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The structure and dynamics of scholarly networks between the Dutch Republic and the Grand Duchy of Tuscany in the 17th century

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Conclusion

This study has shown that we can rethink the relations between the Dutch Republic and the Grand Duchy of Tuscany as an historical venue of networking activity. Taken together, the various case studies throughout this work have illustrated the fundamental relationship between of increasingly networked world for conveying people and objects from one place to another, across various kinds of borders. Each interaction, shaped as it was by religious conversions, secrecy, trust, distrust, rivalry, friendship and lack of cooperation, played an important role in the shaping of the scholarly network as a whole. That network in turn provided the conditions for exchange, information flow, and growth over larger stretches of time and place. To analyze these networks, this study has demonstrated how formal methods derived from social network analysis can be fruitfully applied to selected bodies of historical data, with the result that the concept of network is no longer a mere metaphor but is the subject of a historical research method in itself.

The ongoing digitization of primary sources and the proliferation of born-digital documents increasingly changed our interactions with research material. I have argued in this study not for wholly replacing close reading in historical research, but, rather, for complementing it with explorations of data through models of statistical analysis or multimodal networks. This mixed use of qualitative and quantitative methods, coined by me as disclose reading, is particularly important in the historical field where data is often parse, incomplete and fragmented.

Moreover, we have seen that the systematic analysis of epistolary networks (i.e. the distant reading quantitative patterns supported by the close reading of letters) enables us to observe in more detail how Dutch and Italian scholars managed their epistolary relationships and to what end. We have seen that they self-consciously enacted their networks, moving between dense and brokerage networks and struggled to find a balance between these two. This somehow enabled us to provide blueprints of the academic career of scholars showing the precise moments when they strived for closure or openness in their network. On the one hand, scholars needed a network of densely connected contacts to guarantee that their network was secure and trustworthy. A secure network of trusted contacts allowed individuals to exchange confidences and secrets. Moreover, Dutch scholars brought with them many letters of introductions and book-gifts to get into contact with leading scholars abroad. These letters and books often emphasized their connections to mutual contacts who vouched for their scholarly merit and credibility. The sharing of mutual contacts was certainly reassuring, providing benefactors a reason to trust a ‘stranger’.¹⁰⁵⁰ This was especially needed in a time of religious disunity, when scholars needed to present themselves as credible scholars, as “eretici dottissimi” in the words of Magliabechi, even if they held a different faith. On the other hand, they had to move outside their own circle of trust in order to collect innovative information from around the world. As the network gradually evolved, they opened their network to other minds and realized that they did not want to define themselves as belonging to one local group. In fact, beyond these local and dense circles of learning, stretched out the Republic of Letters. To do so, scholars needed to navigate their way through the network. This navigation requires, in the analysis of the network, to find the structural holes between parts of the network that interact very little with each other. Consequently, increasing their brokerage role in the network enabled scholars to have access to innovative information and to bring people together “from opposite sides of the hole”. They could either broker contacts, but also isolate contacts, fulfilling as such a gatekeeping role in the

¹⁰⁵⁰ About this argument, see Russell Hardin, *Trust & Trustworthiness* (New York: Russell Sage Foundation, 2002), 14-23.

network. Network metrics help us to understand how these instances of prudence and the desire for knowledge alternately combined and clashed throughout the scholarly network.

Negative ties, such as hatred and jealousy, contributed to serious tensions in a variety of social contexts. They could ruin collaborations, harm reputations, decrease performance and induce conflicts in the scholarly network. In chapter 5 we questioned and introduced an alternative approach to the continuing representation of the relations between scholars in purely positive terms in the growing literature on networks in the Republic of Letters. Collaborations, friendship and memberships are commonly interpreted as the edges of the network. By using the methods derived from structural balance theory we challenged this one-dimensional, positive approach and explored as well the nature, dynamics and impact of negative relations in the early modern epistolary network between the Dutch Republic and the Grand Duchy of Tuscany. Specifically, chapter 5 has underlined that negative relationships in the network form different structures than positive relations, and are therefore indispensable if one wishes to understand how the networks of the Republic of Letters took shape over time. In addition, negative relations dictated the choices people had to make in the formation of their relationships: they sometimes had to take sides or to mediate. We have also seen that, despite the relative rarity of negative edges, they are more likely to drive attitudes and behavior, as compared to the more frequently observed positive ties.

