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John P. van Gigch, *Metadecisions: rehabilitating epistemology*. New York, Kluwer Academic/Plenum Publishers, 2003. Pages: xviii + 341. ISBN: 0 306 47458 1.

This book is an attempt to widen the focus of attention in management literature or operations research from dealing with technical or practical problems towards a more integrated method of analysis that takes into account the complete relevant system of which some particular problem is part, inclusive of the perspective of participating humans (humans that are part of the system, that is). External and internal points of view need to be combined for that reason. The book stands in the tradition of systems theory, therefore its publication in the series of *contemporary systems thinking*.

The author focuses on what he calls ‘metadecisions’ that “go before” or “transcend” the day-to-day decisions that have to be made (to solve some particular problem) and he tries to develop a method of thinking in management science that enables the scientist to have a continuous overview of the complete system in which particular decisions are to be made. A main distinction he makes to this end is to distinguish between Management Science (the science that deals with the scientific problems the field) and the Science of Management (the science that deals with the epistemological (meta)-problems of the discipline). This distinction allows him to introduce epistemology, part of the science of management, into the methods and methodology of management science, something the author claims to be often neglected in the discipline (although sometimes nominally adhered to) and which he claims to be detrimental to the aims of operations research.

Van Gigch argues for his main result, i.e. the rehabilitation of epistemology and a set of thinking tools to use it, in the following way. He first conceives of operations research in a broad way: as designing artefacts, which include social artefacts, for

instance social systems. There can be discerned several levels of abstraction in the process of such design and these levels he places in a hierarchy. This hierarchy plays a large role in his book and motivates the structure of the book, as well as its argument.

The general levels of abstraction (the hierarchy is created by a process of abstraction) are formulated in terms of “inquiring systems”. An inquiring system defines the problem to be solved and the method to solve it. With respect to the particular problem that is to be dealt with, the levels are filled with particular content. An example concerning social security is filled with levels pertaining to the decision-making structure of governments on different levels (national, local etc.). An example concerning technical design is filled with levels pertaining to optimisation problems in design, but also (more abstract) levels that discuss the very possibility of optimisation.

- 1 The most basic level the author distinguishes is the level of the “real world inquiring system”¹. This level has as its designated problem the production of a selected artefact design.
- 2 The second level, being “higher” or “more abstract” is the level of “modelling” the problem in which the selection of a design stands central.²
- 3 The third level is the level of “metamodelling”. In this level the question is asked how to select a model that can be used in the second level.
- 4 The fourth level is the “epistemological” level. In this level the sources and kinds of knowledge are questioned that can be used in any inquiring system.
- 5 The fifth level is the “Ethics & Aesthetics” level, which is the highest level of abstraction and contemplates the work as a whole “in a gestalt” in the author’s words.

This is a description of the framework the author conceives the science of management should take place in. This is also the way the author introduces his view. Subsequently he applies this framework throughout the book on many different examples, which are meant to give a feeling of the point of the framework and the way to apply it.

¹ Henceforth I will dispose of the “inquiring system” in the description of the levels.

² “Selection” of a design can, according to the author, also stand for “(hands on) designing” itself, because the process of designing also involves “creating a possibility for selection”.

I will briefly mention one example to convey the general idea (cf. pp. 57-61). It concerns the problem of identifying problems of social security recipients with increasing cost of living. The first level (real world) concerns the recipients of social security and the employed population. This is the level at which actual problems are identified (i.e. what problems do people have). At level two the (federal³) government needs to select a model under which the problem is being treated and solved (i.e. how are the problems solved and how is this organized). The possible solutions are constrained by the particular way government is organized. At level three all kinds of organizations that either have indirect power or have an advisory function play a role (i.e. political and legal advisors, scientists etc.). They try to influence the types of models that can be used to answer the problems (i.e. this level refers to level two and may involve theory formation). Now, the author claims that the next two levels, that of epistemology and ethics & aesthetics are rarely taken into account, neither in practice, nor in theory. This is one thing that he wants to change with this book.

As he describes the epistemological level⁴, it should bring resources from philosophy of science and methods of reasoning in order to evaluate the validity of reasoning processes at lower levels. Especially in chapter nine he argues that the epistemological level is very often neglected and not for the best, he even claims that 'A discipline which neglects its epistemology, risks its own demise'. The epistemological level is, in short, the level that is supposed to ensure that decisions at the lower levels are reasoned through and are sound. Also problems and solutions that may be very easily overseen, due to the myopic perspective of a lower level, could be better identified (and hopefully solved) from the higher epistemological level, together with bringing (interpretative and other) resources in from the philosophy of science to bear on the problem.

