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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CHAPTER 4
The Grand Duchy of Tuscany and the Dutch Republic: a network-based approach

INTRODUCTION
The aim of this chapter is to look at the stories detailed in the previous chapters from another perspective, moving from a more qualitative perspective to a quantitative analysis that provides a statistical examination of the scholarly network and its potential impact on the exchange between the Grand Duchy of Tuscany and the Dutch Republic. This comparative analysis allows for a sharper focus on the differences and similarities these approaches share on how early modern scholars capitalized on opportunities in the social structure to which they were connected. Specifically, this chapter uses mathematical and computational techniques developed by social network scientists to reconstruct and analyze the social organization of the relations between the two respective societies during the reign of Cosimo III. Specifically, by data-mining two heterogeneous, but complementary datasets, a unified, systematized network representation has been created to better understand the way the scholars between these two societies were connected. This network has been further enriched with archival transcriptions of letters extent in various library and archival collections of the Netherlands, Germany and Italy, as well as with early printed correspondences.

What makes the statistical analysis of the social relations between early modern scholars indispensable nowadays? More and more libraries, archives and research institutions across Europe have started to digitalize their epistolary collections and catalogues, creating easily accessible online repositories and databases of early modern correspondence. In recent years, historians have increasingly sought to develop and use visualization tools and methods for making sense of patterns in the sets of data contained in these repositories. Thanks to these developments, argues Yves Gingras, “we can now replace a purely metaphoric use of terms like “network” with a visible map of the intellectual relations between people”.

Moreover, well-defined calculations of the centrality of the positions of different actors in the network can be made. In light of this, numerous statements regarding the Republic of Letters, which are based on case studies that are often taken at face value, can be further substantiated. Anne Goldgar, for example, claimed that the “members of the Republic of Letters used social techniques to draw closer together”, Paul Dibon argued that the early modern scholar was “bound to widen the range of his correspondence and bring new citizens into the circle” and Christiane Berkvens-Stevelink stated that “personnages appliquent une stratégie de transmission culturelle”.

Similarly, Maria Boas Hall has pointed out that the early modern scholar understood “the advantage, indeed the necessity, of instigating and maintaining exchange of letters with learned men in strategic parts of the world”, while Harold J. Cook and David Lux suggested that “travel, more than any other activity, established the weak ties by which knowledge

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525 Yves Gingras, ‘Mapping the Structure of the Intellectual Field Using Citation and Co-Citation Analysis of Correspondences’, 330
526 Ibidem, 339.
could be exchanged”. The digital turn of the last two decades presents us with the unique opportunity to chart these classic statements, and to find structural patterns in a way that would be impossible from a close reading of the source itself. In this chapter, a set of principles will be discussed to capture the dynamics of these statements that goes beyond their metaphorical use.

How does one’s position in the network affects power? The term power has become immensely popular across the social sciences of the last decade. It has been studied primarily to understand to what extent power is a property of the individual or rather a property of network structure. Is someone particularly powerful because of his intelligence or wealth, or because he holds a crucial position in the underlying network organization? Richard Emerson tackled this question and argued that power is a property of the social relations and not an attribute of the actor. According to him, “personal traits, skills or possessions (such as wealth) which might be relevant to power in one relation, are infinitely variable across the set of possible relations, and hence have no place in general theory.” Following this line of thinking, we should, therefore, study the properties of the network to assess the importance of an individual rather than focus on his biography. Hence, by focusing on collectivity rather than individuality and on comprehensive structures rather than single biographies we might actually provide a more complete understanding of the scholarly exchange between the Dutch Republic and the Grand Duchy of Tuscany.

The following paragraphs turn from issues of data modelling and collection to structural measurement and analysis of the relationships between the Dutch Republic and the Grand Duchy of Tuscany and are structured as follows: the first paragraph provides an assessment of the state of the field, with a special emphasis on the use of network analysis that has influenced the ideas of the present research. In the second paragraph, we will take look at the potential of databases to generate histories. In the past years, a lot of data has been made online available. These data can be used in more sophisticated ways than just making use of them as an ordinary catalogue to query for results. Nevertheless, the step towards transforming these datasets into a model or network that we can use to run algorithms on, have been often overlooked, a black box that is often left unexplored. Therefore, in the second paragraph, a detailed account of the data contained in this study will be presented. Following that, we will address the question whether the scarcity of these data is sufficient to establish testable quantitative hypotheses. I prove that the answer is yes, and I will give explicit examples to show that the early modern network follows strict and generic laws that can be universally tested. I will then discuss some of the fundamental dynamics that take place in the network, focusing on the essential role of network closure and brokerage in the evolution of the relationships between the Dutch Republic and the Grand Duchy of Tuscany.

1. NETWORKS EVERYWHERE: STATE OF THE FIELD

One can choose from a whole range of tools and analyze the properties of networks. Yet, as Mark Newman remembers us, “certainly not all of them will give useful results – which measurements or calculations are useful for a particular system depends on what the system does and on what specific questions you are trying to answer about it”. What are the most common used network approaches in historical studies? What are the kind of questions historians approach with network science? In this

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paragraph, several studies will be presented to address these type of questions. A special emphasis will be given to those studies that have influenced the present research.

First and foremost, this study draws heavily on the work carried out by Ruth Ahnert and Sebastian Ahnert. They have pioneered the application of network analysis tools to early modern sources, using quantitative network analysis to analyze the protestant networks that operated in England during the reign of Catholic Queen Mary I (1516-1558). Based on metadata extracted from 289 letters written by or either received from Protestants living in England between 1553 and 1559, they demonstrated that, despite the systematic executions of Protestants, it was impossible to restore the Catholic faith. The Protestant religion persisted for the disappearance of key figures did not affect and fragment the protestant network, whose infrastructural backbone was held together by few well-connected figures that continued the flow of ideas. Through the analysis of hubs, eigenvector centrality and betweenness, they were able to shed light on the characteristics and identity of the infrastructural figures that had made the Protestant church so robust.

Network analysis is often used with the explicit aim to re-evaluate the importance of forgotten figures. Evan Bourke, for instance, has used a computational approach to show how integral female members were to the information flow in the Hartlib circle, an intellectual correspondence network formed in London during the 1640s. Drawing on a network corpus of 1708 letters, his results revealed that women such as Dorothy Moore Dury (c. 1613-1664) and Katherine Jones were integral elements of the Hartlib Circle’s core, while they have been largely overlooked in most scholarship on the Hartlib Circle. Similarly, Matthew D. Lincoln used network analysis to infer historical print production networks “from two large databases of existing prints in order to characterize whether and how centralization of printmaking networks changed over the course of this period, and how these changes may have influenced individual printmakers.” This enabled him to highlight neglected artists like Jonas Suyderhoef, who has “played a far more important role in disseminating images through reproduction than has previously been acknowledged”.

It is also worth mentioning the work of Yves Gingras, who discussed the importance of co-citations to map the evolutions of cited persons in correspondence network. Co-citations appear when two persons are mentioned together in the same letter; if the number of these co-citations is high, that is if they are cited together in many letters, it suggests that there is a strong link between these persons. Using the case of Mersenne, Oldenburg and Darwin, Gingras showed in a concrete manner how a database could be “constructed and used in conjunction with techniques of bibliometric and social network analysis to visualize the evolving conversations involving the many thousands of persons mentioned in their letters”. This method provides, according to Gingras, “a global representation of the evolving conversation going on in the Republic of Letters and in intellectual and scientific fields”.

532 Ibidem, 153.
535 A glossary of these network concepts is provided at the beginning of this study.
537 Ibidem, 153.
539 Ibidem, 153.
540 Yves Gingras, ‘Mapping the Structure of the Intellectual Field Using Citation and Co-Citation Analysis of Correspondences’, 338
541 Ibidem, 330.
Originally, this analysis was used in the social sciences for identifying co-authorship in scientific papers in a specific research domain. In this case, a co-citation would appear if two references or authors appear in the same bibliography, identifying as such the existence of “invisible colleagues”.

Though not using data coming from early modern correspondence, the following research is worth mentioning here not only because it is a classic contribution to network analysis but, in accordance with the present study, it places the Medici family in the foreground. In 1993, John F. Padgett and Christopher K. Ansell collected data on nine types of relations among elite Florentine families in the fifteenth century, including intermarriage ties, patronage relationships, trading and business ties, and friendships. On the basis of these data, they showed how the Medici family used economic ties to secure political support from geographically neighboring families, and used marriage and friendship with more distant families to maintain their status. As such, Cosimo I de’ Medici (1519-1574), the first Grand Duke of Tuscany, harnessed the power of the network to his advantage by isolating all Florentine families from one another and acting as the vital and only connection between them. “Cosimo did not create the Medici Party”, argued Padgett and Ansell, “but he did shrewdly learn the rules of the networks around him”.

The significance of networks has been emphasized most prominently in the broader field of research on the Republic of Letters because it lends itself perfectly for getting to an abstract level for conceptualizing data structures and flow between its components. The Republic of Letters has been described as an early modern network of the learned whose connections transcended confessional and geographical boundaries. People became part of this community by the very act of writing letters, which formed the actual link between the ‘citizens’. In fact, those who failed or refused to establish sustained lines of communication, could not be reckoned as citizens of the Republic of Letters. This description of the Republic of Letters offers itself very naturally to network analysis because it is relational in character. It implies the existence of individuals (nodes) connected to one another by letters (edges). It is therefore not by chance, as Daniel Stolzenberg has pointed out, that the historian’s interest in the early modern concept of the Republic of Letters has grown in tandem with interest in social networks.

Indeed, in the past decade, early modern historiography has seen a proliferation of digital network projects that have started to map sections of the Republic of Letters. Within this relatively small field, the best-known projects – including Six Degrees of Francis Bacon of the Carnegie Mellon University, Mapping the Republic of Letters of Stanford University, Circulation of Knowledge/epistolarium of the Huygens Institute in Amsterdam and Cultures of Knowledge of Oxford University – all focus on connections between early modern scholars. The epistolarium tool enables the user to visualize not only the traditional correspondence networks, but also co-citation networks. In this, the project builds further on the work of Yves Gingras who, as noted earlier, demonstrated the importance of co-citations to map the evolution of cited persons in early modern correspondence networks.

The aim of the Six Degrees of Francis Bacon project is to reconstruct the social network of early modern Britain from the sixteenth until the eighteenth century. For this purpose, natural language processing tools were used to capture relationships between scholars via co-mentions within biographies.

\[540\] Padgett and Ansell, 1310.
extracted from the *Oxford Dictionary of National Biography* (ODNB). Two people that are “mentioned together in numerous biographies is highly suggestive of the possibility that those two people may have come into contact with one another”. The project is inspired by the popular trivia game *The Six degrees of Kevin Bacon* which was developed in the 1990s by three students who observed that every actor in Hollywood could be connected to Kevin Bacon with only a few links. In other words, it was a game of finding shortest paths from Kevin Bacon to any other actor. The *Six Degrees of Kevin Bacon* game follows the concept of “six degrees of separation”, the theory that anybody in the world is not more than six relationship away from any other person in the world. In 1967, the theory was devised by the sociologist Stanley Milgram, who named the phenomenon “the small world problem”. Milgram randomly selected people in the Midwest to send packages to two strangers, one residing in Massachusetts and one in Boston. The sender only knew the recipient’s name, his or her occupation and a general location. Milgram instructed the sender to send the package to a person he knew and who was most likely to know the recipient personally. It appears that it took on average between five and seven intermediaries for each package to be delivered successfully. The idea of the small-world will often come up throughout this chapter.

### 2. MINING DATASETS FOR HISTORICAL RESEARCH

To analyze the epistolary network between the Grand Duchy of Tuscany and the Dutch Republic, the archival documents must first be turned into meta-data. Metadata are the item-level descriptions of correspondence that contain basic descriptions of the archival source such as names of the sender and the recipient, the date of the letters, the number of letters exchanged, and the place of sending and reception. Two ways of extracting metadata are used in this study to reconstruct the epistolary network. The first is data-mining. One of the key drivers of this research, but of the Digital Humanities field in general, is the availability of large digital repositories within many areas of the Humanities. Research libraries and online repositories across the world possess ever more data relevant to our field of study. This availability prompts us to challenge the potential of these data for humanistic inquiry. Indeed, these repositories offer the prospect of applying computational visualizations that enables us to handle a large amount of data that traditional research fails to do. These data are subsequently enriched with archival research. In many cases, a correspondence in question has not been systematically digitized. This is for example the case with the correspondence of secretary Apollonio Bassetti extent in the State Archive of Florence. These data are manually created through the reading of his correspondence in loco sent between him and his correspondents in the Low Countries and recording the identities of the recipients and the characteristics of the correspondence (date, place, number of letters). The reconstruction of the network that is analyzed in this study required thus a combination of archival work and computational analysis.

