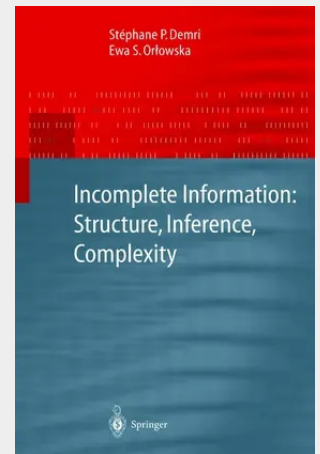


Incomplete Information: Structure, Inference, Complexity

The construction of any broadly understood theory of information or information processing system involves two major methodological processes: (1) abstraction and analysis, (2) reasoning and computing. This monograph is a realisation of these two processes in relation to the study of incompleteness of information. The paradigm we are working with is inspired by a rough-set approach to data analysis: the formalisms we develop enable the use of a non-invasive data representation. This means that the only information which is and must be used in the process of analysis is the actual information that is to be analysed; we do not require any additional sources of information. An abstraction is formed in the process of conception, design, and development of structures. Then analysis leads to a selection of a class of structures. In this book we delineate a class of informational structures that enable us to represent both numerical and non-numerical information and we analyse various manifestations of its incompleteness. We discuss several general types of incompleteness of information which are grounded in a rough-set-style view of imprecision and uncertainty. Manifestations of these types of incompleteness in information systems are investigated.

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