Epistemic modelling and protocol dynamics

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Writing this dissertation is like approximating a fixed point whose existence is not guaranteed at the beginning. At the end of this long journey, the formulas and proofs in this book turn out to carry more meaning for me than their apparent mathematical denotations.¹ Like a glass of wine may let a winegrower recall those sunny or rainy days in the year when the wine was made, the content of this book reminds me of those good or bad days of my Amsterdam life, and most importantly it reminds me how lucky I was for having so many people around who were willing to help and enlighten me. Without them, I would not be able to put my gusts of thought together into a whole picture as it is presented in this book.

I am in debt to my promoter Jan van Eijck who gave me the PhD job, inspired me with many great ideas, and granted me the freedom to do what I wanted. More importantly, he showed me how to live a meaningful and happy life, and let me gradually understand that the pursuit of excellence (no matter what it means) should not be the goal of life in general, since it will lead to a zero-sum game where the unhappiness is guaranteed for most of the players. Thanks to the presence of Jan, Heleen and their lovely twins Gaia and Rosa, I felt so at home that I can mumble my naive thoughts about life whether in Amsterdam or in a no-name lake at a nowhere place in France.

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Ram Ramanujam kindly saved me from turning into a (dynamic) epistemic fundamentalist and guided me to a broader way of thinking which combines computer science, logic, and philosophy together. Various parts of Ram and/or Rohit Parikh’s work were like eye openers for me which also impacted the philosophy of this dissertation a lot.

¹To really understand what I mean here, please turn to Chapter 1: Introduction of this dissertation.
As a former member of the no-longer-existing group of SEN2 at CWI, I thank Jaco van de Pol and Wan Fokkink for their constant encouragements and efforts to interest this stubborn student in process algebra. In particular, Jaco acted as a very helpful daily supervisor until he left CWI in 2007, which did not stop him from sending very detailed comments on my work every now and then. I also would like to thank Erik de Vink, Sjouke Mauw, and Wiebe van der Hoek for their valuable advices on my PhD project.

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Dick de Jongh and Khalil Sima’an fit me in Amsterdam when I started my master at ILLC, where Frank Veltman and Maricarmen Martínez supervised my master thesis later on. The friendship with Floris Roelofsen, Ana Aguilar, Fenrong Liu, Chiaki Ohkura, Ji Ruan, Ka-Wo Chan, Edgar Andrade, and Höskuldur Hlynsson made my master’s life much more colorful than it would have been. Thank you all for kindly encouraging me and preparing me for an academic life.

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After the “successful termination” of SEN2, I moved to SEN1, where Arnold, Bas, Bert, Floor, Jeroen, Jurgen, Mark, Paul, and Tijs helped me to integrate myself in the
group to some extent, which I appreciated so much. In particular I thank Paul Klint for being such a tolerant boss and Mark Hills for kindly proofreading my dissertation. As my office mate and co-author in the past year, Floor Sietsma witnessed my most crazy and productive time at CWI with her lightning speed reasoning (and typing), a variety of candies/nuts, and her cheerful smile, which helped me a lot.

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Before moving to the other part of the acknowledgements, I would like to thank both IPA and ILLC for the support and training during my PhD and also for including this dissertation in both dissertation series.

Despite the mathematical trappings, this dissertation may serve as a disguised photo album for me, which depicts a large part of my (academic) life for the past 6 years. However, there is also a significant part of my life that involves the Chinese community here in Amsterdam, which I have not mentioned yet. I probably need a separate appendix to list my good Chinese friends who helped me in one way or the other. For the sake of relevance and space, I can only mention a few of them who had direct impact on my Amsterdam life and this dissertation.

I would like to thank my friend Zhiwei Zhan for witnessing my Amsterdam life from the very beginning to the very end (and being witnessed by me at the same time). We survived ups and downs and now it is time to head for new phases of life. I thank Mengxiao Wu for the sincere advice in the past 4 years and for being the Chinese representative in my paranimfs. We could have been in the same project but now is even better. I thank Fengkui Ju for being the-best-roommate-ever. Fengkui skilfully turned every dinner into a wonderful exchange of food and philosophical thoughts on logic and life. I thank Zhisheng Huang for his decision theoretical advises at each important moment of my life and efforts in helping me to get a PhD position 4 years ago. I thank Huiye Ma, Bo Gao, Jian Shi, Yiqin Yang and particularly Xiaolong Liu for saving me from being homeless at the end of my PhD period. The motivating examples in the introduction of this dissertation were inspired by a conversation with Guowen Dai, who also inspired me in many other ways. Di Liu and Shaojie Zhou helped in designing the cover of this dissertation, which I like very much. Thank
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I sometimes find myself dry in words (but wet from sweating - an iconic heritage from my father) and this is one of those moments: I am risking not mentioning all the people that I should mention here. Nevertheless, I want to take this chance to express my sincere love to all my close Chinese friends here in the Netherlands, and without loss of generality I suppose you feel the same.

This almost concludes my acknowledgements and my Amsterdam life. Finally, I reserve my deepest gratitude to my parents for their unlimited love, support, and understanding. I shall be around soon!

Yanjing Wang
Amsterdam, July 2010.

\(^2\)Association of Chinese Students and Scholars in the Netherlands, Amsterdam Branch

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