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546 I used the six *filze* labelled ‘Fiandra ed Olanda’ in the Fondo Mediceo del Principato of the Florentine State Archive (n. 4260, 4261, 4262, 4263, 4264, 4265). The spine of the *filze* reads the monogram CAB which stands for Canonico Apollonio Bassetti. The exceptionally rich series consists of hundreds of letters between Bassetti and the Dutch Republic from 1666 until 1699. Besides letters, the documents include numerous newsletters, bills, reports on negotiations, price lists and freight lists of the Dutch East India company. As such, 68 contacts of Bassetti were included into his ego-network. These correspondences include the names of Cosimo’s subjects living in Amsterdam, including, amongst all, the merchants, Francesco Feroni, Giovacchino Guasconi, Giovanni da Verrazzano and Giacinto del Vigna. This network was further increased by a number of Italian travelers to the Dutch Republic, like Lorenzo Magalotti and Pietro Guerrini. Bassetti had a number of Dutch informers as well, of whom the most important were Nicolaas Heinsius and Pieter Blaeu.
2.1. MINING MAGLIABECHI

The data for this study have been drawn from the card catalogue of the Biblioteca Nazionale Centrale di Firenze (hereafter called CCF). The CCF, compiled in the nineteenth century, captures on one index card per correspondence the basic metadata for a large portion of the holdings of the National Library of Florence, including the names of the sender and the recipient, the year, the shelf mark required for retrieval, the number of letters exchanged and the location it was sent from. The card catalogue has been digitized in 2013 and is nowadays publicly consultable through the website of the Central Institute for the Union Catalogue of Italian Libraries and Bibliographic Information. This catalogue is amenable to computational processing. A considerable part of the CCF consists of the metadata of the letters that were sent to Antonio Magliabechi. Upon his death in 1714, Magliabechi left his entire collection of around 30,000 printed books and his entire correspondence to the people of the city of Florence. This donation led to the foundation of Florence’s first public library, the Magliabechiana, which forms the central core of today’s National Library of Florence.

The first step was the transformation of the card catalogue into structured data ready for analysis. With the help of standardized script that can parse an html file into a csv format, the data contained in the card catalogue has been transformed into a csv file, which is a format ready for network analysis. Specifically, Python script (the algorithms contained in the Beautiful Soup library) has helped me to pull particular content from the online card catalogue, remove the HTML mark-up, and save the information. After data-extraction and thorough cleaning, the network includes 2,134 connections between Magliabechi and his first-degree correspondents. These data have been complemented with archival research and secondary material that gave rise to a network featuring 2,262 correspondents (see figure 4). The resulting network is Magliabechi’s ego-network and, because the major part of the correspondence is dated, it can be visualized over time. In the case the correspondence was not dated, the years of the beginning of Magliabechi’s correspondence (1654) and the death of Magliabechi (1714) has been applied.

548 I would like to thank Matthew L. Lavin from the University of Pittsburgh for helping me with this script.
549 I have primarily consulted the monumental work of Manuela Doni Garfagnini, who has curated an inventory of letters to Magliabechi preserved in the Biblioteca Nazionale di Firenze, see Lettere e carte Magliabechi. Inventario cronologico (Rome: Istituto Storico Italiano per l’Età Moderna e Contemporanea, 1988); Lettere e carte Magliabechi. Regesto, 2 vols. (Rome: Istituto Storico Italiano per l’Età moderna e contemporanea, 1981). Her inventory comprises 22,173 letters written to Magliabechi, linked to 2,262 correspondents. There is thus a slight discrepancy in the number of correspondents used in this study (2,244) and the ones recorded by Doni Garfagnani. This difference can be explained by the fact that in this study unknown addressees as well as unidentified sigles listed by Doni Garfagnani as “A.P.”, “C.D.”, “C.P. frate” have been omitted.
Magliabechi’s vast correspondence is one of the richest letter collections in Europe that has come down to us. The number far exceeds other letter-collections in Europe, including the correspondence of Gottfried Wilhelm Leibniz (1100 correspondents), Johannes Fredericus Gronovius (565), Lodovico Antonio Muratori (2,052), Nicolas-Claude Fabri de Peiresc (793) and Hugo Grotius (396). Even Magliabechi lost sight of the bulk of letters he received every day. This is apparent from the many references he made in his writings. In a letter from the 25th of January 1706, Magliabechi confessed to Jacob Gronovius that he was unable to find his latest letter “nel caos dei miei fogli” and because of this, he did not remember to whom he had to give his latest edition of Aulus Gellius. Then again, in 1702,

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551 Magliabechi to J. Gronovius, 25 January 1706, LMU, Cod 4° Cod. Msc 777, f. 109, “Non ritrovo, nel caos dei miei fogli, l’ultima lettera di V.S. Ill.ma, e non mi sovviene per l’appunto, come Ella mi ordinasse, che io disponessi, di questi sei esemplari, del suo Aulo Gellio”. Translation: I cannot recover, within the chaos of my papers, the latest letter of Your Illustrious Lordship, and I do not remember precisely to whom, as you ordered me, I have to provide the six exemplars of your Aulus Gellius”.

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Fig. 4 Ego-network of Antonio Magliabechi (in the center of the visualization). The black nodes correspond to a correspondence of which the date is known, while the grey nodes represent an undated correspondence. Network created with Gephi.
Magliabechi could not find a letter of the Dutch merchant Daniel Cousson because he did not know “dove nel caos de' miei fogli l’abbia messa”.\footnote{Magliabechi to J. Gronovius, 25 January 1706, LMU, Cod 4° Cod. Msc 778, f. 9, “La Lettera del suddetto signore Cosson, io non l’ho a mano, e non so dove nel caos de’ miei fogli l’abbia messa”. Translation: the letter of the said Cousson I do not have at hand, and I do not know where I have left it in the chaos of my papers”.
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On the basis of the letters which have survived, the Dutch Republic has outweighed the number of foreign correspondents (see table 1). If one looks at the developments in Magliabechi’s epistolary activity, one can note that the number of letters written to Magliabechi is considerably higher than that of the letters he wrote himself. To a large extent, this dissimilarity is due to the fact that, while the letters written to Magliabechi are all concentrated in the collections of the National Library of Florence, the letters written by Magliabechi are scattered in various libraries and archives throughout Europe. 599 letters written by the Dutch are extent in the National Library of Florence, while, until now, I have identified 395 letters written by Magliabechi to his correspondents living in the Dutch Republic (see Appendix 1).

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|}
\hline
& Total number of letters to Magliabechi & Letters to Magliabechi & Letters from Magliabechi \\
\hline
1657 & & & \\
1659 & & & \\
1661 & & & \\
1663 & & & \\
1665 & & & \\
1667 & & & \\
1669 & & & \\
1671 & & & \\
1673 & & & \\
1675 & & & \\
1677 & & & \\
1679 & & & \\
1681 & & & \\
1683 & & & \\
1685 & & & \\
1687 & & & \\
1689 & & & \\
1691 & & & \\
1693 & & & \\
1695 & & & \\
1697 & & & \\
1699 & & & \\
1701 & & & \\
1703 & & & \\
1705 & & & \\
1707 & & & \\
1709 & & & \\
1711 & & & \\
1713 & & & \\
\hline
\end{tabular}
\caption{The total number of letters (represented in blue) takes into account the entire pan-European and Italian correspondence of Magliabechi. The orange bars regards the number of letters sent by Magliabechi’s correspondents in the Dutch Republic, while the grey bars considers Magliabechi’s letters to his correspondents in the Dutch Republic.}
\end{table}

2.2. MINING THE CATALOGUS EPISTULARUM NEERLANDICARUM

Network analysis is based on more than two mutually linked nodes. This means that the next step is to expand the ego-perspective of Magliabechi’s network to the analysis of networks build up in basic units of least three mutually linked nodes, so called triads. To do so, the Catalogus Epistularum Neerlandicarum

\footnotetext[552]{Magliabechi to J. Gronovius, 25 January 1706, LMU, Cod 4° Cod. Msc 778, f. 9, “La Lettera del suddetto signore Cosson, io non l’ho a mano, e non so dove nel caos de’ miei fogli l’abbia messa”. Translation: the letter of the said Cousson I do not have at hand, and I do not know where I have left it in the chaos of my papers”.
}
(CEN) was used to contextualize Magliabechi’s network and explore its significance in the Dutch scholarly community. The CEN is a Dutch national database that is only accessible from within the Netherlands for members of affiliated institutions or via local terminals. The collection consists of circa 500,000 metadata of single letters and parts of correspondence from 1500 to present held at several Dutch institutions, among which are the National Library of the Netherlands and the University libraries of Leiden, Utrecht, Groningen and Amsterdam. In total, the CEN provides information about more than 2 million letters, whereof circa 50.000 are written before 1800. The Royal Dutch Library kindly provided me with access to the XML files of the *Catalogus Epistularum Neerlandicarum* for this study, which allowed me to crawl the records looking for letters written between 1650 and 1714. I extracted the following information by using the same method I used for the CCF: name of sender, name of recipient, date and place of writing. This information provided me with a series of nodes and edges (the senders and the recipients) that formed the foundation of the network. Naturally, this process required a lot of ‘data-cleaning’. Datasets that are pulled from online archives often contain inconsistencies and mistakes, which is an outstanding problem in the digital humanities research, and is commonly referred to as ‘dirty data’. Disambiguation was needed to eradicate spelling variations and entries like “Monday evening” needed to be filtered out. After this cleaning process, a network consisting of 10.211 correspondences was created.

Consequently, the CEN and the CCF were combined to compute the overlap in data between every correspondent present in the two datasets. The resulting network consists of 11.871 edges connecting 11.171 nodes. Initially, the graph consists of one giant connected component, meaning that the network is dominated by a significant fraction of nodes that are all connected to each other, and several free-standing groups and nodes. This is a structure that is common to large, complex networks. From the perspective of network analysis, however, the large number of isolated groups distort the data significantly. Therefore, all isolates have been filtered out and the result is a more compact and more easily legible network that contains 10.226 edges and 8.230 nodes. As a result, the ego-network of Magliabechi expanded from its Italian origins to become a highly significant connected network in the Dutch Republic, allowing us to monitoring up to his fourth-degree connections in the Dutch Republic (see figure 5).

One of the most important questions which concerns historians is whether quantitative methods should be used in history. Indeed, the biased, ambiguous and incomplete nature of historical data have often undermined quantitative approaches within history. For example, Jeanine de Landtsheer and Henk J. M. Nellen have argued that the contingency of the transmission of early modern letters weakens the trustworthiness of quantitative approaches. Are the data of the present study fit to network analysis using methods of network science? If they are, the claims of qualitative research based on extrapolations of interpretation using small data sets could be put to test.

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3. POWER-LAWS AND THE INCOMPLETENESS OF HISTORICAL DATA

Now that the mass digitization of archival documents has begun, one of the main questions from a historical point of view is how to articulate and analyze the structures out of these data, especially considering the fact that historical data are incomplete, complex, ambiguous and uncertain. How far can we apply the logic of social networks to certain periods of the past with the same information density we experience in social networks of the present? Does enough data of the past exist to apply the same algorithms and methods used to analyze networks in contemporary scholarship?

The introduction of this chapter displayed that the use of formal network methods from the field called Social Network Analysis has emerged as a persuasive concept for thinking beyond the purely metaphorical use of the concepts of networks in traditional historical scholarship. In social network analysis, the metaphor of the network is rather used as a powerful analytical tool because it reduces a complex system to an abstract structure capturing only the basics of connection patterns. It takes, in fact, as "its starting point the premise that social life is created primarily and most importantly by relations

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556 Kaplan and Di Lenardo listed these fundamental questions in *Ibidem*, 1-2.
and the patterns formed by these relations. A network, in the most basic sense, is thus a collection of connected objects. We normally refer to the objects as nodes and their relationships as edges or ties. This definition is very flexible, depending on one's research question many different forms of nodes and edges can be used to model a network. Because of this flexibility, it is easy to find networks in many domains.

In the worldwide web, the web pages would be the nodes and the hyperlink edges; in a neural network, each node represents a neuron and an edge represents a connection from the output of one neuron to the input of another; in a social network, the people are the nodes and the relationship between them the edge; in a co-citation network the nodes are the authors while an edge represents an instance of co-citation based on all published articles together.

Thus, a network is a simplified representation of a complex system. Because of this, they all can be analyzed using the same mathematical rules, algorithms and models. This idea was a breakthrough in the 1990s. The network scientists Duncan Watts, Steven Strogatz and Albert-Lázsló Barabási were among the first who have demonstrated that, despite the divergent nature of real-world systems, each system shares an underlying order and follows stable laws. Studying the structure of the World Wide Web, Barabási has shown that the number of links on a Webpage did not follow a peaked distribution, telling us that most documents are about equally popular, but that the distribution of links on various Webpages precisely follows a mathematical expression called a power law. Power laws formulate the fact that in most real networks the majority of the nodes have only a few edges and that these numerous tiny nodes coexist with a few big hubs, i.e. “nodes with an anomalously high number of edges”. Soon Barabási realized that the Web was not the only network described by a power law. The power law also operated in the cell, in the network of molecules connected by chemical reaction. The actor network behind Hollywood followed the power law, as well as the air traffic system, in which a large number of small airports across the world are connected to each other via a few major hubs. So, networks, ranging from the World Wide Web to the networks within a cell, are governed by a power law. Following this line of thinking, if power laws are a universal signature of most, if not all, networks, could it be that this law equally characterizes the network between the Dutch Republic and the Grand Duchy of Tuscany? More generally, are there laws behind historical networks?

Based on the data extracted from two online letter-collections – the *Catalogus Epistularum Neerlandicarum* and the Card Catalogue of the National Library of Florence, which are enriched with archival research, a network has been created of 11,871 correspondences. Considering that these data-collections are historically biased and incomplete, either because of missing data or insufficient metadata (earlier, for instance, we have seen that there is a large variety in the number of incoming and outgoing correspondence), is the data quality sufficient to allow for a statistical analysis? As shown by figure 6, the degree distribution of this network is characterized by a power law distribution, telling us that most nodes

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558 Easley and Kleinberg, 2.

559 Ibidem, cit. 2.


have only a few links, held together by a few highly-connected hubs. This means thus that this network behaves similarly as most networks, and can be analyzed using the same mathematical principles and algorithms. In my opinion, this insight has a huge potential to change our ways of interpreting and explaining historical bias.

![Power-law distribution](image)

**Fig. 6** The power-law distribution of the Dutch-Tuscan network predict that most nodes have only a few links, held together by a few highly connected hubs.

