management science. Looking more carefully at its content, one can see how new extensions are inserted on the backbone of the classical theory.

Professor Negoiţă is the coauthor of a well-known monograph of fuzzy sets and systems [1] (vol. 11 in the same series). As I know, the main criticism of this well-received book was the lack of practical examples. One reviewer, H. Hamacher [2], in the first issue of the *Journal of Fuzzy Sets and Systems*, notes that only a few exercises and examples of the real world applications are given and therefore the book cannot be considered as a text-book for students, but rather as an extraordinarily good reference book for the scientist.

Although the title is not explicit, in the book under review Negoiţă seems to take into account these remarks in an attempt to illustrate the need for an algebraic theory of fuzzy sets. I will not dwell on the classical structure of this book (three chapters: state space approach, dynamics and behavior, optimal control), in order to comment more on the original contributions.

The author says that many situations in real management can be explained by movements of subjective evaluations. These movements can be described by a state equation, where the state is a fuzzy set. If we want to represent the aggregation of partial evaluation, the state equation can be based on a min operator or on an addition operator. The author considers both these cases, introducing flexible and robust programming techniques. For an evaluation of fuzzy theories for decision-making, the reader is referred to [3] and [4].

In fact, the key point of the fuzzy approach is the lattice structure. The movement in the lattice is exploited to explain the confluence of constraints in fuzzy programming. The author uses the term pullback to describe a synthesis process and suggests that structural stability can be achieved by using partial evaluations. This is an excellent motive which can seduce many scientists to become engaged on the road of fuzzy systems. Structuralism, as method, can easily lead to formalizations. To understand all these subtleties, one must study all of the text, although in the author's paper presented at the 1978 Amsterdam Congress of Cybernetics and Systems [5] the reader could find an excellent abstract of the book.

Finally, two words about the style. Clarity and plausibility take precedence over formal logic, although the author has not hesitated to be rigorous when important fine points are at stake. Everything considered, this is a really good book.

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[5] C. V. Negoiţă, "On fuzzy systems," presented at the 4th Int. Congress of Cybernetics and Systems, Amsterdam, 1978.

Microprocessor: Principles and Applications—A. C. Palit (Calcutta, India: Servonics 9/1, 131 N. S. C. Bose Road, 1978, 376 pp.). *Reviewed by P. K. Sinha Roy, Department of Electronics and Telecommunication Engineering, B. E. College, Howrah-711103, West Bengal, India.*

The book is written exclusively on the 4-bit processor Intel 4004 and its chip-set. The author justifies his choice on grounds that the processor is "cheap, easy to understand, and has a small instruction set." The presentation is systematic and easy to understand. Most of the chapters (from Chapter 4 to Chapter 11) are devoted towards software development and applications.

One more chapter on the general structure of microprocessors would have been helpful. As it is, the book will be quite helpful to beginners; but a few more chapters on an 8-bit processor, such as the Intel 8080, would have made it more useful to a wide class of readers.

Usable Knowledge, Social Science and Social Problem Solving—C. E. Lindblom and D. K. Cohen (New Haven and London: Yale University, 1979, 129 pp., paperback). *Reviewed by John N. Warfield, Department of Electrical Engineering, University of Virginia, Charlottesville, VA 22901.*

In recent years it seems that the only suitable forum for criticism of various professional styles, activities, or paradigms is the book. This one is aimed at social scientists and researchers or, more specifically, practitioners of professional social inquiry (PSI). This book differs from some of the more strident critiques in that it takes a generally constructive and soft approach and thus is more likely to be given serious consideration.

The book is motivated by dissatisfaction with PSI as an instrument of social problem solving. The investigation centers on PSI and its role in social problem solving. The most general prescription is that practitioners should strive to understand better their own professional practice, and it is suggested that one way in which this can be done is to turn the "tools of the trade" to a study of "the trade itself."

Almost 20 percent of the book is taken up by a bibliography that is well-organized to serve as a source for persons who might take up the challenges posed in the book.

The bulk of the text can be thought of as a presentation of the prevailing paradigm of PSI, suggestions for an alternative paradigm (or at least of ways to search for such a paradigm), and examples chosen to illustrate the major points of discussion.

Some of the basic assumptions that appear to underlie much ongoing PSI are questioned. For example, it appears that it is commonplace to try to solve problems using only scientific methods and knowledge, to ignore or fail to legitimize important modes of problem solving, to avoid interaction in the belief that it is necessarily competitive with analysis, and to preclude normative research because incorporation of values works against authoritativeness. Problem solving is confused with problem understanding.

It is argued that it is often possible to substitute action for thought, understanding, and analysis, and that social learning should be given serious exploration and consideration as a means of problem solving. Often interaction can lead to problem solution or resolution even without full understanding of the problem. The inventory of problem solving modes should be enlarged and legitimized, to face up to the fact that ordinary knowledge is often more important than scientific knowledge in problem solving. Analysis and interaction can be complementary to each other. Expression of values can be observed and articulated in relation to issues.

The perceived principal goal of PSI, independent authoritativeness, is severely questioned. Also closure as a goal is regarded dimly. In place of these it is argued that dependent authoritativeness, enlightenment, exploration of social space leading to new articulation of social options and possibilities, reconceptualizations, refinement of ordinary knowledge in useful ways, and skillful articulation of bodies of understanding already current might be considered.

The study of conditions under which the results of PSI may be valuable in spite of divergence is recommended. Also the conditions under which divergence is likely to occur should be studied.

While major enlightenment may be the product of a few seminal minds, at least historically, it is suggested that interaction may be very productive as a way of overcoming individual limitations and that this may lead to new forms of enlightenment.

It is argued that PSI is culture-imprisoned and that new guidelines should be developed for it, as well as interactive processes for solving the problem of what problems PSI should attack and in what ways. If the latter were done, it would also work against a present lack of selectivity in choosing PSI projects, helping to conserve a valuable human resource and to avoid introducing excessive noise in the system.

Finally, it is argued that there is insufficient criterion-based criticism and that there is a need to develop both criteria and incentives for cogent criticisms aimed at strengthening PSI.

One need not be a practitioner of PSI to benefit from reading this book. The criticisms and suggestions apply as well to a variety of professional fields.