This concludes my general description of the argument of the book. The book itself is relatively abstract, despite the many examples, because the central argument of the book is to take into account the epistemological level and the ethics & aesthetics level,

³ The author takes the United States as his example

⁴ I will not go into the ethics & aesthetics level, but most remarks about the epistemological level apply, *mutatis mutandis*, to that level.

which are abstract levels of inquiry. He tries not so much to give a practical toolkit for dealing with problems, but to make the worker in the field aware of an area of relevance to his work about which the manager or scientist him- or herself needs to think about and take into account in dealing with problems of (human) systems engineering.

I conclude this review with some critical remarks about the book. Notwithstanding the interest I have in this topic and, as a philosopher of science, my sympathy for an appeal for attention to epistemology and philosophy of science, I have great reservations about the argument of the book. The main problem concerns the way the author conceives of the hierarchy of levels and I will restrict my remarks to this aspect, since it forms the heart of the argument.

As I said, the argument depends on the hierarchical model discerning five levels of abstraction. It is, however, very doubtful whether the model in its present form can be maintained. This has two reasons. In the first place the placement of a level in the hierarchy is generally arbitrary and in the second place the placement of a particular decision in a level in the hierarchy is arbitrary.

An example of the first type presents itself very soon in Van Gigch's story. As we saw above, he claims that the ethics & aesthetics level is the highest level in the hierarchy and one level below is the epistemological level. The epistemological level is concerned with applicable sources of knowledge and modes of reasoning. They provide partly the methodological tools for the actual scientific work.

(As an aside: Gigch claims that epistemology is concerned "with providing a guarantor for Truth". This is a very strange and dubious claim. He gives no argument nor provides us with evidence for the claim. Certainly no philosopher working in the field of epistemology would endorse this claim; epistemology is not concerned with guaranteeing truth, it is concerned with identifying sources of knowledge and justifications of (defeasible!) knowledge. I suspect the author confuses the correct statement that normally truth is seen as a necessary, but not sufficient, condition for knowledge with the claim he himself makes. This error is telling, though, because throughout the book the author makes unfounded claims like this that are hard to confirm and often very problematic.)

To return to the problem about ‘levels’, the higher level (ethics & aesthetics) is supposed to evaluate the lower level(s), among which the epistemological level: ethics & aesthetics is on a more abstract level of consideration than the other levels. However, we read in the description of this level that one of its tasks is to ‘... identify sources of knowledge ...’ (p. 16). Earlier in the argument, concerning the (lower) epistemological level in the hierarchy we read this its task! Is epistemology now simultaneously on a lower and a higher level of abstraction relative to ethics & aesthetics? This is bizarre, also because the author gives no argument for his particular choice of levels and their placement. He simply states it, but gives no argument. This amounts to a dubious form of arbitrariness.

In fact these troubles are no surprise for the reader who is familiar with the source of this way of introducing levels of abstraction: Bertrand Russell’s theory of types. This theory, as Van Gigch acknowledges, was developed in part to counter linguistic paradoxes, such as the paradox of the liar. However, this view soon came under attack, precisely because there are no general criteria that provide the reason for a statement (or a property in Russell’s theory) to be in the one, rather than in the other level. There are theoretical ways to counter these problems, but they are very complicated and domain dependent. Van Gigch gives no evidence that he sees this problem, let alone counters it.

The second reason that makes the theory of the book very problematic is the way the author deals with the details of the model; this has to do with the way a decision is placed in a level of the hierarchy. Supposing that it is possible to define the levels of abstraction in a non ad-hoc and consistent way, it is still problematic to place a given problem of research within a certain level. Is making a law for social security in a democratic society a question of modelling or meta-modelling? Or is it a practical problem? It seems that this depends very much on your perspective. For a social worker in the field the problem is a relatively abstract problem with regard to the practical problems he or she has at hand. For someone in the legal field, making a law and thinking about its implications may very well be a very practical problem. This is not to deny all differences between types of problems, which may very well be elucidated by introducing a hierarchy of levels, but the author provides very little in the way of giving a

consistent and non-arbitrary way of dealing with these questions. The main answer he gives is: “we need to think about it”, but that is not much. Therefore, in the end the book leaves us with very little content, but only the message, which I sympathise with, that we need to think beyond our normal ways of thinking and involve larger theoretical insights into our day-to-day dealings with practical problems. But I am sceptical about the question whether we need 300+ pages for that one message.

Pages that are, to conclude, very hard to read, due to the horrible type-setting in the book. Continuously *sentences in italics* are ALTERNATED WITH PARTS IN CAPITAL **with sentences in bold** and statements that are normal at *an* extremely **high** rate. The whole function of these typographic means gets lost in the barrage of different letters. This doesn't help the reader very much, to say the least.