Yet, if we are going to accept that power laws are characteristic for the Dutch-Tuscan network, we also need a simple explanation for what is causing them. For example, it is striking how closely the plot in figure 6 follows a power law for much of the distribution, especially considering how many utterly uncontrollable factors come into play in the formation of this structure: uncertain and incomplete data from the CEN and the CCF underlie the network. What underlying process is causing this network structure? Networks develop over time, and when they grow, they establish more connections. When a person desired to join the network, it is more likely that he establishes a connection with a person that is already well-connected. This phenomenon is also labelled as preferential attachment. Preferential attachment, or the richer-get-richer effect, implies that nodes prefer to link to the more connected nodes. Consequently, this means that the hubs in a network will grow faster than their less-connected peers. As more and more nodes arrive and keep picking the more connected nodes to link to, the hubs will inevitably acquire a very large number of links, which results in an increasing disparity between the number of connections these nodes in the network have. This fact caused the power-law distribution in this network. So, who were the hubs that dominated this network?

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564 *Ibidem*, 483.
The top 10 hubs in Table 2 have a significant impact on the structure of the network: without them it would have looked very different (see also Appendix 2). The names in the table are all quite unsurprising to historians familiar with the Republic of Letters. Contemporary sources testify to the fact that these scholars were considered the Dutch Republic’s foremost scholars, as well as central figures of the European world of learning. We can also see it by some extent by flicking through archival collections and catalogues where we keep hitting their names. Yet, as argued by Ruth and Sebastian Ahnert, “it is extremely important that the method confirms what we already know because it means that it works, and it means that we can put some trust in it”. Similarly, Yves Gingras has shown that these types of confirmation should be more than welcome: if the results obtained from a quantitative analysis “are consistent with what we know, one can be confident that applied to less well-known periods and corpus of letters, these methods will also produce robust and meaningful results.”

Next to Magliabechi, who dominates the network structure with 2,262 connections, appears the name of Constantijn Huygens (1596-1687), the famous secretary to the two princes of Orange, Frederick Henry (1584-1647) and William II (1626-1650). The numerous accounts of his life and contacts confirm his presence in this ranking, which includes 1,333 correspondents. Among these correspondents, the names of Florentine scholars are remarkable absent. Unlike Huygens, the Dutch philologist Nicolaas Heinsius maintained an extensive network of contacts in Italy, especially with the Grand Duchy of Tuscany where he had 21 correspondents, 5% of his total number of correspondents in Europe.

Table 2: Top-10 hubs network CEN+CCF (Magliabechi) + Bassetti

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magliabechi Marco Antonio</td>
<td>2262</td>
</tr>
<tr>
<td>Constantijn Huygens</td>
<td>1333</td>
</tr>
<tr>
<td>Nicolaas Heinsius</td>
<td>433</td>
</tr>
<tr>
<td>Gisbert Cuper</td>
<td>282</td>
</tr>
<tr>
<td>Isaac Vossius</td>
<td>250</td>
</tr>
<tr>
<td>Pieter Burman</td>
<td>221</td>
</tr>
<tr>
<td>Jean Le Cler</td>
<td>205</td>
</tr>
<tr>
<td>Theodorus Janssonius van Almeloveen</td>
<td>191</td>
</tr>
<tr>
<td>Fredericus Ruysch</td>
<td>182</td>
</tr>
<tr>
<td>Christiaan Huygens</td>
<td>164</td>
</tr>
</tbody>
</table>

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566 Ibidem, 7.

567 Gingras, ‘Mapping the Structure of the Intellectual Field Using Citation and Co-Citation Analysis of Correspondences’, 339.


most connected is the Dutch professor and burgomaster Gisbert Cuper, who, like Heinsius, is one of the most central figures in this study, whose correspondence in the CEN features 282 contacts. The next in line is the well-known Dutch scholar Isaac Vossius (1629-1695), also in contact with Magliabechi, who is remembered predominantly for his magnificent library and his philologial studies. The network of Vossius was mainly concentrated in England, where he was elected fellow of the Royal Society. The archenemies Pieter Burman (1668-1741) and Jean Le Clerc (1657-1736) were hubs too, having over 200 contacts in the Republic of Letters. Theodorus Janssonius van Almeloven (1657-1712) was a Dutch physician, whose extensive network of contacts has been discussed by Saskia Stegeman. The Dutch botanist Frederich Ruysch (1638-1731), whose famous cabinet of curiosities was visited by Cosimo III, occupied a central position in the network, as well as the mathematician Christiaan Huygens (1629-1695), who was in contact with the *Accademia del Cimento* in Florence.

Magliabechi actively looked for key figures in the Dutch Republic where he himself could not go and who could find further contact from him. Magliabechi surely knew how to pick the right contacts in the Dutch Republic: he was in contact with no less than 5 of these key figures: Heinsius, Cuper, Vossius, Burman and Le Clerc. Apollonio Bassetti was in touch with Nicolaas Heinsius as well, who informed him about the latest developments in the Dutch Republic. In his quality as a hub, Heinsius was perfectly fit to fulfil his role as Bassetti’s informer. As noted earlier, this is a common network strategy known as preferential attachment: people commonly prefer to link to the most-connected people.

The hubs in this network enable connections to be established between any two nodes through a small number of stages. This means that they make it possible to contact a stranger with surprisingly few intermediaries. Accordingly, these crucial hubs closed the gap between the Dutch Republic and the Grand Duchy of Tuscany, making this particular epistolary community very dense. They become a small world. This small world effect is also known as “six degrees of separation. It entails that we are all linked by short chains of acquaintances (i.e. max six on average). That the network under study, which consists of 11,871 edges connecting 11,171 nodes, is indeed a small-world is confirmed by the low average path length of 4,246. This means that is only takes on average 4 steps to reach everyone in the network. This result fits into the broader framework of small-world phenomena that span many domains in network science.

4. THE ROLE OF BROKERAGE IN THE EARLY MODERN NETWORK

Until now, the discussion treated networks largely as static structures: we take a snapshot of the network, and then we ask about degree, hubs, shortest paths and so on. While this style of analysis forms the

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573 Ibidem, 115.

574 Easley and Kleinberg, 36.
foundation for thinking about networks, one needs to understand how a network evolves over time. In particular, it may be worth asking when nodes join the network, when they disappear and what this means for their position in the network at large. In fact, the appreciation of historical networks remains fundamentally weak because just by reading social relations of network patterns one ignores how people got into (and out of) relationships either or not influenced by external factors. Indeed, as has been pointed out by Paul D. Mclean, network analysis treats network ties as static, without examining how they become constituted and how they are negotiated over time. “Networks”, according to Mclean, “are places where actions are happening not where it has already happened”. We have to think, therefore, about networks dynamically where each achieved position in a network might be derived from an underlying network strategy or historical event. Networks, in fact, are never static: they grow and shrink, merge and split. In the next paragraphs, we will follow the evolving dynamics of a network in flux. Specifically, we will look at the crucial roles played by brokers in the exchange between the Dutch Republic and the Grand Duchy of Tuscany. These brokers occupied a critical position in the network for they were instrumental in defining and maintaining the purported boundaries between the Dutch Republic and the Grand Duchy of Tuscany. But before discussing the role of brokerage in the Dutch-Tuscan network, we will take a look at how the concept of brokerage is approached differently in historical scholarship when compared to the social sciences.

4.1 DEFINING HISTORICAL BROKERAGE

The concept of broker or mediator is well accepted in historical scholarship. Hans Bots and Christiane Berkvens-Stevelinck have defined a cultural mediator as a member of the Republic of letters who considers himself as a link between different cultural spheres, whether these are countries, languages, milieux, religious or philosophical spaces. A mediator is thus someone who transmits the cultural values of one sphere to another and is entirely aware of what he is doing. A special role has been recognized for those who did not produce a large oeuvre of publications, but put themselves at the service of the scholarly community by providing others with the books, contacts, and information they needed to carry out their research. Christiane Berkvens-Stevelinck and Hans Bots also called them “secrétaires” of the scholarly society. Without necessarily being innovators, “ils constituaient des nœuds de communication en n’hésitant pas à server de lien entre different savants qui travaillaient sur un même sujet ou dans un même domaine”. A scholar who matches this description is Antonio Magliabechi, whose intermediary role has been acknowledged in several studies. Mario Rosa, for example, claimed that Magliabechi was the “meilleur représentant sans doute des bibliothécaires italiens et européens au moment où cette fonction touche à son apogée dans la République des Lettres”, placing him into the broader framework.

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575 Ibidem, cit. 44.
of the critical, yet underappreciated, role of librarians as important intermediaries in the Republic of Letters. Other librarians, like the brothers Pierre (1582-1651) and Jacques Dupuy (1586-1657), keepers of the library of King Louis XIV of France, were considered information-brokers too.

Within the network of correspondence in the Republic of Letters, Bianca Chen has argued that men like Cuper can also be thought of as “information-brokers, agents, middlemen, or mediators”. Regardless of the value of his limited scholarly output, Cuper’s merits as a scholar were based on his capacity to manage strategically his correspondence network for the sake of learning. By receiving, storing, and assessing as much knowledge he could, and including in his network experts of different fields to whom he could turn for help, he communicated the latest events from the European scholarly and political stage to his colleagues and correspondents.

Another example of an information-broker is the mathematician Marin Mersenne (1588-1648), also known as the “mailbox of Europe” and the “secrétaire général de la République des Lettres”. In his proper entitled article “Small skills, big networks”, Justin Grosslight argued that Mersenne’s was an indefatigable network building, which was a sign of the limitation of his own mathematical skills. Once Mersenne garnered sufficient mathematical interest, “he manipulated his correspondents into sharing their claims with him, thereby forcing a dependency upon him to circulate information. Consequently, knowing other peoples’ mathematical ideas made Mersenne appear mathematically adept — even when he was not”.

Peter Burke argued that cultural brokers emerge in the early-modern period as a distinct social category and that they acted as information-brokers because they put scholars in different places in touch with another. He mentions Henry Oldenburg (1618-1677), the secretary of the Royal Society, as a typical knowledge broker. Likewise, Jean Pierre Vittu labelled Oldenburg as a “grand intermédiaire”. Other scholars who have been labelled as information-brokers are the French antiquary Nicolas Claude Fabri

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586 Ibidem, 360.


de Peiresc (1580-1637), whose correspondence extended well-beyond France, Italy, England, Belgium, Germany, and the Netherlands to Egypt and the further reaches of the Levant.  

Besides intellectual brokerage, the concept of commercial brokerage has attracted much scholarly attention. Francesca Trivellato, in particular, has questioned how merchants across the globe were able to negotiate, secure credit, and establish durable commercial relations despite the difference in language, religious rites, social customs and economic activities. Trivellato describes the tensions that existed between the internal solidarity of a group of Sephardic merchants and its cosmopolitan openness to relations with others. She focused on the Livorno Sephardim as practitioners of a “communitarian cosmopolitanism”, in which it was precisely the strength of their corporate ties as a community that enforced commercial probity within their community and made is secure enough to then build bridges of trust and credits to communities beyond their own, even with Hindu merchants in far away Goa. As we will see, similar dynamics between closure and openness are characteristic for the Republic of Letters, in which its citizens raised bridges across the most profound ideological and theological gaps, while building trust relationships through personal encounters. Or, in the words of Anthony Grafton “the citizens of the early modern Republic of Letters created a virtual community not of those who shared beliefs, but of those who differed.” These differences strengthened rather than weakened communities.

4.2. DEFINING SOCIAL BROKERAGE

Many historians have insisted on the importance of using methods of the social sciences to enrich our understanding of the past. Maarten Ultee, for instance, has already argued in 1987 that historians can make more exact predictions about the Republic of Letters if they apply the techniques of social history to surviving correspondence. According to him, the vast quantity of historical material available requires serial treatment – statistics, tables and graphs. Moreover, Francesca Trivellato used social network theory as an analytical tool (rather than a mathematical measure) in order to demonstrate its usefulness for the study of trust in cross-cultural commercial exchange in Sephardic communities. According to Trivellato, “social network analysis permits us to understand cooperation in business as the result of a calculative evaluation of an agent’s proficiency and trustworthiness rather than a perceived sense of his sameness.” Building further on the work of Ultee and Trivellato, my ambition is to go beyond the metaphorical and static uses of the concept of brokerage to perform a network analysis which potentially offers a new perspective on the role and nature of brokerage in early modern society. The main question then is, how are we to theorize the practice of brokering in a social network? The idea of brokerage has a very long tradition in social network analysis. Granovetter’s study on the strength of weak ties and the work that followed by various authors demonstrated that being in a position of control over bridging edges empowers individuals. Granovetter stressed the critical role that

592 Trivellato, 70.
595 Trivellato, 146.
weak ties play in information access and flow. According to him, weak ties (corresponding to acquaintances) function as bridges between distinct tightly-knit communities for a faster distribution of ideas across the entire network. When two scholars have a strong tie they generally know the same people and have access to the same information. Weak ties, on the other hand, connect distant scholarly communities and move in different circles. As a result, an individual who has many weak ties is more likely to be dynamic and innovative. Because weak ties serve to link together different tightly-knit communities they can also be defined as brokers. This idea mainly influenced the way people get a new job opportunity. In a random sample of recent job changers living in Boston, Granovetter asked how often they were in contact with the persons who passed on job information to them. He found out that in many cases the contacts with someone who was only marginally included in the current network of contacts of the persons who were looking for a job: the weak ties. The weak ties moved outside the core networks of the job seekers, forming bridges to other networks that have access to new and unique information – like a job opening. That weak ties offer a useful theoretical lens for understanding the dynamics of the Republic of Letters is shown by David Lux and Harold Cook who have argued that the success of the natural philosophy in the Dutch Republic depended on the proliferation of weak ties. They suggested that the nature of the weak tie indicates why scholars in the Dutch Republic were capable of doing excellent natural philosophy without having to be formally associated to a scientific society.

