevier).

B. FUNDAMENTALS

4. From the point of view adopted in this paper, it is possible to distinguish between two meanings of science: A positivistic meaning of science, in which science studies regularities of phenomena in as value-free a way as humanly possible; and a broader view of science which includes within the scope of science also the so-called "moral sciences", such as jurisprudence, theology and moral philosophy. The latter engage in the analysis and development of moral systems, in part at least independent from actual behavior; thus,

ny can be regarded , in part, as "fact free"

5. As long as these two uses of the term "science" are kept analytically distinct, there is no problem. Let me, therefore, explicate my own use of the term "science" in this paper: I will use the term "science" as referring to the positivistic view, reserving the global referent "moral sciences" for the other approach. In doing so, I will not consider other views, such as the advocacy approach which is interested in science mainly as a way of argumentation for fixed ideological positions; or the sociology-of-science view, which regards the ideology of science itself and the social roles of science as shaped by social variables, which in turn can be studied by scientific methods (a somewhat logically inconsistent position, shared by some modern sociology of sciences with a Marxist approach).

6. The positivistic view of science is fundamental to the most successful parts of sciences, namely the natural sciences. Therefore, little wonder that attempts are made to relate a positivistic view of science to value issues, without reference to the moral sciences, which are held in disrepute by most of the "hard scientists", and are unknown to most of them. These attempts take two main forms: Search for natural lines of development for human beings and search for trends inbuilt into history. These attempts are a fallacy. Leaving aside the questions whether natural lines of development for individuals and universal historic trends can be discovered and exist at all -- even if they could be identified with enough reliability, this by itself has no meaning in value terms: The question whether natural lines of human development, should be encouraged or repressed and whether history leads humanity to desired or undesired stages of development -- is itself a fundamental value issue which cannot be handled within positivistic science. Therefore, my conclusion that science (in the positivistic sense, in which I use that term in this paper unless otherwise stated) cannot help in the validation of absolute values, that is, values which are not justified in terms of being instrumental in the achievement of more fundamental ("absolute") values.

7. This is a conclusion hard to swallow for those who adopt the incorrect syllogism which states that as science deals with important issues and as value issues are important -- therefore, (positivistic) science must also be able to handle value issues. It is indeed amazing and somewhat disenchanting to notice how many distinguished scientists who are methodologically very strict in their own disciplines, seem to make such an elementary mistake in their thinking. But from a broader point of view, there is nothing bad about recognizing that science cannot validate or invalidate absolute values. Indeed, only thus is the autonomy and supremacy of moral judgment preserved, as a fundamental human responsibility and function which can never be taken over by scientific algorithms. The conclusion follows, that even purely rational decisionmaking involves a critical extra-rational element, namely value judgment. (See Yehezkel Dror, Public Policymaking Reexamined, Scranton, Penn: Chandler, Intext Pub., 1968, esp. part four).

8. Nevertheless, science can make a significant contribution to value judgment, within the context of decisionmaking -- by clarifying the value dimensions of decisions and patterning moral choice. This is the domain of what I call "value analysis".

FACETS OF VALUE ANALYSIS

9. Value analysis deals with the improvement of value judgment as a main component

of decisionmaking. While accepting the essentially extra-rational nature of validation of absolute values, value analysis nevertheless can improve value judgment, inter alia through application of various methodologies and methods and through promotion of an approach designed to make value judgment more explicit, more systematic, more consistent, more comprehensive -- in short, more responsible in the full moral force of that term. Application of value analysis is, therefore, based in itself on an absolute value, namely that more responsible value judgment (as explained in this section) is more desirable. Mystic Führer ideologies will therefore reject the approach, as will dogmatists. Another question, not to be discussed in details in this paper, concerns the possible costs of more responsible value judgment in terms of other absolute values, such as consensus maintenance.

