

Preface

Neither Finland nor Sweden qualified for the 2010 Football World Cup in South Africa. Wouldn't that have been the case, you might not hold this book in your hands. With Finland vs. Sweden in the finals, our excitement would have been elsewhere than in science. At this time, at a workshop organized by Pieter Trapman, Tom Britton and Fredrik Liljeros of Stockholm University in the quaint Swedish seaside town Öregrund, we started discussing temporal networks. A month earlier, we had both within days put e-prints on the arXiv with intriguing results—"Small but slow world" by Saramäki et al. and "Simulated epidemics in an empirical spatiotemporal network of 50,185 sexual contacts" by Holme et al. In those papers, we used the same randomization technique, independently of each other, to discover that the temporal structures of two different datasets responded differently to spreading processes. In Saramäki's mobile phone communication data, randomization sped up spreading; in Holme's data from sexual encounters in prostitution, randomization slowed down spreading. While our beer-fueled discussion did not solve that question, we agreed that it was a good time to write a review paper on temporal networks. After about a year of off-and-on writing, we had a manuscript to submit to *Physics Reports*. About the same time, we both met at the European Conference on Complex Systems in Vienna and came up with the idea of this book volume as a follow-up to the review paper. Luckily Christian Caron, the editor-in-chief of Springer's Complexity series, was also at the conference and with his encouragement we moved on, gathering material to the book.

Temporal networks is a growing subfield of network science, probably with most of its discoveries still ahead in the future. As an example, we still don't have the answer to the question that sparked our collaboration—what are the conditions for temporal network structure to speed up spreading? However, we do know much more. This volume gathers 17 chapters and much new knowledge, many new methods and observations. We are very grateful to the authors and their contributions, all meeting our high expectations and most submitted by the deadlines. Last but not least, we want to thank our families. Fate or coincidence, during the making of this book we both got married and provided the future generation of network scientists (or football players, who knows) with two baby

boys: Jari's & Kaarina's son Paavo was born in August 2012 and Petter's & Hyunok's son Minu was born in February 2013.

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