While societies were characterized by their strong and robust ties between individuals – a closed circle – weak ties opened up the network to strangers, which required a minimal level of personal relationship. Fundamental in the creation of these weak ties was travel. Travel, “more than any other activity, established the weak ties by which knowledge could be exchanged”. Following the work of Lux and Cook, Huib Zuivervaart investigated the nature of the contacts of Dutch astronomers from the 18th century on the basis of the concept of weak ties. He concluded that weak ties indeed lay the foundation for foreign correspondence but, in contrast to the findings of Lux and Cook, these weak ties were not formed by travel. According to Zuidervaart, the weak ties were primarily established by other means, like scholarly publications, recommendations or a connection with a scientific society.

The idea behind the weak tie theory is relatively close to the structural hole theory, famously developed by Ronald S. Burt. The only difference is that the structural hole theory is not about the strength of the relationship between two entities but rather about the lack of edges between these entities. A structural hole can be understood as a missing link between two individuals who have complementary sources to information. Consequently, someone who occupies a structural hole in a network, that is, someone who is a broker between otherwise not connected individuals, has the opportunity to control

596 Granovetter, ‘The Strength of Weak Ties’.
598 David S. Lux and Harold J. Cook, ‘Closed Circles or Open Networks?: Communicating at a Distance during the Scientific Revolution’, 202.
599 Lux and Cook, cit. 183.
the flow of information between these people, and control the projects that they bring together from the opposite sides of the hole.  

Structural holes arise in an open network structure. Most social structures, however, tend to be characterized by dense clusters of strong connections, also known as network closure. While an open network consists of linkages with ties outside a social group, a closed network emphasizes internal cohesion — that is to say a network in which everyone is closely connected to one another. According to James S. Coleman, a closed network is a benefit to social capital for two reasons. First, it increases access to accurate information by reducing the number of intermediaries through which communication has to pass. Second, closure facilitates sanctions that make it less risky for people in the network to trust each other. The more closed a network, the more likely that misbehaviour will be detected. The presence of mutual friends puts the interactions on display, such that no one can escape the notice of others. In the event of misbehaviour by someone in the group, “there is the potential for social sanctions and reputational consequences from their mutual friends”. Coleman’s closure argument is not alone in predicting that clustered network facilitate trust and social control. Granovetter has argued that the threat of social control makes trust more likely between people who have mutual friends. He also calls this structural embeddedness: “My mortification at cheating a friend of long standing may be substantial even when undiscovered. It may increase when a friend becomes aware of it. But it may become even more unbearable when our mutual friends uncover the deceit and tell one another”. Similarly, Sally Engle Merry argued that gossip and scandal flourish whenever they occur in close-knit social networks.

Although dense connected networks facilitate trust, they are isolated networks. If two people share a connection with the same figures, than they are likely to have information in common. Open networks, on the other hand, promote the dissemination of new information and creativity, but they pose a risk of betrayal and conflict. Rather than seeing them as competing networks, Burt argued that they are complementary to the extent that holes and closure are both fundamental features in the performance of a network. They are complements because they augment one another in creating social capital, in which “advantage is greatest when closure within a group occurs with brokerage beyond the group”. Brokerage and closure are thus two fundamental features in the structure of a network. But what are the measures by which we can define these two concepts? One of the ways of finding brokerage in the network is based on a measure called betweenness centrality. The idea of using betweenness to predict that clustered network facilitate trust and social control. Granovetter has argued that the threat of social control makes trust more likely between people who have mutual friends. He also calls this structural embeddedness: “My mortification at cheating a friend of long standing may be substantial even when undiscovered. It may increase when a friend becomes aware of it. But it may become even more unbearable when our mutual friends uncover the deceit and tell one another”. Similarly, Sally Engle Merry argued that gossip and scandal flourish whenever they occur in close-knit social networks.

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607 Burt, Structural Holes. The Social Structure of Competition, 19.
609 Ronald S Burt, Brokerage and Closure an Introduction to Social Capital, 225.
610 Linton C. Freeman, ‘A Set of Measures of Centrality Based on Betweenness’, Sociometry 40, no. 1 (1977): 35–41. As shown earlier, the shortest path calculates the shortest possible series of nodes that stand between two other nodes. As shown earlier, the concept of shortest path is also the basic principle of the well-known Six Degrees of Kevin Bacon game, which established
is a shortest path between them, and betweenness measures how many of these shortest paths go through a certain node.\textsuperscript{611} Betweenness is thus a measure of influence a node has over the spread of information through the network. A node with a high betweenness occupies a critical role in the network structure for it carries a large amount of flow which suggests a position at the interface between tightly-knit groups.\textsuperscript{612} In other words, betweenness centrality shows those nodes that connect two otherwise disparate parts of a network, by counting the amount of structural holes to which someone has exclusive access. The higher someone’s betweenness centrality, the better someone occupies a bridging position in the network.

One of the basic principles to define network closure is based on the notion of triadic closure i.e. the closed connection between at least three nodes. A long line of research in sociology has argued that “if two people in a social network have a friend in common, then there is an increased likelihood that they will become friends themselves at some point in the future”.\textsuperscript{613} The most common way to measuring the prevalence of triadic closure in a network is based on the measure clustering coefficient. The clustering coefficient quantifies the abundance of connected triads in a network. In paragraph 5.1 we will turn to the specifics of network closure and the clustering coefficient.

5. TOWARDS A DYNAMIC DEFINITION OF BROKERAGE

The discussion in the previous paragraph has articulated a way of thinking about networks in terms of their tightly-knit communities and the brokers that link them together. I have formulated precise definitions for some of the underlying concepts, such as the definition of betweenness centrality and the clustering coefficient. Using these definitions, we can formulate some fundamental quantitative questions based on Burt’s theoretical predictions that network closure and openness are two complementary paradigms in creating a harmonious structure in the network. Networks with closure – that is to say, networks in which everyone is connected to each other – facilitate coordination within the group, increase trust, confidentiality and are less likely to be infiltrated by outsiders. The presence of mutual friends puts the interactions between two people “on display” [...]: in the event of misbehavior by one of the two parties, there is the potential for social sanctions and reputational consequences from their mutual friends”.\textsuperscript{614} Yet, if people move in the same circles and know the same people, it is very likely that they have access to the same resources and information. Access to innovative information is produced by open networks. Open networks represent opportunities for brokerage to have unique access to information and contacts. Although open networks promote the dissemination of new information, they pose a higher risk of betrayal and infiltration. Following this line of thinking, we might argue that the cross-cultural exchanges between the Grand Duchy of Tuscany and the Dutch Republic are characterized by moments of openness and closure. On the one hand, the early modern scholar needed to have access to innovative information. This means that he needed to get involved with scholars from outside his own circle of trust, reaching out to individuals who could provide him with new information and recently published books. On the other hand, he needed to guarantee that his network was secure and trustworthy, especially in a time in which the freedom of communication was not always guaranteed, which is

\textsuperscript{611} This definition is borrowed from Ruth Ahnert in ‘Maps versus Networks’, cit. 134.
\textsuperscript{612} This definition is used by Easley and Kleinberg on page 67.
\textsuperscript{614} Ibidem, cit. 59.
characterized by internal cohesion. The systematic analysis of networks helps to understand how Dutch and Italian scholars moved between open and closed circles within their network.

Furthermore, the value of this research lies in the use of dynamic network analysis. As noted in paragraph 4.1, the concept of brokerage is now generally accepted in traditional historical scholarship. Bianca Chen, for instance, has argued how Cuper ensured his rise in politics by becoming a powerful information-broker, to which his correspondence network was fundamental. Yet, beyond this kind of use, the term brokerage has little substance. Indeed, it is a static term used to refer explicitly to the end-stage or outcome of Cuper’s rise to fame, while ignoring the fact that Cuper had sure come a long way to reach this position, with successes and failures along the way. Exactly because Cuper’s correspondence network was fundamental in his brokerage position, we need to go beyond the static use of these concepts. Within a correspondence network, individual correspondents come and go through time, continuously affecting someone’s intermediary position in the network. In addition, networks change over time because everyone is vying for a brokerage position, as in the case of Cuper. This case is also interesting in the context of the claim put forward by Peter Burke who argued that cultural brokers emerged in the early-modern period as a distinct social category, acting as information-brokers. It underlines the fact that brokerage has a temporal component, which however has been completely overlooked in historical scholarship. In short, we need to go beyond the static use of the term brokerage.

Based on the network extracted from the CEN and CCF datasets, I produced a subnetwork that consists of the 2nd degree connections of Magliabechi and Bassetti. The 2nd degree connections are directly connected to Magliabechi’s and Bassetti’s direct correspondents, resulting in a network diameter of 5 (2-1-0-1-2). This network consists of 3,818 nodes and 4,556 edges and covers the period from 1660 until 1714. In order to model the emergence and disappearance of brokers in the structure of the network, the 2nd degree network has been divided into six time-frames of ten years (Appendix 3). Each time-frame sheds light on a particular period in the dynamics of the relationships between the Grand Duchy of Tuscany and the Dutch Republic. As such, each period will highlight how central a particular node is to the network’s organization, and how important it is in connecting others. Furthermore, changing dynamics in the structure of the network will emphasize moments when someone strengthens or loses his brokerage position in the network.

The results of the following paragraphs are empirically driven, and supported wholly by data which is for the greater part generated by the Catalogus Epistularum Neerlandicarum – a national union catalogue of correspondences held in various Dutch archives and libraries – and the digitized card catalogue of the correspondence of Antonio Magliabechi. This means that 4,556 correspondences underlie each single result. This data-driven approach which consisted in the combination of different and independently developed datasets, supports the objectivity of the results themselves. Furthermore, the alignment between the results shown in the following paragraphs, and the claims made in the first two introductory chapters of this study, indicates that those initial claims were not only mere generalizations, but are substantiated by a large amount of data.

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5.1. NETWORKS OF TRUST: SETTING UP A CORRESPONDENCE NETWORK

Dense structures and closure in networks facilitate trust and social control and ties between otherwise unconnected groups – spanning so-called structural holes – benefit brokers. Figure 7 shows the dynamics between closure and brokerage in Magliabechi’s epistolary network from 1660 until his death in 1714. These dynamics are produced by the changing social relations in which he was embedded. Relationships underwent profound alternations throughout the epistolary career of Magliabechi. Indeed, as Paula Findlen observed, networks are a “history of partial success, if not abject failure, since the web of relations binding people together was a fragile, indeed tenuous connection” and “in need of constant maintenance to be truly productive”. New generations of scholars entered the network of Magliabechi, while old generations gradually faded away. Friendly relationships turned hostile, while disputes were settled. Each change determined the degree of closure and openness in his network. Findlen’s statement is thus literally mapped out here before our eyes.

![Figure 7 Closure and brokerage in the network of Antonio Magliabechi.](image)

What does this graph show? We can immediately see that the graph starts with a very high clustering coefficient and a low betweenness centrality. As noted earlier, betweenness centrality shows how significant a node is to the overall structure of the network, and how integral that node is in connecting others. In other words, betweenness centrality indicates the degree of brokerage of a node in the network. On the basis of the clustering coefficient, we can look how closely knit the circles of each correspondent

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617 This clear description is borrowed from Buskens and Van de Rijt, 371-372.
are in the network under study. This helps us to define the exact moments when scholars strived for closure. Perhaps we should make this concrete, by taking a close look at the concept of closure in the literature regarding the Republic of Letters.

The role of closure in a network is central in the research of Franz Mauelshagen. In his study “Networks of Trust”, Mauelshagen demonstrated that “trust played a decisive part in building up, continuing and widening relationships through correspondence networks.” According to him, networks of trust would not have been developed and maintained without adequate substitutes for personal meetings and the immediate individual experiences that they enabled. In other words, a relationship of trust needed to be established through personal acquaintances which followed a formalized procedure, “beginning with an indispensable letter of introduction, which served to link new acquaintances with existing ones.” As correspondents become part of an epistolary exchange, they did so not in some ideal egalitarian society, where anyone could join simply by writing a letter, but in a world regulated by codes of polite interaction that needed to be carefully approached. Introductions were needed. Likewise, books could not be simply dispatched to any scholar deemed important and when it came to making contacts while traveling, one could not simply go to someone’s door and knock. One needed channels and acquaintances before any communication could proceed. Specifically, as argued by Saskia Stegeman, one has a “better chance of success by having ‘a mutual contact put in a good word’ with the desired contact”.

Because introductions from mutual acquaintances were essential mechanisms in shaping the network between the Dutch Republic and the Grand Duchy of Tuscany, this definition invites us to look at introductions from a network perspective. Introductions imply, in fact, that the network was generated through some sort of transitive property. Introductions highlight the construction of triadic closure – the transition from two ties to three among three nodes – which implies that if two individuals share mutual friends, then there is a high possibility that they become friends too. If Magliabechi regularly corresponds with both X and Y, then the formation of an edge between X and Y is very likely because there is an increased chance that Magliabechi will eventually introduce X and Y to each other. Moreover, the fact that each of X and Y are correspondents of Magliabechi gives them a basis for trusting each other. The term ‘triadic’ originates from the fact that Magliabechi, who has two correspondents in common, has the ability of closing the third edge of the triangle.” In other words, as a broker, Magliabechi has the choice (or rather was obliged if he were to follow the ethos of the Republic of Letters) to introduce his mutual contacts to each other. If he decides to introduce his correspondents to each other, triadic closure operates: his dyads become a triad.