10. Value analysis is a complex activity the methods, methodologies, techniques and orientation of which are just now being worked out. But even at the present state-of-the-art, value analysis is a powerful tool for providing scientific aid to value judgment in a decisional context. To illustrate the potentials of value analysis and to clarify its contents, let me discuss in short seven main facets of value analysis, namely: ¹ Completeness checking; ² tacit dimension explication; ³ sensitivity testing; ⁴ costing; ⁵ consistency analysis; ⁶ values futures consideration; and ⁷ value invention. While not a complete set of the emerging contents of value analysis, these facets should be sufficient for providing a taste of the subject of value analysis.

11. Completeness checking: Most policies and decisions have consequences far beyond the rather narrow values which are usually utilized as decision criteria. This is a result of the power of policy instruments, of narrow considerations built into the rigid division of labour of nearly all decisionmaking structures, of second- and third-order consequences and of the characteristics of target systems. The tendency to neglect social consequences of new technologies illustrates this usual weakness of decisionmaking, while modern attempts at technological assessment illustrate an effort to overcome this weakness. The way to overcome this weakness is to broaden the horizon of values considered as decision criteria during decisionmaking, in the form of broad value and goal taxonomies, which serve as a frame for predicting the consequences of various decision alternatives and as decision criteria for picking -- through value judgment -- the preferable alternative.

12. Tacit dimension explication: Every decision involves a number of dimensions of judgment, which are usually unexplicated and, therefore, not responsibly considered. Prime illustrations of such tacit dimensions of value judgment are time preferences and risk preferences. (See, for instance, Howard Raiffa, Decision Analysis: Introductory Lectures on Choices Under Uncertainty, Reading, Mass.: Addison-Wesley, 1968). Deeper and different hidden judgment dimensions include individual subconscious goals and values and organizational automatically accepted doctrines. Simple tacit dimensions can be explicated through value maps and suitable self-interrogation of decisionmakers; deeper hidden values and goals can be explicated only with the help of more penetrating techniques, ranging from individual psychoanalysis to organizational goal research. How far one should go in explicating such hidden judgment dimensions is an open question, depending on the difficulties of the required techniques and their impeachment upon other values (such as the right to privacy). Certainly, at least simple tacit dimensions should always be explicated. In respect to socially important decisions, some explication of personal depth-motivation of

t dimensions is one of the delicate and difficult, but also one of the important, dimensions of value analysis.

13. Sensitivity testing: Well-developed in systems analysis in respect to the handling of uncertainty (e.g., see E.S. Quade and W.I. Boucher, ed., Systems Analysis and Policy Planning, N.Y.: American Elsevier, 1968 passim), sensitivity testing can also be applied to values. Sensitivity testing identifies the difference which various values make to a specific choice, e.g., is the preferable alternative different for various value mixes and how far so. This is very critical for the improvement of decisions, because value sensitivity testing helps in search for alternatives which are less value sensitive, on which consensus and agreement can be achieved easier. Also, value sensitivity testing delimits the scope of value judgment essential for decisionmaking, helping reduce it to manageable proportions and therefore making most responsible value judgment feasible.

14. Costing: This involves the application of economic thinking to value judgment, through consideration of the costs of each alternative in opportunity costs in terms of the uses that could be satisfied with some other alternative consuming the same resources. It is important to note that the application of such a benefit-cost frame to complex decisions does not involve the illusion of quantification or of single aggregate utility functions or linear exchange rates between values. Used mainly heuristically when complex decisions are considered, nevertheless the costing of values in terms of opportunity value costs within concrete decision contexts can be helpful in explicating what is involved in a particular value judgment, and therefore in making that value judgment more responsible.

15. Consistency analysis: In every complex choice, a large number of values are involved and their number is further increased through utilization of the already mentioned value analysis methods. The question of required value judgment is further refined through consistency analysis, which examines what values can go together -- logically or in terms of system characteristics. Analytical moral philosophy has much to say on internal logical consistency between different values, e.g. individual freedom and equality. System consistency belongs to the domain of social sciences, the question being whether and how far a given social system or sub-system various values reinforce one another, contradict another or are independent from one another, e.g., economic growth and environmental protection. Consistency analysis is very important because it may put required value judgments on the agenda, for instance as done by the Limits of Growth of the Club of Rome.

