Preface

This book contains papers and essays written over a long time span: from the late 1980s until now. Some of them have so far been available only in Polish, while others were already published in English or have been prepared for this volume. Although the topics addressed are diverse, the essays collected here share a feature: they pertain to problems situated at the intersection of logic (broadly conceived) and analytical philosophy.

The first essay, "Scepticism and Criterion of Truth", is a translation of a paper written in the eighties and published in 1992. In Polish analytical philosophy problems evoked by ancient scepticism always attracted more attention than issues originating in Cartesian or Humean scepticisms, so the paper is somehow outside the mainstream of the debate. Yet, it still seems to provide original insights, in particular concerning the regress problem.

The second essay, "Logic, Empiricism, and Rejection", is a short note pointing out certain far-reaching consequences of making logic vulnerable to empirically-based rejection. The main claim of the essay can be found in my paper published (in Polish) at the beginning of the 1990s. The essay expresses the claim in a modern conceptual setting.

The title of the third essay, "Logic and Sets of Situations", is both telling and slightly misleading. The reader will not learn what situations are. The message is: whatever they are, these are precisely the laws of Classical Propositional Logic that hold in any set of situations, the whole universe of situations included.

The essay "Propositions, Possible Worlds, and Recursion", addresses the issue of reduction of propositions to sets of possible worlds. It is shown that, under some natural assumptions, there always exist *recursive* propositions, i.e. decidable sets of possible worlds, which are not assigned to any sentence of a language, and some consequences of this fact are discussed.

The following essay, "Effectiveness of Question-Answer Systems", provides an explication of the intuitive notion of question-answer system. This

enables a clarification of some computational issues concerning questions and answers. In particular, it is shown that some effective question-answer systems are incomplete in the sense that there exist *recursive* sets of declaratives which do not constitute sets of answers.

Though the issues addressed in the above essay and in the previous one are different, they share the formal structure and are resolved by applying a theorem from Recursion Theory; its proof is presented in Addendum I.

The Logical Omniscience Paradox attracted the attention of logicians for many years. Clearly, epistemic logics ascribing logical omniscience to agents in question are of a limited applicability in philosophical analysis. The essay "Two Logics of Occurrent Belief" presents a system of modal logic, $\Sigma.0$, properly included in the Łukasiewicz modal system **Ł** and thus lacking theorems of the form $\Box A$. The system $\Sigma.0$ is then interpreted as a logic of *occurrent belief*. $\Sigma.0$ is free from the Logical Omniscience Paradox and, in a sense, characterizes the *minimal rationality* of an agent.

The next essay, "Weak Epistemic Logic, Immediate Consequence, and Paraconsistency", considers the system $\Sigma.0$ and its subsystem, labelled $\Sigma.0^{\star}$. Both systems determine non-modal *logics of immediate consequence*; the logic corresponding to $\Sigma.0$ is still not paraconsistent, while the logic determined by $\Sigma.0^{\star}$ is already paraconsistent. The paper contains some repetitions of the material included in the previous one; the idea was to leave both essays self-contained. Addendum II presents the fundamentals of relational semantics for Σ-logics.

According to the so-called erotetic[1] account of explanation, explanations are answers to why-questions. To be more precise, possible answers to why-questions are carriers of potential explanations, and "to explain" is to answer the appropriate why-question, where "to answer" is more than just to perform a speech act. Yet, in many cases it is difficult (and sometimes even impossible) to determine in advance what sentences count as the answers to why-questions. The paper "Erotetic Logic and Explanation by Abnormic Hypotheses" introduces a relativized concept of a possible correct answer to a why-question. The main idea is based on Sylvain Bromberger's proposal. Then a certain procedure of looking for correct answers to why-questions is presented in terms of Inferential Erotetic Logic, that is, a logic that analyses inferences in which questions play the role of conclusions and proposes criteria of validity for these inferences.

The last essay, "Erotetic Logic and Explanation by Specification", addresses similar issues. The idea of explanation by specification was put for-

[1]From Greek 'erotema' which means 'question'. The logic of questions is sometimes called *erotetic logic*.

ward by Theo Kuipers. The essay expresses the idea in an "erotetic" setting: answers to what-questions that correspond to why-questions are regarded as carriers of possible explanations, and the process of arriving at actual explanations is modelled, inter alia, in terms of executing erotetic search scenarios, a conceptual tool recently developed within Inferential Erotetic Logic.