A network with many triads (X is connected to Magliabechi, Magliabechi to C, and X to C) is considered to be very clustered. According to Albert-Lázsló Barabási clustering in a network is something we understand intuitively. Humans “have an inborn desire to form cliques and clusters that offer familiarity, safety, and intimacy.” Like the power-law distribution, clustering is thus a generic property of a complex network. This means that it can be measured. The extent to which a network is clustered, is measured by the clustering coefficient. The clustering coefficient measures the probability that two random correspondents of an individual are in contact with each other. In general, the clustering coefficient of a node ranges from 0 (when none of the correspondents of Magliabechi are

619 Mauelshagen, ‘Networks of Trust: Scholarly Correspondence and Scientific Exchange in Early Modern Europe’, cit. 2.
620 Mauelshagen, ‘Networks of Trust: Scholarly Correspondence and Scientific Exchange in Early Modern Europe’, 10.
621 Van den Heuvel et al., ‘Circles of Confidence in Correspondence’, cit. 95.
623 Easley and Kleinberg, cit. 87.
correspondents) to 1 (when all the correspondents of Magliabechi are in contact with each other). Nicolaas Heinsius, for example, has an average clustering coefficient of 0.0022 in the period 1660-1670 (see Appendix 3, table 1) which is obtained by dividing the number of actual links between his correspondents by the number of links that he could have if they were all in contact with each other. This implies that of the total possible connections the people who corresponded with Heinsius could have with each other, only 0.22% of them are actually realized.

Following this line of thinking, let’s return to figure 7. The high clustering coefficient in the first stage of the graph implies that, in the beginning of his epistolary career, Magliabechi’s network was characterized by internal cohesion. He strived for closure, choosing friends of friends as new contacts, whom he knew he could trust. The high clustering coefficient confirms thus that introductions from mutual contacts were an important driving mechanism in the shaping of Magliabechi’s network. Numerous examples from the correspondence of Magliabechi underline this. For example, in 1660, Magliabechi started to correspond with Pieter Blaeu. In the previous chapter we have seen that the Amsterdam bookseller Pieter Blaeu headed to Florence in 1660 for the sake of promoting his father’s Joan’s plan to publish a series of engravings of Tuscan cities. In Florence, he presented Magliabechi with a letter of recommendation from the bookseller Andries Fries, who was the Dutch agent of the Venetian publishers Sebastian Combi and Giovanni La Noù. The friendship bond between Magliabechi, the Combi-La Noù family and Fries was quite a solid one, and dated back to the beginning of 1657 and 1659, respectively. Because Fries vouched for Blaeu, and Magliabechi trusted Fries, Magliabechi knew that he could trust Blaeu as well.

So, friends encourage their friends to become friends with their other friends; two correspondents of the same person are perforce correspondents themselves. People outside these connections would not have these opportunities. This is evident from Magliabechi’s reaction to a recommendation he received from Henrik Brenkman. When Henrik Brenkman arrived in Florence in 1709 with a letter of recommendation from Domenico Passionei (1682-1761), the official representative of the Holy See in the Dutch Republic, Magliabechi expressed his dismay because Passionei “non mi ha mai scritto, se non la detta lettera”. Magliabechi’s relationship with Passionei was evidently not close enough to accept the introduction. On the contrary, when Brenkman presented Magliabechi a letter from Jean Le Clerc, one of Magliabechi’s correspondents, the librarian answered that he “non mancherò di servire il suddetto dotto, e gentilissimo Signore, in tutto quello che si degnerà di comandarmi”.

Network closure means that everyone keeps an eye on each other, and hence helps to protect the integrity of social and economic transactions in a network. Because no behavior goes unnoticed, a closed network helps to build a reputation. Network closure puts thus the interactions between people “on display” in a social sense, where there is no place for misbehavior because everyone knows each other. This is also a reason why network closure plays a fundamental role during travel. The home front was eager to learn about the whereabouts of their family and colleagues travelling abroad. Moreover, they wanted to be sure that they were safe and behaving well during their sojourn. Jacob Tolleius is an instructive example. In the previous chapter, Tolleius’ rather inglorious behavior during his visit in Florence was discussed. After being admitted in the Biblioteca Medicea Laurenziana, he stole the oldest Cicero manuscript. In addition, he converted to Catholicism with the sole purpose to receive money

625 Magliabechi to J. Le Clerc, 26 December 1709, Amsterdam University Library, hs. C 87, “I will not fail to serve this learned and very gentle man, in everything he deigns to commands me”. A correspondence between Jean Le Clerc and Magliabechi dated back to 1706. See also Le Clerc to Magliabechi, 10 October 1709, BNCF, Magl. VIII, 1117 (30), f. 31v, “Hodie accipi, Vir Illustrissime, litteras tuas 10 Septembris datas quibus, pro innata tibi humanitate et benevolentia erga litteratos, et summo litteras iuvandi studio, quod ti sempiernam famam peperit, etiam apud gentes a quibus sol versus equos iungit, ut Virgilii versibus utar, omnimodum favorem Brenchmann polliceris, cum Florentiam venerit, Cod. Mediceum Pandectarum collaturus.”

626 Burt, Brokerage and Closure an Introduction to Social Capital, 95.
from the Medici family. Consequently, he was banned from Florence and forced to wander through Italy in search of new patrons. During this time, Magliabechi secretly kept Gisbert Cuper and Jacob Gronovius up-to-date about the whereabouts of Tollius – a clear instance of social control and mistrust. The high clustering coefficient in the network of Jacob Tollius (figure 8) was thus working against him instead of helping him to establish a network abroad.

![Fig. 8 Closure and brokerage in the network of Jacob Tollius](image)

Figure 9 shows an example of the secret messages Magliabechi sent to Jacob Gronovius during Tollius’ stay in Italy. Sometimes it was necessary to make a note so small that is could be smuggled to the Netherlands inside books or letters.

![Fig. 9 Magliabechi’s secret messages to Jacob Gronovius regarding the stay of Jacob Tollius in Italy (LMU, Cod 4° Cod. Msc 778, f. 25).](image)
Closed circles enhanced trust, social control and helped to build up a reputation, which were essential features in the early career of Magliabechi. He needed to prove himself as a trustworthy and valuable correspondent in order to build an extensive cross-cultural network that posed more risks as to the integrity of the communications and exchanges that took place in that network. In order not to lose his standing, he had to establish his name in the wider Republic of Letters. He could do so by becoming an intermediary between the Dutch Republic and the Grand Duchy of Tuscany. This was an empowering role, to which his correspondence network with the Dutch Republic was fundamental. In the next paragraph, we will see how Magliabechi obtained his brokerage role between the Dutch and Tuscan society.

5.2. REACHING OUTWARDS

A higher density of relations within a network means that information circulated more within than between groups of people. Yet, variation and innovative ideas develop between different groups and countries. In the words of Burt, “people here do it differently than people over there”. In fact, in-group communication, measured by a high clustering coefficient in the early career of Magliabechi, can create barriers to new information and contacts. Magliabechi talked and corresponded with the same colleagues, learning about the same people, ideas and books all over again. In other words, the network dynamics that are characteristic for the early career of Magliabechi represent an island of opinions, behavior and knowledge. As his career progressed, he needed new knowledge about the scholarly world to strengthen his position in the Republic of Letters. To obtain this knowledge, he had to reach out to information that flowed between different networks. He needed to create ties between unconnected others, striving for new knowledge and books, or otherwise the people in his network began to languish. In social network terms, we say also that Magliabechi needed to fill structural holes. Indeed, Burt found that people who stand near these holes are in a better position of having good ideas, opinion and behavior. As will turn out from the next paragraph, Magliabechi was able to fill these structural holes in the 1670s, when he took over the network of an entire generation of Florentine scholars.

5.2.1. GENERATIONS COME, GENERATIONS GO

Figure 7 shows that from the 1670s onwards, Magliabechi started to reach out to scholars outside his local network, which is confirmed by an increasing betweenness centrality in the graph. In 1671, a renowned Dutch scholar joined the network of Magliabechi: the philologist Nicolaas Heinsius. Nicolaas Heinsius never met Magliabechi personally, but began corresponding with Magliabechi through the French scholar Emery Bigot who had become acquainted with him in Florence in 1660. Moreover, the professional background, reputation and network of Heinsius was certainly a decisive factor as to why a correspondence between him and Magliabechi could take off. Magliabechi, in fact, had nurtured the desire to establish a relationship which Heinsius for many years, as becomes clear from his first letter to Heinsius dated the 9th of October 1671:

"Io per la mia parte con ogni maggiore ingenuità le confesso, che sono molti anni che nutrivo un ardentissimo desiderio di dedicarmele servidore con la penna, come le sono stato sempre col cuore, da quel tempo, essendo piccol fanciullo, per mia buona sorte, mi capitavano".

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629 Ibidem, 15.
630 Ibidem, 59.

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Nicolaas Heinsius was no stranger to the Tuscan court. He was among the first to travel to Florence with the prospect of consulting manuscripts in the rich collections of the Medici libraries. During his two visits in Florence in 1648 and 1652, he took part in the intellectual life of the city, meeting as much as leading scholars as he could. It were Johannes Fredericus Gronovius and Isaac Vossius, who had travelled to Florence in 1641 and 1643, respectively, who paved the way for Heinsius to get acquainted with the members of the Florentine scholarly society. Heinsius travelled to Florence with a letter of introduction from Gronovius to the Swiss scholar Paganino Gaudenzio, who lived in Pisa, while Isaac Vossius introduced Heinsius to the Florentine scholars Carlo Dati and Agostino Coltellini. Heinsius profited thus from the brokerage network of his predecessors. Appendix 3 (table 1) shows that the brokerage position of Gronovius and Vossius was still strong throughout the 1660s, who are both ranked in the top-3 betweenness.

During his stay in Florence, Heinsius did not only exchange knowledge with his new acquaintances, but they sized each other up and decided whether to trust one another or not. From these personal encounters grew in turn the networks of correspondence that sustained their relationships over longer stretches of time and place. When Heinsius returned to The Hague after his second stay in Florence in 1652, he brought his Italian network with him, maintaining close contact with, amongst all, Carlo Dati, Leopoldo de’ Medici, Andrea Cavalcanti, Valerio Chimentelli, Agostino Coltellini, Angelico Aprosio, and Ottavio Falconieri, exchanging hundreds of letters that kept them informed about the scholarly activities in their respective countries. As such, Heinsius and his Florentine contacts became brokers in the networks between the cultural centers of Florence and the Dutch Republic, as is confirmed by the metrics in Appendix 3, table 1. Specifically, Nicolaas Heinsius appears to be the most connected node in the network under study, maintaining contact with 257 scholars (table 1). Earlier we have seen that nodes as Heinsius are also called hubs – “nodes with an anomalously large number of edges”. Because of his large number of edges, “it makes it also very likely that a shortest path will travel through him”. Consequently, besides being a hub, Heinsius appears to be an important broker in the network, which in turn is measured by a high betweenness score in the network.

The disappearance of this generation of Florentine scholars in the 1670s seriously broke the chain of communications based in weak ties that had allowed Heinsius’ communications with Tuscany. In 1667, Leopoldo de’ Medici was elected Cardinal and left Florence for Rome. This resulted in the dissolution of the Accademia del Cimento which caused that the Florentine network for gathering and exchanging scientific information in the Dutch Republic – which had strongly characterized the 1660s – gradually evaporated. The subsequent death of Leopoldo in 1675 contributed to the intellectual decline of Florence in the second half of the seventeenth century. This decline was further increased by the death of Carlo Dati in 1676, Andrea Cavalcanti in 1673, Lorenzo Panciatichi in 1676 and Lorenzo Pucci in 1675. The experience of Antonio Magliabechi seems to corroborate this. In his letters to his Dutch correspondents he continuously lamented the scarcity of books that circulated in Florence and the lack of competent scholars:

631 Magliabechi to N. Heinsius, 9 October 1671, UBL, Bur F 8, “Oh! I was so glad that I received your most kind, most humble and most elegant letter from your Illustrious Lordship of the 15th past, which I have read, read again, kissed, kissed again and held with affection to my chest. Many years I have nurtured the desire to dedicate myself to be a servant of the pen, which deep in my heart I have always been. From being a little child, I don’t know how, I was fortunate to have your beautiful Latin poetry at hand. I was never tired of reading them, always discovering new beauties within them.”

“Erano qua il signore Carlo Dati, il signore Canonico Lorenzo Panciatichi amici di V.S. Ill.ma, il signore Andrea Cavalcanti, il signore Lorenzo Pucci, ed altri signori Eruditi, che procuravano di vedere i Libri nuovi, facendogli venire di dove erano stampati, ma dopo loro morte, se non arriva qualche Libro a me, non ci è più modo di veder cosa alcuna di nuovo.”

The marginal position of the old generation of Florentines is underlined by Appendix 3. Leopoldo de’ Medici dropped 8 places in the top betweenness list in the period 1670-1680, while the name of Carlo Dati disappeared completely after 1670.

Heinsius soon realized that he needed someone to replace his old network. He needed someone who could give him broad access to the Italian scholarly community. In light of what we have seen so far, it may be no coincidence that this place was taken by Magliabechi. Heinsius was already familiar with Magliabechi as early as 1659, when word of his presence reached him through Carlo Dati. On the 11th of November 1659, Dati informed Heinsius that he could sent him a list of every book he desired from Italy, “essendo qui in Fiorenza un giovane studiosissimo, e intelligentissimo di libri chiamato Antonio Magliabechi che si esibisce a trovarne la maggior parte.” Now that the brokerage position of Dati hit rock bottom, Heinsius wished to correspond with Magliabechi directly. Magliabechi was the one who could fill the structural hole left behind by Dati. Thanks to Magliabechi, Heinsius’ brokerage position strengthened, as is shown by an increasing betweenness in his network from the 1670s onwards (figure 10). This might also explain why the Dutch philologist Isaac Vossius contacted Magliabechi in 1682. In chapter 3 we have seen that Isaac Vossius visited Florence in 1643, which brought him in contact with a large portion of the intellectual life of the city, including Carlo Dati with whom he remained in contact.

