Acknowledgements

The writing of this thesis wouldn’t have been possible with the help of many people. First of all I would like to thank my supervisors Mathisca and Klaus. My scientific career started when I walked into the office of Mathisca at the Department of Mathematics, looking for a project for my master thesis. Her collaboration with the Department of Integrative Neurophysiology allowed me to study neurophysiological data, and to continue with this kind of data as a PhD student. I learned a lot from her kind way of collaborating. My passion for science grew exponentially when I met Klaus. First we were both coding in Matlab to crunch the enormous amounts of data. Later on Klaus became my supervisor, and taught me a lot about writing and presenting science. During the beginning of my project Arjen van Ooyen and Arjen Brussaard helped me a lot interpreting the data. I very much appreciate the time they found to listen to my far out abstract mathematical interpretation of the data. I thank Jaap Timmerman, Tim Heistek and Hans Lodder for the enormous amount of experiments they did. I thank all the mice that where sacrificed for this study. Guus Smit, Sabine Spijker and Maarten Loos helped me a lot with the “genetic” part of the story. Aad van der Vaart and Mark van de Wiel advised me on mathematical issues. I thank the reading committee for reading my thesis and attending to my defense.

In the first three years of my project I had my office at the Department of Mathematics. I have good memories of our daily lunches and conversations with Geert, Willem, Ismael, Wessel, Marianne and Fetsje. Rikkert his work was most closely related to mine, but we also became friends, and still try to figure out what consciousness is. It's all in the mind.

The last year of my project I was situated at the Department of Integrative Neurophysiology. I thank Huibert Mansvelder and his lab members for their hospitality and interesting weekly lab meetings and journal clubs. Thanks Simon for the courageous effort to co-develop a Matlab toolbox with me, thanks Alexander for being our first involuntary user.

I thank my parents for their unconditional nonjudgmental support in whatever I do.