

## Logic, Language and Computation

# APPLIED LOGIC SERIES

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## VOLUME 5

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# Logic, Language and Computation

*edited by*

SEIKI AKAMA

*Computational Logic Laboratory,  
Department of Information Systems,  
Teikyo Heisei University,  
Japan*

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## EDITORIAL PREFACE

The editors of the Applied Logic Series are happy to present to the reader the fifth volume in the series, a collection of papers on Logic, Language and Computation. One very striking feature of the application of logic to language and to computation is that it requires the combination, the integration and the use of many diverse systems and methodologies - all in the same single application. The papers in this volume will give the reader a glimpse into the problems of this active frontier of logic.

The Editors

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## Preface

This is a collection of papers by distinguished researchers on Logic, Linguistics, Philosophy and Computer Science. The aim of this book is to address a broad picture of the recent research on related areas. In particular, the contributions focus on natural language semantics and non-classical logics from different viewpoints.

The editor's paper surveys recent issues in Logic, Language and Computation to serve as an introduction to the book. The papers by Cresswell, Slater, and von Heusinger investigate natural language semantics in the tradition of standard predicate logic. Both Slater and von Heusinger propose to use Hilbert's  $\epsilon$ -calculus as a promising framework for formalizing natural language discourse. Asher's and Nakayama's papers are about *Discourse Representation Theory* (DRT), which is one of the successful theories for discourse semantics.

The remaining papers are concerned with several non-classical logics. Akama's paper provides a constructivist approach to modality based on Nelson's *constructive logic with strong negation* with a Kripke style semantics. Wansing's paper studies sequent calculi for *subintuitionistic logics* which are subsystems of intuitionistic logic by dropping structure rules. Fariñas del Cerro and Lugardon work out a proof-theoretic foundation for *dependence logics* as proposed by R. L. Epstein. Sylvan addresses a relevant approach to conditionals within the framework of *relevant logics* and suggests possible applications in various fields.

I believe that the contributions in this book will give an interesting overview of the recent topics in formal logic and related areas. I wish to thank the contributors and the referees. Finally, I dedicate the book to Prof. Akira Ikeya, who introduced me to formal logic and semantics.

Ichihara

Seiki Akama