Almost forty years after his visit, he decided to reach out to Magliabechi, for the network he had built up during his stay in Florence had completely vanished.

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634 Magliabechi to Cuper, 2 February 1693, KB, KW 72 D 10, f. 92-93, “there were here sir Carlo Dati, sir Canon Lorenzo Panciatichi, friends of Your Illustrious Lordship, sir Andrea Cavalcanti, sir Lorenzo Pucci, and other erudite men, who procured new books to be seen, making them come from where they were printed, but after their death, if a books does not arrive to me, there is no way to see something knew”. Other examples include Magliabechi’s letters to Jacob Gronovius: “Se V.S. Ill.ma tornasse qua, non riconoscerebbe punto questi Città. Non solamente il Popolo, per lo più è miserabile, ma gli studi, e le Lettere, sono per terra affatto, per non ci essere, o premio, o onore alcuno” (Magliabechi to J. Gronovius, undated, LMU, Cod 4º Cod.Msc 778, f. 17). Similar expressions can be found in Magliabechi’s letters to Nicolaas Heinsius were written “più con le lacrime, che con l’inchiostro” because “qua non ci è si può dire alcuno che studi per la vera strada” (Magliabechi to Heinsius, 28 July 1674, UBL, BUR F 8).

635 Dati to Heinsius, 8 November 1652, Leiden University Library, BUR F 7, f. 44, “there is here in Florence a young man, very learned and intelligent with books, named Antonio Magliabechi who is busy to find the most part of it”.

636 The correspondence between Carlo Dati and Isaac Vossius (1647-1648) is extent in UBL, BUR F 8.

637 Four letters between Magliabechi and Isaac Vossius (1682-1684) are extent in UBL, BUR F 11, fols. 88-103. Copies of these letters are to be found in the collections of the University Library of Amsterdam, hs. III E 10:67; hs. III E 10:64; hs. III E 10:58; hs. III E 10:35.
5.3. TRAVEL AND BROKERAGE

Davis S. Lux and Harold J. Cook have pioneered the insight of the act of travel as a social practice. Lux and Cook explored the working and “significance of weak ties in the international exchange of scientific information during the late seventeenth-century”. They borrowed the concept of weak ties from Nick Granovetter, who, as noted earlier, wrote about the value of weak ties for the spread of information through social networks. While strong ties are characterized as deep affinity, for example family, friends of colleagues, weak ties, in contrast, might be acquaintances. Granovetter’s insight was that people with weak ties outside the core network are bridges to other networks. Those bridges have access to new and unique information – like job openings in the study of Granovetter – relative to other members of the network who have only strong ties. Granovetter analogized weak ties thus to being bridges which allow us to disseminate and get access to information that we might not otherwise have access to. Further elaborating on this concept, Lux and Cook have argued that the complex networks of early modern correspondence were established through the proliferation of weak ties, which were founded on personal encounters that developed from geographical mobility.

The theory of Lux and Cook offers a convincing narrative behind why the network of Magliabechi, particularly his brokerage position, grew quickly in the mid-17th century. In these years, the Medici court attracted many Dutch philologists, who knew that Cosimo III was glad to have them come. Moreover, they valued the opportunity such a visit to Florence afforded to meet Magliabechi. It was all but impossible to come to Florence and not come into contact with him, especially after he had been

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638 Lux and Cook, ‘Closed Circles or Open Networks?: Communicating at a Distance during the Scientific Revolution’, 182.
made librarian of the Biblioteca Palatina by Grand Duke Cosimo III in 1673. During their stay, Magliabechi guaranteed them access to the Florentine libraries and introduced them to other key figures in Italy. Visitors to Florence, such as Jacob Gronovius, Laurens Theodor Gronovius, Joannes Kool, Jacob Tollius and Hendrik Brenchman all correspond with him after leaving Florence. Magliabechi not only supplied them with a continuous flow of information and books from Italy, but he was also a channel through which they could establish contact with the Italian scholarly community. Vice versa, the Dutch scholars kept Magliabechi updated about the developments in the Dutch society and introduced him to other scholars in the Dutch Republic. As such, Magliabechi’s position as a broker in the scholarly relations between the Grand Duchy of Tuscany increased over time.

Before the 1670s, Magliabechi relied on the intermediation of the Amsterdam bookseller Pieter Blaeu. In the previous chapter we have seen that the Amsterdam bookseller Pieter Blaeu headed to Florence in 1660 for the sake of promoting his father’s Joan’s plan to publish a series of engravings of Tuscan cities. When Blaeu arrived in Florence, Magliabechi was gradually building his elaborate network of contacts in Italy and in Europe. He immediately recognized Blaeu as his contact in the Dutch Republic, and the two remained in close contact after Pieter’s return in the Dutch Republic. For the decade to come, Blaeu would supply Magliabechi and the Tuscan court with a continuous flow of letters, books and news. He informed Magliabechi about the publications that came recently off the press, including prohibited ones, and occasionally sent them to Florence. On the 7th of February 1670, for instance, Blaeu informed Magliabechi that he sent him a box of books, including a publication that “è prohibito qui, ed anche in Italia come lo sa”.640

Magliabechi introduced Blaeu to the Medici family and helped him to acquire an entire circle of Tuscan clients. Vice versa, Blaeu was the channel par excellence through which Magliabechi could reach the Dutch scholarly society. The metrics in Appendix 3, table 1 provide a solid argument in favor of Blaeu’s intermediary position in the network. Despite the fact that Blaeu had only 7 correspondents (Magliabechi, Apollonio Bassetti, the Florentine bookseller Giovanni Gualberto Borghigiani, Carlo Dati, Michele Ermini, Leopoldo de’ Medici and Cosimo III), he appears to have a relatively high betweenness centrality (5.500). This means that someone does not has to be a hub – having many correspondents – to be indispensable for the structure of a network. One just needs to have the right contacts. These results are also interesting in the context of the claims put forwards by Henk Th. van Veen and Alfonso Mirto, editors of the correspondence of Pieter Blaeu. They observed that “historians have often neglected to acknowledge Pieter’s importance”. In fact he was to use their words the “cultural mediator between the Republic and Italy”. This claim of Blaeu’s importance based on a qualitative close reading approach of his letters could be underpinned by connecting his correspondence to the two national catalogues – the CEN and the CCF. The correspondence network that resulted from that combination of datasets underlined Blaeu’s significance in the relationship between the Dutch Republic and the Grand Duchy of Tuscany, something that previously could only be alleged by a close reading approach of his letters alone. Specifically, networks change the more metaphorical use of the concept “intermediary” – by Van Veen and Mirto – to a more tangible concept that can be statistically measured and contextualized.

In 1673, Magliabechi’s became acquainted with Jacob Gronovius. Like Nicolaas Heinsius, Jacob Gronovius came to Florence to study manuscripts. Once he arrived in Florence, he immediately headed to the house of Magliabechi with a letter of recommendation from the French scholar Jean Chapelain, who had an epistolary relationship with Magliabechi as early as 1663. The prominent brokerage position of Chapelain (see Appendix 3, table 1) gave the Frenchmen thus the status necessary to ask Magliabechi

640 “is prohibited here, as well as in Italy as you know”. This might be the Tractatus Theologico-Politicus (TTP) of Baruch Spinoza, which was published anonymously in Amsterdam in 1670.
for his service to help Gronovius throughout his stay in Florence. Moreover, the local learned circles around Jacob Gronovius in the Dutch Republic increased the credibility of Jacob as a trusted scholar. He was the son of the renowned scholar Johannes Fredericus Gronovius and a good friend of Nicolaas Heinsius. In fact, Magliabechi instantly wrote to Heinsius with the news of the arrival of Gronovius, promising Heinsius that he would do everything to assist Gronovius throughout his stay in Italy.

While in Florence, Gronovius visited Magliabechi almost every day. During these visits, the two not only traded information and books, but sized each other up and decided whether to trust one another or not. These personal visits were the beginning of a lasting friendship. When Gronovius returned to the Dutch Republic, his contact with Magliabechi turned into a correspondence, exchanging letters during a period of thirty-eight years. From that moment on Gronovius formed a bridge between his Dutch network of contacts and the vast network of contacts of Magliabechi. These dynamics are visible in figure 11, in which we can see that his brokerage position exponentially increases after his return in the Dutch Republic in 1675. Moreover, the metrics in Appendix 3 show that Gronovius’ brokerage role in the overall network increases in the aftermath of their travels: he moves up 9 spots in betweenness centrality (rising from the 22nd place in the 1660-1670 to the 13th place in 1670-1680). The dynamics in the network of Jacob Gronovius are thus a living proof of Lux’s and Cook’s hypothesis.

Figure 11 shows the emergence of Jacob Gronovius as a broker in the network, tracing the pathway of his epistolary career. Isolated groups of close-knit scholarly networks that slowly generated new scholars are a characteristic feature in the early career of Jacob Gronovius – as shown by a high clustering coefficient in the first stage of the network. He began to correspond with the friends of his own friends, establishing a local network of contacts in the Dutch Republic. As such, he could gradually build up a reputation in the scholarly world. Through travel, Gronovius could build an internationally connected
network that kept growing in contacts, which shrunk the social distance between the Dutch Republic and the Grand Duchy of Tuscany. When Gronovius returned in the Dutch Republic he brought his Italian network with him, thus acting as a broker between the two societies. As such, he could guarantee his contacts an entrée into his extensive networks of contacts in Italy, reinforcing the concept of the Republic of Letters as an ever-growing community.

Jacob’s visit in Florence paved the way for many other Dutch scholars who visited the Grand Duchy of Tuscany after him and desired to meet Magliabechi. This is corroborated by a letter Magliabechi wrote to Jacob Gronovius on the 6th of May 1675, a few months after the latter returned to the Dutch Republic:

“[…] per sapere ch’io son tanto, e tanto servidore, il che è cosa tanto nota appresso tutti, che il signore Berkelio come le accennai, scrisse al signore Cousson, che per impetrare tutto quello che avesse desiderato, serviva che mi nominasse V.S.Ill.ma.”

Daniel Cousson, who visited Florence in 1675, only needed to drop the name of Gronovius and Magliabechi was ready to assist him.

In 1679, Laurens Theodor Gronovius embarked on a peregrinatio academica. As the son of Johannes Fredericus Gronovius and brother of Jacob, Laurens was treated with great deference in Florence and befriended Magliabechi. After returning to the Republic in 1682, he thanked Magliabechi effusively for his help, initiating what would become a regular correspondence. Magliabechi and Laurens met briefly on another occasion, in 1694, when Laurens travelled in Italy with several of his students. Laurens’ travels allowed him to establish an international network of contacts abroad, thereby increasing his brokerage position in the network, as shown by figure 12. In addition, appendix 3 (table 4, 5 6) characterize the centrality of Laurens with respect to the overall network, showing that his managed to maintain his intermediary position for at least three decades (1680-1720).

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641 Magliabechi to J. Gronovius, 6 May 1675, LMU, Cod 4° Cod. Msc 777, ff. 171-174, “In order to let you know that I am a very, very servant of you, which is something that is known to everyone, Sir Berkelio [Abraham van Berkel] wrote to sir Cosson [Daniel Cousson] that he only needed to mention the name of Your Illustrious Lordship to obtain everything he desired.
Once they returned to the Dutch Republic, the Gronovius brothers were in three ways advantaged by their position in the network: firstly, they had access to a wider diversity of information and contacts, secondly they could immediately reach out to that information, and finally, it enabled them control over information diffusion to their colleagues in the Dutch Republic. As such, the Gronovius brothers were positioned at a crossroads in the flow of information between the Dutch Republic and the Grand Duchy of Tuscany. Their diverse Italian and Dutch contacts also meant that they were more likely to become a candidate for inclusion in new opportunities and book publications because their early access to diverse sources of information and to new contacts made them more attractive as contacts to other people in their own network. In 1690, for instance, Magliabechi introduced the Florentine scholar Federico Nomi to Jacob Gronovius. Magliabechi hoped that Gronovius would help Nomi to publish his work in Amsterdam, which will be discussed in more detail in the sixth chapter of this study. Consequently, their brokerage position in the network continued to grow in the aftermath of their grand tour. Besides having access to innovative information, their gate-keeping role enabled them to control the bringing together of people from opposite sides of the hole. Back home, they were the ones who could introduce their colleagues to the scholars they had met abroad, inducing them to further expand the scholarly network.

The metrics in Appendix 3 give a broad account of the network positions of several other Dutch scholars that travelled to Florence in the second half of the seventeenth century, providing more information about Jacob Tollius, Joannes Kool and Henrik Brenkman in the scholarly network. As noted earlier, Tollius' stay in Italy was rather inglorious as compared to his contemporaries. To recap, he travelled to Florence in 1688 and became acquainted with Magliabechi through the intermediation of Pieter Blaeu. Tollius, however, was forced to leave Florence almost immediately after his arrival. All sorts of wild stories were circulating in Florence regarding the reason why Tollius had to leave. According to Magliabechi, Tollius had repeatedly deceived the Medici family for money, while others believed that Tollius had stolen the oldest Cicero manuscript from the collections of the Biblioteca Laurenziana. His unsuccessful stay in Italy is confirmed by his marginal centrality in the network after his return in the
Dutch Republic in 1692. Table 3 and 4 in Appendix 3 show that he lost his brokerage position in the network: he dropped down no less than 3 positions in betweenness in the aftermath of his travels (from 19.721 (1680-1690) to 14.226 (1690-1700)). The same dynamics are visible in figure 8.

