

# Preface

The first presentation ever of my research was on February 2009, Friday the 13th—how scary is that—and was in front of mathematicians in Louvain-la-Neuve—how scary is *that*. Having only a Master’s in Sociology in my pocket I arrived there to apply for a position as a Ph.D. candidate (although, if memory serves me well, that was not entirely clear for everyone). Of course, I was no complete stranger to mathematics, yet not having studied it and still wanting to pursue a Ph.D. in that direction did not quite seem to add up. Fortunately, my advisors Paul Van Dooren and Yurii Nesterov were happy to take me on board. I am grateful to this date that they did so. The leeway they allowed me to pursue my own interest is much appreciated. I have learned a lot from them, and both are impressively (if not intimidatingly) fast when doing mathematics. I was fortunate enough to be funded by the *Actions de recherche concertées, Large Graphs and Networks* of the *Communauté Française de Belgique* and the Belgian Network Dynamical Systems, Control, and Optimization (DYSCO), funded by the Inter-university Attraction Poles Programme, initiated by the Belgian State, Science Policy Office.

My fellow Ph.D. students have also taught me a lot. Not having had the exact same training as most other Ph.D. candidates, I could borrow their expertise in trying to understand something. For some courses I was the designated teaching assistant, without actually ever having taken the course myself, making it somewhat of a challenge. For example, I had to learn integer programming. Before being able to learn integer programming, I had to learn linear programming, which also involved doing the simplex algorithm. If I say I will never forget that, it is probably true, but I would like to never make another simplex tableau again.

Around the time I started, there were a few other students coming in from the private sector: Pierre, François-Xavier, and Arnaud, which reassured me that I was not the only one that had tried the private sector and returned to academia. Throughout the years, Arnaud and I collaborated on various projects, I have enjoyed our cooperation very much. Similarly for Pierre Deville and Adeline Decuyper, it was a pleasure working with you, and good luck organizing NetMob next time around, for which Vincent Blondel was kind enough to invite us last year. Finally, I would like to thank everybody else in the Euler building (too many people to list) for the great atmosphere during coffee breaks and lunch time. I have

enjoyed the conversations in the cafeteria very much, although for the most part I have only listened instead of actually engaging in the discussions.

I would like to thank the other members of the jury, François Glineur, Vincent Blondel, Marco Saerens, and Patrick De Leenheer. Their comments and remarks have greatly improved this thesis. I have had the pleasure to collaborate with Patrick while he was Belgium in 2012. His help was quintessential to the progress on the social balance project, for which I am much obliged.

Many friends and family have come to visit in Brussels, and it was always a pleasure having you. Bas, Hans-Hein, and Mathijs, you have always had that *fingerspitzengefühl* for coming to Brussels. Merijn, despite your busy job, two kids, moving two times, and an entire renovation, you still managed to come to Brussels: so good you could make it. Roel, our discussions on the balcony of the Rue Lebeau were marvellous—as always—I hope to continue many of them in Amsterdam. Many a Sunday morning was spent at the Vossenplein/Place du Jeu de Balle when my family-in-law came over. Fortunately, due to long breakfasts we never arrived that early, you're always welcome for such long breakfasts. From Brussels, I have very much enjoyed climbing with you Tom, I hope to see you still after moving. Frank, our lunches were a pleasant distraction from the daily Ph.D. grind. Many friends go unnamed, but not forgotten: I hope to see you all more often when I am back in Amsterdam. Likewise for my parents, my brother and sister, Ernst and Susan, I hope to see you more often, Marco, Carlijn and Niels included of course. I hold you all very dear. Mom and dad, you have always supported me—both before and during my Ph.D.—I will always be grateful for your care and love.

Finally, somebody that merits a paragraph in its own. The first two years of my Ph.D. our time together largely loomed in the shadow of the loss of your mother. Although such a loss will always leave a void, together I believe we have overcome. After having been parted by over 200 km of rail for over 3 years, we finally spent the last year together in Brussels. It was a bliss to finally live together, and I hope to continue to enjoy your company for many years to come! Lio, you are my true love.

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