CRITICAL HEURISTICS OF SOCIAL SYSTEMS DESIGN

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APPLIED SCIENCE AND THE PROBLEM OF JUSTIFICATION BREAK-OFFS

The stuff of applied disciplines such as OR/MS is what epistemologists call the 'context of application', in distinction to the so-called 'context of justification'. Epistemologists such as Karl R. Popper (1961, 1968, 1972) have claimed that the context in which science is applied is relatively irrelevant for the justification of its propositions. In distinction to this position, I propose to understand - and indeed define - applied science as the study of contexts of application. Of course this definition renders the distinction between the two contexts obsolete. From an applied-science point of view, the distinction is really quite inadequate: To justify the propositions of applied science can only mean to justify its effects upon the context of application under study. The key problem that makes applied science, as compared to basic science, so difficult to justify lies in the normative content that its propositions gain in the context of application.

By 'normative content' I mean not only the value judgements - the normative premises - that inevitably flow into practical propositions such as recommendations for action, design models, planning standards or evaluative judgments, but also their normative implications in the context of application, i.e., the life-practical consequences and side-effects of the 'scientific' propositions in question for those who may be affected by their implementation.

Speaking of the 'context of application' is a scientifically neutral way to say that applied science, whenever it really gets applied, tends to affect citizens that have not been involved in the scientific justification of the propositions. What does it mean to be scientific, or to 'justify' the propositions of applied science, in view of the uninvolved being affected?

Basically, the answer is to understand 'justification' no longer as the business of the involved only, but as the common task of both the involved and the affected. Hence a dialogical concept of rationality must replace the conventional 'monological' understanding of rational justification. Whereas the latter relies on deductive logic and empirical corroboration of falsification attempts on the part of the involved, the former must be grounded in a model of rational discourse that would explain the conditions for reaching 'rational' (as opposed to merely factual) consensus among all

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the involved and the affected in regard to the 'rightness' (acceptability) of a design's normative content.

The problem of how rational discourse can redeem the validity claims of practical propositions - their claim to secure improvement and to be rationally justifiable - is known as the problem of practical reason. The branch of philosophy dealing with this problem, practical philosophy, has recently experienced a considerable renaissance. Contemporary practical philosophers such as Paul Lorenzen (1969); Lorenzen and Schwemmer (1975) and Jürgen Habermas (1971, 1973, 1975, 1979; see also McCarthy, 1978) have developed 'ideal' models of practical discourse. They give us essential insights into the conditions that would allow us to justify disputed validity claims. The problem is only that these models, because they are ideal designs for rational discourse, are impractical (not realizable): They assume ideal conditions of rationality that will always remain counter-factual. In fact they presuppose what they are supposed to produce, namely, rational argumentation - the ability and will of all participants to argue cogently and to rely on nothing but the force of the better argument. Most importantly, they do not take into account the inevitability of argumentation break-offs. In practical discourse, just as in conventional 'monological' justification strategies, every justification attempt must start with some material premises and end with some conclusions that it cannot question and justify any further. In other words, every chain of argumentation starts and ends with some judgments the rational justification of which must remain in open question.

CRITICAL HEURISTICS, OR HOW TO DEAL CRITICALLY WITH JUSTIFICATION BREAK-OFFS

From what has been said it follows that the crucial problem for any applied scientist seeking to justify his propositions is the question of how to deal critically with the justification break-offs that inevitably flow into these propositions. As long as he does not learn to make transparent to himself and to others the justification break-offs flowing into his designs, the applied scientist cannot claim to deal critically with the normative content of these designs.

Critical Heuristics (or by its full name: Critical Heuristics of Social Systems Design) is a new approach to both systems thinking and practical philosophy, an approach that aims to help the applied scientist in respect to this task. It does not seek to prove theoretically why and how practical reason is possible (as do all presently known 'schools' of practical philosophy) but rather concentrates on providing planners as well as affected citizens with the heuristic support they need to practice practical reason, i.e., to lay open, and reflect on, the normative implications of systems designs, problem definitions, or evaluations of social programs.

In order to achieve this purpose, Critical Heuristics takes three requirements to be essential:

First, to provide applied scientists in general, and systems designers in particular, with a clear understanding of the meaning, the unavoidability and the critical significance of justification break-offs;

Second, to give them a conceptual framework that would enable them to systematically identify effective break-offs of argumentation in concrete designs and to trace their normative content; and

Third, to offer a practicable model of rational discourse on disputed validity claims of such justification break-offs, that is to say, a tool of cogent argumentation that would be available both to 'ordinary' citizens.