In 1698, Joannes Kool arrived at the house of Magliabechi with books on behalf of Jacob Gronovius and Johannes Georgius Graevius, both correspondents of Magliabechi. Kool presented himself thus as a reputable scholar, vouched for by Magliabechi’s own contacts, which increased the probability that Magliabechi could trust him and open the door for him. In fact, upon seeing the books, Magliabechi treated Kool with great deference and welcomed him in Florence. As shown by table 4 and 5, Kool climbed 15 spots in the betweenness ranking in the aftermath of his travels (from the 28th place in 1690-1700 to the 13th place in 1700-1710).

Henrik Brenkman travelled to Florence in 1709, where he planned to make a critical edition of the Pandects, a project that Laurens Gronovius had started in the 1670s. Because Jacob Gronovius was afraid that Brenkman would win the glory for carrying out a project that his brother had begun, he urged Magliabechi to withdraw Cosimo’s permission to study the manuscript. Magliabechi, however, was unable to interfere with Cosimo’s decision. Magliabechi’s position was threatened by the Florentine scholar Anton Maria Salvini, who helped Brenkman throughout his stay. Salvini gradually took over Magliabechi’s brokerage position, making his appearance as a broker at the beginning of the eighteenth century (Appendix 3, table 6). In 1713, Brenkman returned to the Dutch Republic to work on his Historia Pandectarum, and stayed in contact with Salvini until well into the 1720s. The close ties with Salvini made Brenkman an important broker in the network, as confirmed by his high betweenness centrality in table 6. Brenkman was not the only Dutch scholar who received his aid. Gisbert Cuper, Jean Le Clerc, Jacob Tollius and Adriaan Reeland, former correspondents of Magliabechi, also began to correspond with Salvini. In light of what we have seen before, Salvini filled the structural hole as Magliabechi reached the end of his life. New generations took over the network of the old generation.

The only Dutch traveler mentioned in the previous chapter whose name does not appear in Appendix 3 is Coenraad Ruysch. His absence in the network can be explained by a complete lack of data on his epistolary relationships in the Catalogus Epistolarum Neerlandicarum. This highlights thus the need for qualitative methods to amplify and clarify the results of quantitative techniques to consider the complex relationships that shaped the interactions between the Dutch Republic and the Grand Duchy of Tuscany. The need for qualitative methods does not exclude the use of quantitative methods and vice versa.

5.4. EXPANDING THE NETWORK

While trust between correspondents was established on the basis of face-to-face meetings, someone could be also added to a communication chain by a recommendation from someone already present in the network. Saskia Stegeman, for instance, has noted that the physician Theodorus Janssonius van Almeloveen (1657-1712) “was able to establish a rich correspondence network without personal travels only by deploying a whole network of acquaintances and family ties who prepared his way”.642 The metrics in Appendix 3 show that his network of acquaintances enabled him to become a major node in the scholarly network throughout the second half of the seventeenth century. In the years 1690-1700, he occupied the second place in the ranking, after Magliabechi. Although it seems that Van Almeloveen

desired to establish contact with Magliabechi in 1695, a correspondence between the two never got off the ground.\textsuperscript{643}

Most of Magliabechi’s correspondents have never met him personally, but began corresponding with him through others who had become acquainted with him in Florence. Magliabechi’s extensive network was thus in large part a legacy of contacts established by previous generations of scholars who had visited him in Florence. Scholars such as Nicolaas Heinsius, Isaac Vossius, Gisbert Cuper, Johannes Georgius Graevius, Pieter Burman, Pierre Bayle, Jean Le Clerc, Adriaan Reland, Phillipus Rulaeus, Carolus Crucius, Jacob Perizonius and Antoni van Leeuwenhoek, began corresponding with Magliabechi through others that had become acquainted with him in Florence. This means that personal acquaintance and trust could be transmitted through introductions that stressed the credibility of a person. We have seen before, for instance, that Nicolaas Heinsius could begin corresponding with Magliabechi through Emery Bigot, who had become acquainted with Magliabechi during his stay in Florence in 1660.

In the 1670s, it was Jacob Gronovius in particular who paved the way for his colleagues to get acquainted with Magliabechi. When he visited Magliabechi in Florence in 1673, he helped him in his search for new correspondents in the Dutch Republic where Magliabechi himself would never go. During their meetings, Gronovius vouched for the credibility of other scholars, introducing Magliabechi into his closed circles of friends in the Dutch Republic: This is shown by the following letter from Magliabechi to the Dutch scholar Gisbert Cuper dated the 31\textsuperscript{st} of August 1677:

\begin{quote}
"Il nostro eruditissimo, e cortesissimo Signore Gronovio, so che appresso di V.S. Ill.ma mi potrà far chiarissima testimonianza di questo, poiché con l’occasione dell’avere onorato per qualche tempo la nostra Città, ha benissimo veduto, che io non mi curo di niente altra cosa, fuor che degli Studi, de’ Letterati, e de’ Libri, benché per mia disgrazia, abbia ne’ detti Studi fatto pochissimo profitto. È ben vero però, che se l’amicizia de’ Letterati, e padronanza sopra di me mi è universalmente gratissima; gratissima sopra quella di ogni altri mi è stata quella di V.S. Ill.ma, della quale ho letti g’eruditissimi Libri, e tante e tante volte parlomene con infinita lode qua, e scritto di costà, il suddetto dottissimo Gronovio."
\end{quote}

Vice versa, back home, Gronovius presented Magliabechi’s credentials as a citizen committed to the ideal of the Republic of Letters. These mutual recommendations encouraged Cuper to reach out to Magliabechi on the 19\textsuperscript{th} of July 1677.\textsuperscript{644} Consequently, Cuper became one of Magliabechi’s most important contacts in the Dutch Republic, exchanging hundreds of letters and books from 1677 until 1712.

Figure 13 shows the emergence of Cuper as a broker. The visualization traces the pathway of his academic career. The graph represents the same dynamics of the network we have encountered before. Like Magliabechi and the Gronovius brothers, Cuper is surrounded by a dense cluster of mutual contacts in the beginning of his epistolary career. This closed network helped him to build up a reputation in the scholarly world, which served in the practice of seeking introductions. Consequently, his reputation for being trustworthy made it possible to build safe bridges that would otherwise be too risky. As his career

\textsuperscript{643} In 1695, Theodorus Janssonius van Almeloveen wrote a letter of praise to Magliabechi, yet a correspondence between the two never got off the ground (Utrecht University Library, Hs 995, IV, ff. 92r-93r (copy)). The original letter is not extent in the National Central Library of Florence.

\textsuperscript{644} Magliabechi to Cuper, 31 August 1677, KB, KW 72 D 10, ff. 14-15, “Our very learned and gentle sir Gronovius, I know that he could clearly testify about this, because with the occasion of having honored our city for several times, he had seen very well, that I do not take care of anything else beyond scholarship, scholars and books, despite the fact that, to my disgrace, I do not have much profit in doing that. It is however true that I am universally grateful for the friendship of scholars and the mastery of them on me, and especially grateful I am for that of Your Illustrious Lordship, from whom I have read your very learned books, and many times Gronovius has talked about it with infinite praise when he was here in Florence.”

\textsuperscript{645} Cuper to Magliabechi, 19 July 1677, KB, KW 72 D 11, ff. 2-3.
advanced, he could move outside his own circle of trust, reaching for individuals who were far removed from his local network. Magliabechi was the obvious choice to fulfil these ambitions. By being introduced to Magliabechi by the mutual contact Jacob Gronovius, Cuper not only opened himself up to additional sources of information and scholarship, but also to the correspondence network emanating from Magliabechi.

**Fig. 13** Closure and brokerage in the network of Gisbert Cuper

Cuper’s brokerage position exponentially increased when he began corresponding with Magliabechi in 1677. Magliabechi’s confidentiality with Cuper became such, fueled by the reciprocal exchange of letters, books and other gifts, that Magliabechi granted Cuper an entrée in his network, introducing him to key figures in Italy, almost all of them ecclesiastics, or at least affiliated with the clergy. An illustration of this process can be seen in figure 14.
Fig. 14 Triadic closure in the epistolary network Magliabechi-Cuper over time. Network created with Gephi.
If we observe snapshots of Magliabechi’s and Cuper’s networks over time, it is possible to follow the formation of new edges through triadic closure.646 The first network shows the moment when Cuper and Magliabechi started to correspond with each other in 1677. At that moment, Magliabechi was already in contact with Raffaello Fabretti, Benedetto Bacchini, Antonio Bulifon, Henry Noris and Antoine Pagi. Fig. 14.2 shows the new edge we see from watching the network in fig. 14.1 over a long time span (1680-1685). In these years, Magliabechi introduced Cuper to his contacts Raffaele Fabretti, the papal antiquarian, and Enrico Noris, Cosimo’s theologian, each of which resulted in a correspondence. More contacts join the network of Magliabechi in the successive phases, which will eventually become correspondents of Cuper as well (fig. 14.3-14.6).

Cuper tended to trust the recommendations made by Magliabechi. By propagating trust throughout a social network of acquaintances Cuper was able to infer more trusted persons and hence improve the performance of his own network. At the same time, through these contacts, his brokerage position between the Dutch Republic and Italy grew, which is clearly reflected by the growing importance of Cuper throughout these years. This is not only visible in the dynamics in figure 13, but also in Appendix 3. Cuper gained 6 spots in his brokerage position, from tenth in the period 1660-1670 (table 1) to fourth in the period 1670-1680 (table 2). After 1690, Cuper’s list of acquaintances in Italy grew, contributing to his increasing brokerage position in these years (table 3-5). On the 16th of June 1696, for instance, Cuper reached out to Giovanni Giustino Ciampini (1633-1698) about the possibility to become a corresponding member of his Accademia Fisicomatematica in Rome.647 He contacted Ciampini after informing himself about the reputations of the Italian academies.648 In April 1692, Cuper asked Magliabechi what the origins of the strange names of the academies were. He was struck by what he had read in the Nouveau voyage d’Italie of François Maximilien Misson that the peculiar names of the Italian academies were worthy of horses rather than scholars:

“La Bizarrerie des noms, que ces gens la affectent, est une chose toute particuliere. En France nos Ecuiers en donnent a peu pres semblables a leurs chevaux de manege. Je vous nommeray seulement une douzaine de ces Academies. Les Addormentati de Genes; les Ardenti de Naple, les Immobili d’ Alexandrie, les Fantastici de Rome.”649

Cuper contacted Magliabechi for further explanation in this respect. On the 12th of April, Magliabechi answered Cuper that, although the names of the Italian academies seemed “poco onorevole”, membership was “con tutto ciò onorevolissimo”.650 The Accademia della Crusca, for instance, was so named because its members separated the wheat from the chaff, giving the Accademia the purpose of separating the good language from the bad language. With these words, Magliabechi had provoked Cuper’s interest, who decided to contact the Roman academician Ciampino in 1696.651 Besides Ciampini, he began to exchange letters with Gian Domenico Passioni, a Papal diplomat who visited Cuper in Deventer when he resided in the Dutch Republic to observe the peace negotiations leading up to the Treaty of Utrecht in 1713 and the scientist Francesco Bianchini (1662-1729), who worked for the papal curia and was

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646 This approach is developed by Easley and Kleinberg, 44.
650 Magliabechi to G. Cuper, 12 April 1692, KB, KW 72 D 10, ff. 68-69, “not so honorable”, “with everything very honorable”.
651 One letter from Cuper and Ciampini, written on the 16th of June 1696, is extant in the National Library of the Netherlands, KW 72 D 3.
celebrated for his astronomical and antiquarian investigations.\textsuperscript{652} In 1705, he corresponded with the Roman curial official Giusto Fontanini (1666-1736), professor of eloquence at La Sapienza in Rome and librarian of Cardinal Giuseppe Renato Imperiali (1651-1737), and maintained contact with Fontanini’s rival Ludovico Antonio Muratori.\textsuperscript{653} It was through the intermediation of Antonio Magliabechi that Cuper came into contact with most of these scholars.

In 1701, Magliabechi forwarded Cuper’s letters to Fontanini. Since Cuper had praised the \textit{Omelie del Sommo Pontefice} in his letter, Magliabechi hoped that Fontanini would show his letters to the famous antiquarian Francesco Bianchini. Fontanini, however, did not show the letter only to Bianchini, he also gave the letter to Pope Clement XI “che le ha vedute, e lette, con molta sodisfazione, e di sua propria mano, copiate le notizie, e novità Letterarie, che sono in esse”.\textsuperscript{654} In addition, Clement XI told Fontanino that he would be glad to receive other letters of Cuper. Cuper was delighted with this news and bragged about it to his colleagues. When Zacharius von Uffenbach visited Cuper in Deventer in 1711, as part of his tour of the principal cabinets and libraries of England, Germany and the Dutch Republic, he expressed his skepticism when Cuper boasted that the Pope was so charmed by Cuper’s letter that even the letters he wrote to others had to be read to him.\textsuperscript{655} Uffenback replied: “Ob ich nun gleich dieses alles wohl glaube, so liess es doch nicht wohl, so etwas von sich, zumal auf die Manier, wie e es geschage, vorzubringen.”\textsuperscript{656}

It was not only Magliabechi who played the role of recommender between the Dutch Republic and Italy. Jacob Gronovius did the same. Through the intermediation of Jacob Gronovius, Johannes Georgius Graevius came into contact with the librarian, which led to an elaborate correspondence that lasted from 1675 until 1702 (figure 15). Likewise, it was through Jacob Gronovius that the Dutch scientist Antoni van Leeuwenhoek and Magliabechi began exchanging letters (figure 16).\textsuperscript{657} Magliabechi informed Leeuwenhoek about the publications that came recently off the press in Italy. In 1695, Leeuwenhoek expressed his admiration for Magliabechi and dedicated his Latin version of the \textit{Arcana Naturae Detecta} to Magliabechi “in order that scholars both in Italy and elsewhere may become acquainted with my trifling labors”.\textsuperscript{658} Leeuwenhoek did not maintain an extensive network of contacts in Italy, but relied exclusively on the intermediation of Magliabechi. This example shows that Leeuwenhoek was aware that the best way to distribute his books in Italy was to dedicate his publications to bridging figures like Magliabechi. Last but not least, amongst de people who were introduced to Magliabechi, there was also the famous Pierre Bayle who came into contact with Magliabechi in 1697 through the intermediation of Laurens and Jacob Gronovius (figure 17).\textsuperscript{659}

\textsuperscript{652} The correspondence between Bianchini and Cuper, which lasted from 1709 until 1716, can be consulted in the National Library of the Netherlands, KW 72 G 23. The letters between Passionei and Cuper, written between 1670 until 1716, are extent in that same library, 72 H 14.