16. Values futures consideration: The transformation of the relative importance of economic growth and environmental quality illustrates the dynamics of social values and policies. Therefore, the importance of values futures consideration. Especially when policies with long-range consequences are considered (e.g., all large infra-structure investments), they should be judged in terms of the values that will exist during the long life-span of the involved projects. This requires either the prediction of future values or acceptance of adjustability to novel and as yet unknown values as a dominant value. Because of the possibility of rapid changes in values, this is an especially important contribution of value analysis to better value judgment.

17. Value invention: Finally, the invention of new values to be proposed for judgment constitutes an additional contribution of value analysis, which also illustrates that value analysis is not limited to semi-economic techniques, but involves also creativity and innovation.

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18. Additional methods, methodologies and techniques of value analysis can be presented. But, within the limited scope of this paper, the above given illustrations should be sufficient to convey the taste of value analysis and to demonstrate the contribution of value analysis as an orientation to value judgment -- namely the facilitation of more responsible decisions through making value judgment more explicit, more systematic, more consistent and more comprehensive.

D. INSTITUTIONAL ASPECTS

19. My treatment of scientific aid to value judgment would be incomplete were I to ignore the institutional aspects of the matter. Far from promoting some new kind of technocracy or meritocracy or scientocracy, the methods of value analysis (and of policy sciences as a whole) fit perfectly the tenets of democracy: Through explicating the dimensions of value judgment and clarifying the implications of value judgment the legitimate value judges (e.g., the elected politicians, or the community or the electors) are enabled to make a clear and responsible choice between alternatives. Therefore, ideologically, value analysis should be very positively regarded, as a real contribution of scientific methods to the realization of democracy.

20. The difficulty is that at the same time value analysis contradicts many features of the contemporary dynamics and institutions of politics. For instance: Maintenance of consensus and coalitions depends often on opaqueness of value dimensions of choice; public discussion of issues depends on extreme simplification of involved value issues; uncertainty tends to become repressed; dogmatic positions are widespread; and the capacity of the policymaking system to process information is strictly limited. Therefore, wider use of scientific aids to value judgment requires real changes in institutions.

21. Detailed consideration of required institutional innovations goes beyond the scope of this paper. But let me just mention a few required changes, to indicate what is involved: Instead of considering many interdependent decisions as if they were separate issues, comprehensive alternative futures should be adopted through value judgment (as suggested in Bertrand de Jouvenel, The Art of Conjecture, N.Y.: Basic Books, 1967); the presentation of complex issues through the mass media of communication should be reformed to explicate involved value judgments; from childhood, future citizens should be educated for autonomous decisionmaking on complex issues, including value judgment; senior policymakers should be accustomed with methods of value analysis and trained in their use; and value analysis should be institutionalized, as a part of policy analysis and policy planning, throughout the policymaking system. (On these and related proposals see the already quoted literature in policy sciences, as well as Yehezkel Dror, Ventures in Policy Sciences, N.Y.: American Elsevier and Amsterdam: Elsevier, 1971).

22. Last but not least, value analysis leads to a number of conclusions in respect to the institutions of science itself. Selfawareness of the values involved in science and specific scientific activities is one requisit. More important is a realistic understanding of the interfaces between modern science and moral values, including both the limits of the contribution of science to basic value validation and the possible role of scientific approaches as aids in value judgment, as discussed in this paper.

to moral values imply the need for self-discipline on behalf of scientists when they want to assume the roles of social prophets, social critics and value judges. My conclusions on the possible aids which science may render to value judgment define one limited but important role of scientists as professional participants in social choice, not by imposing their own values but by encouraging and helping authentic and responsible value judgment as a supreme moral process.