A distant reading approach allowed me to model the structural changes in the network caused by balance and unbalanced triads and its impact on the developments of the topological structure of the network. This distant reading approach enabled me to identify patterns that required localized attention and close reading. Consequently, a close reading of the correspondence of Antonio Magliabechi confirmed that he indeed was continuously seeking to find a balance in his network, trying to correct irregularities in his relationships. Sometimes he had to do this secretly, by finding a detour that allowed him to stay in contact with the foes of his correspondents, while, at other times, he openly spoke out in defense of his friends, with the risk of losing important contacts in his network. The bird's-eye view of quantitative analysis performed in this chapter sheds light on these dynamics, and worked in tandem with the equally necessary close-reading approach to provide a more comprehensive insight of the conflict and reconciliations in the scholarly network as well as suggestions for further research.

Because of the hybrid nature of epistolary networks and the lack of earlier studies that are undertaken to represent this complexity, in this study I proposed an explorative approach to deal with multiple kinds of data. In studying the networks that held the Republic of Letters together, we are often confronted with situations in which multimodality can be useful. The Republic of Letters was not a single community that merely consisted of scholars writing letters to each other, but constituted a dynamic society in which all kinds of objects were exchanged. Amongst these objects, early modern scholarly correspondence revolved mostly around books. Books dominated the content of letters in the shape of literary reports that informed scholars about the most recent publications, debates and works-in-progress. These reports gave rise to a typical power-law distribution, telling us that Magliabechi's *modus operandi* reveals a very sophisticated system for gathering information from a powerful social network and sharing it with the learned community at large. The numerous bibliographical references in Magliabechi's letters coexist with a vast majority of book-hubs that carry most of the action. These book-hubs kept the conversations and discussions going and flowing in the network, making the letter an irreplaceable medium even after the arrival of the literary journal in the late seventeenth century.

Book-citations offer the possibility to map the scholarly field by providing measures of proximity between books and authors, the frequency of their presence in different letters as well as their position in the epistolary network. Such an analysis shows that books were not only a source of information, but actively participated – had agency- within the structure of the epistolary network. We came across several

case-studies in which I have illustrated that through books, individuals were able to establish, strengthen, and encourage networks. These network dynamics find their ultimate expression in book dedications and gifts. Vice versa, books could also impede and endanger networks when they were published out of revenge. Moreover, controversial publications could put relationships and reputations at risk. Furthermore, multimodal networks do not only capture the interactions between books and letters in context, they also enable us to explore the different networks in which Magliabechi was operating. On the one hand, he needed to follow the idea of reciprocal exchange and the equity of relations as defined by the Republic of Letters, while, on the other hand, he had to deal with the hierarchical relations of the State and Church. These dynamics are difficult to analyze in a unimodal network. The visualizations and observations taken together demonstrated not only what we can discover about epistolary networks, but also, more generally, how social network theory can transform the way we interact with historical data and questions. In particular, an approach to organize and design one's dataset, which allows us at the same time to interact with incomplete and uncertain data, is useful to structure our thoughts, improve the decision and hypothesis making process. Multimodality enhances the interoperability of historical data, allowing us to explore networks from multiple configurations and changing perspectives. This interactive building of hybrid network mediates between traditional research and digital technology, between close and distant reading. The next step could be to statistically model these networks, and so be able to pursue new research questions by integrating an even broader wealth of historical data. This remains, however, for future research.¹⁰⁵¹

¹⁰⁵¹ As noted earlier, the research project “The Sphere. Knowledge System Evolution and the Shared Scientific Identity in Europe” of the Max Planck Institute for the History of Science (MPIWG) in Berlin is currently developing a model to analyze multilevel networks to explain from a social and historical perspective how knowledge and ideas transform over time. In addition, the research project BLIZAAR - Hybrid Visualization of Dynamic Multilayer Graphs launched in January 2019 a call for historians who wish to explore their data by means of Intergraph, a visual analytics tool to explore multilayer graphs, ‘BLIZAAR’, accessed 22 January 2019, <http://blizaar.list.lu/doku.php>.