Acknowledgments

I would like to express my gratitude to all of the people who supported me and who gave me helpful advice over the course of the years that I have been involved in this work. In particular, I wish to express my genuine appreciation to Professor Shigeru Igarashi of the University of Tsukuba. Since the days I was an undergraduate and graduate student there he has continuously encouraged me and generously guided me to the theoretical and algorithmic part of the research fields in computer science. Without his guidance, this thesis would not have appeared.

I would also like to express my appreciation to the other committee members of my dissertation: Professor Tetsuo Ida, Professor Jiro Tanaka, and Professor Aart Middeldorp of the University of Tsukuba and Professor Masahiko Sato of Kyoto University, for their generous suggestions and guidance.

Special thanks are owed to the members of the Igarashi Lab at the University of Tsukuba, especially Professor Chiharu Hosono, Professor Tetsuya Mizutani, and Professor Maseyuki Shio, for kindly commenting on the summary and draft version of this thesis and for arranging various clerical procedures for my thesis. I also thank Professor Takashi Tsuji, currently with Chiba University, for having encouraged me during my undergraduate and graduate days.

I would also like to acknowledge Professor Hassan Aït-Kaci of Simon Fraser University for giving me valuable advice on ψ-terms and for having accepted me as a one-year visiting researcher at Simon Fraser University, Canada, during 1995-1996.

I would like to express my deep appreciation to Dr. Masahiko Haruno for helpful discussions on inductive learning. I would also like to thank Mr. Yoshihiro Matsuo for providing me various kinds of useful infor-
mation about the ALT-J/E machine translation system. Part of this thesis is based on the studies performed with Dr. Haruno and Mr. Matsuo.

I would also like to express my gratitude to Professor Toru Ishida, currently with Kyoto University. When I started working as a researcher at NTT, he always encouraged me to improve my research ability.

I have completed this thesis at the Intelligent Communication Laboratory (ICL) of NTT Communication Science Laboratories (NTT CS Labs.). I would like to give my appreciation to Dr. Yoh'ichi Tohkura, Director of NTT CS Labs., and Dr. Toshio Kita, Director of the ICL, for providing me the opportunity to complete my thesis here at NTT CS Labs.

I wish to thank my colleagues in the ICL, especially Dr. Tsuneaki Kato, our group leader, and the members of our sub-group: Dr. Hideki Isozaki, Mr. Hirotoshi Taira and Mr. Keiichi Hirota. My appreciation also goes to Dr. Hussein Almuallem, Dr. Shigeo Kaneda, Mr. Takefumi Yamazaki, Mr. Yasuhiro Akiba, Dr. Megumi Ishii and Mr. Takafumi Mukonchi.

I also wish to thank the Mainichi Newspapers Co. for permitting us to use newspaper corpora and the creators of the excellent programming language wild life and the machine translation system ALT-J/E.

Finally, I must thank my wife, Junko, for giving me generous support and understanding in every part of my life, and would also like to extend my gratitude to my parents, Eiichi and Emiko, for all of the long-time support they have to me, visible and invisible.
Bibliography


[58] S. Soderland, D. Fisher, J. Aseltine, W. Lenert, CRYS- 
TAL: Induc-
ing a Conceptual Dictionary, Thirteenth International Joint Con- 
ference on Artificial Intelligence (IJCAI-95), Montreal, pp. 1314– 

[59] S. Soderland, Learning Information Extraction Rules for Semi-
structured and Free Text, Machine Learning, Vol. 34, pp.233–272 
(1999).


[61] A. Srinivasan, S. Muggleton, R.D. King and M.J.E. Sternberg, 
The Predictive Toxicology Evaluation Challenge, Fifteenth Inter-
national Joint Conference on Artificial Intelligence (IJCAI-97), 


[63] G. Robinson, A machine-oriented logic based on the resolution 

[64] T. Yamazaki, M. Pazzani, and C. Merz, Learning Hierarchies from 
Ambiguous Natural Language Data, Twelfth International Con-
ference on Machine Learning (ML-95), Tahoe City, pp. 575–583 

[65] J. M. Zelle and R. J. Mooney, J. B. Konvisser, Combining Top-
down and Bottom-up Methods in Inductive Logic Programming, 
Eleventh International Conference on Machine Learning (ML-94), 
List of Major Publications