\textsuperscript{653} The correspondence between Fontanini and Cuper, which lasted from 1705 until 1715, can be consulted in the National Library of the Netherlands, KW 72 G 23. The letters between Muratori and Cuper, written between 1696 and 1714, are extent in that same library, KW 72 D 3.

\textsuperscript{654} Magliabechi to Cuper, 28 October 1702, KB, KW 72 D 12, f. 41, “has seen them, read them, with great satisfaction, and by his own hand, copied the reports, and literary news, in them.”

\textsuperscript{655} Toubor, “I am happy that Italy fosters such exquisite minds” Gijsbert Cuper (1644-1716) and intellectual life on the Italian peninsula”, 94. Toubor refers here to the work of M. Peters, ‘Nicolaes Witsen and Gijsbert Cuper: Two Seventeenth-Century Dutch Burgomasters and Their Gordian Knot’ (see note 656).


\textsuperscript{657} Eighteen of the letters that Leeuwenhoek wrote to Magliabechi have survived, and published in \textit{Anthoni van Leeuwenhoek, Alle de brieven}, 15 vols (Amsterdam/Lisse: N.V. Swets & Zeitlinger, 1939-1999).


\textsuperscript{659} Magliabechi to L. Gronovius, 22-12-1697, LMU, Cod 4° Cod. Msc 777, f. 25. See also Magliabechi to J. Gronovius, 22 October 1697, LMU, Cod 4° Cod. Msc 777, f. 44, “Perché so che l’ottissimo, ed eruditissimo Signore Baillo, è grande amico
The networks of Graevius, Leeuwenhoek and Bayle are consistent with the dynamics of closure and brokerage: we see that they first engaged in a network of trust and security before reaching out to more risky connections that allowed them to receive new and innovative knowledge from outside his local network (fig 15-17). In addition, their brokerage position increased after they became acquainted with Magliabechi, which enabled them to have access to unique information from Italy.

Fig. 15 Closure and brokerage in the network of Johannes Georgius Graevius

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di V.S.Ill.ma, e del suo Signore Fratello, sono a supplicarle reverentemente de’ loro favori. Da molti amici a Roma mi viene scritto, che nella detta Città di Roma, alle settimane passate, arrivarono molti esemplari del suo Lessico Critico, che subito però furono comprati. Mi soggiungono i detti amici, che l’ signore Baillio, mi ha per sua bontà onorato, di nominarmi in esso più volte con lode, onore da ma per capo alcuno non meritato. Le prego per tanto a degnarsi di riverire in mio nome il suddetto dottissimo Signore, e rendergli da mia parte grazie immortalì di una si eccessiva cortesia, usata con me, suo inutile Servo, non avendo io mai avuto fortuna di servirlo di cosa alcuna.” The relationship between Magliabechi and Pierre Bayle will be discussed in Chapter 6.
5.5. THE INTRODUCTION LETTER AS CURRENCY

When acting as an intermediary, and particularly as a recommender, a scholar provided two acquaintances with a new contact, thereby drawing more people into the ever-expanding society of the Republic of Letters. At the same time, this suggests also the principle that, as the network becomes more richly...
connected, individuals have less and less power over others. To make this more concrete, let us take a look at the network of Jacob Gronovius, the gatekeeper between Magliabechi and the Dutch scholarly society. Specifically, fig. 11 shows that Jacob Gronovius lost his brokerage role after he introduced Antoni van Leeuwenhoek to Magliabechi in 1685. When he joined the network of Magliabechi, Gronovius’ betweenness in the network declined, while his clustering coefficient increased. Likewise, in 1697 Laurens Theodor Gronovius (figure 12) introduced Pierre Bayle to Magliabechi, which resulted in the loss of his brokerage position between Bayle and Magliabechi. This means that the structural hole between the Dutch Republic and the Grand Duchy of Tuscany occupied by Laurens and Jacob collapsed as other scholars entered the network of Magliabechi by establishing their own links to the Florentine librarian. The same dynamics are visible in the network of Magliabechi himself, who began to lose his centrality in the network after the 1700s. In these years, he introduced Gisbert Cuper to many key figures in Italy.

Following this line of thinking, this means that introductions imply that the recommender serving as the bridge will lose his brokerage affordances, i.e. his information and control advantage. If A brings two of his own contacts, B and C, in touch, A will lose his gate-keeping position between B and C. In fact, B can now contact C directly. These dynamics can be implemented using a specific economic metaphor: currency. Introductions are the currency of the social transactions in the epistolary network that can only be ‘spend’ only once. After having introduced a person, the transaction cannot be longer repeated and the social capital of the recommender is reduced permanently. It is in this respect that introductions need to be considered as the social costs of the Republic of Letters as well as a moral obligation.

This explains also why Jacob Gronovius denied the delivery of Magliabechi’s letters to his opponents. For example, in 1674, Magliabechi wrote a letter to Jacob in which he set out his arguments as to why Gronovius should forward his letters to the Dutch classical scholar Abraham van Berkel. Gronovius’ however, who was involved in a conflict with Van Berkel, refused to forward Magliabechi’s letters to Van Berkel. Similarly, in 1698, Magliabechi received several books from the Utrecht scholar Ludolf Küster (1670-1716). According to the scholarly ideals of reciprocity in the Republic of Letters, Magliabechi was now obliged to Küster. Magliabechi could fulfill his obligation by writing him a letter to thank him for his gift:

“Il signore Neocoro io non lo conoscevo niente. Mi scrisse, e mi mandò a donare i suoi Libri, onde ogni convenienza voleva che io gli rispondessi”

Magliabechi asked Jacob Gronovius to deliver his letters to Küster, but Gronovius refused to collaborate. These examples, which will be discussed in more detail in the next chapter, show that Gronovius impeded the direct communication between Magliabechi and his opponents, hence maintaining his gate-keeping role between Magliabechi and the Dutch Republic.

5.6. CONFLICTS IN THE NETWORK

In 1675, Nicolaas Heinsius broke off all contact with Magliabechi. Nicolaas Heinsius held Magliabechi responsible for the onset of a conflict between Jacob Gronovius and the University of Pisa, which will be discussed in more detail in the next chapter. Because of this, Jacob Gronovius was ordered by Cosimo III to leave the Grand Duchy of Tuscany as soon as possible and Heinsius was afraid that this would

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660 Easley and Kleinberg, cit. 295.

661 Magliabechi to J. Gronovius, undated, LMU, Cod 4° Cod. Msc 778, f. 6, “Sir Neocoro I did not know at all. He wrote to me, and he gifted his books to him, and because of this I have to answer him.”
have damaged the Dutch relations with the Medici family. Angry that Magliabechi did not do anything to resolve the conflict between Gronovius and his enemies, Heinsius never wrote a letter to the librarian again. Heinsius’ decision to throw Magliabechi out of his network negatively affected the brokerage role of Magliabechi, whose betweenness centrality did not increase so steeply as in previous years (see figure 6). Yet, Heinsius did not only disadvantage Magliabechi, he undermined his own position as well. In fig. 6, we can see that the brokerage position in the network of Heinsius decreases after 1675. From that moment on, it became more difficult for Heinsius to obtain news and books from Italy, who merely had to rely on the intermediation of Apollonio Bassetti to circulate his books in Italy. Heinsius had met Bassetti in the Dutch Republic, when the latter accompanied Cosimo III on his grand tour, and had stayed in touch with him ever since.

While the betweenness of Magliabechi and Heinsius is negatively correlated with the quarrel, the betweenness centrality of their mutual correspondents is going in the opposite direction. Fig. 14 shows that the betweenness centrality of Apollonio Bassetti increased in the aftermath of the clash in 1675. Likewise, the betweenness centrality of Jacob Gronovius and Johannes Georgius Graevius underwent similar dynamics (fig. 11 and 15). This implies that Bassetti, Gronovius and Graevius obtained a brokerage position between Magliabechi and Heinsius, filling the structural hole between them. A close reading of the letters written by Magliabechi illustrate the intermediary, rather arbitral, role occupied by Gronovius and Graevius in these years:

“Io mi maraviglio che ’l signore E.... [Heinsius] abbia avuto cuora di salutarmi per mezzo del signore Grevio. Io per vulpinar con la volpe lo reggo a rendergli da mia parte saluti.”

Figure 6 shows that it will not be long before Magliabechi was able to reassess his position in the network. In fact, if one looks at the developments in Magliabechi’s epistolary activity (table 1), we can see that the number of correspondents practically explodes after 1675, from 2 to an average of 11 correspondents each year. For Magliabechi, these contacts filled the void left behind by Heinsius. This enabled him to restore his intermediary position in the network. In other words, Magliabechi’s capacity to occupy structural holes in the network, which is about the value of increasing variation in a network with new generations of scholars, allowed him to become and remain one of the leading players in the Republic of Letters for more than 40 years.

5.7. INWARD-LOOKING DYNAMICS IN THE NETWORK OF BASSETTI

While the previous discussions revolved around scholars who strived for closure in the beginning of their career and then reached out to contacts outside their network of trust to obtain new and recent knowledge, the metrics regarding the network of Apollonio Bassetti show exactly the opposite. Fig. 18 shows how the grand ducal secretary Apollonio Bassetti moved between open and closed network throughout the course of his career. We see that his brokerage position rapidly increased at the time of his stay in the Dutch Republic in 1667-1668. During his travels, Bassetti actively looked for key figures who could provide him, once he returned to Florence, with detailed information about the latest developments in the Dutch society. He sure knew how to pick the right contact in the Dutch Republic: it was the hub and broker Nicolaas Heinsius who became his most important informer.

662 Magliabechi to J. Gronovius, undated (1675), Cod 4° Cod. Msc 777, f. 132, “I am surprised that sir E[insio] has had the guts to greet me by way of sir Graevius. I, behaving like a fox, ask you to pass on my greetings to him”.

663 The correspondence between Nicolaas Heinsius and Apollonio Bassetti is extant in the State Archive of Florence, Mediceo del Principato, no. 4261-4263.
correspondence lasted until the death of Heinsius in 1681. Besides receiving news of the Dutch Republic from Heinsius, Bassetti occasionally received news from Pieter Blaeu and from his network of subjects living in Amsterdam, of whom the most important were the Florentine merchants Francesco Feroni, Giovacchino Guasconi, Giovanna da Verrazzano and Giacinta del Vigna. The importance of Bassetti’s brokerage position between the Grand Duchy of Tuscany and the Dutch Republic is also underlined by his appearance in Appendix 3 (table 1 and 2), in which Bassetti ranks in the seventh place during the 1660s and 1670s.

Fig. 18 Closure and brokerage in the network of Apollonio Bassetti

Apparently, however, Bassetti did not manage to keep this up: a decreasing betweenness centrality between 1672 and 1673 implies that he lost his brokerage position (see figure 14). This decline is certainly not a good sign, especially considering the fact that this moment coincides with Bassetti’s first days in the office as the Segretario della Cifra (1670) of Grand Duke Cosimo III, which may be defined, as a modern-day equivalent, as the Secretary of State. The explanation for his demise is apparent: it was caused by Magliabechi. In 1671, Antonio Magliabechi began to exchange letters and books with Nicolaas Heinsius on a regular basis. Consequently, the correspondence between Heinsius and Magliabechi undermined the position of Bassetti in the network, who lost his exclusive access to Heinsius.

Yet, figure 13 shows that Bassetti managed to pull himself together. He regains his intermediary position in the period 1674-1681. In these years, Heinsius and Magliabechi were in a middle of a dispute, which, as we shall see in the next chapter, resulted in the dismantling of their correspondence in 1675. The missing link between Heinsius and Magliabechi allowed Bassetti to function as a broker between them, as is illustrated by the correspondence between him and Guasconi. On the 19th of June 1679, for instance, Guasconi informed Bassetti that Heinsius had sent him a box of recently published editions of his Virgil.

664 Guasconi to Bassetti, 19 June 1697, ASF, MdP, 4263 (XII), c. 587, “Dell’pacchetto libri accennatoli con la mia della passata ingiunto con questa glene mando la polizza di carico che si compiacerà servirsene per farne all’arrivo della nave in Livorno per curar la riceuta servendoli che il suo contenuto consiste in sei pieghegni appartenenti alle persone che ciascheduno pieghetto sta soprascritto cioè: 1 pieghetto per il Serenissimo GranDuca nostro Padrone; 1 detto per l’Emenisimo signore cardinale
Bassetti “soo dat niet twyffe ofte sullen wel te recht koomen”.\textsuperscript{665} In October 1680, Bassetti informed Heinsius that the books had arrived in Tuscany.\textsuperscript{666}

The intermediary role of Elzevier is supported by the metrics in Appendix 3 in which the name of Elzevier appears in the 18\textsuperscript{th} place in table 2. Bassetti was commissioned to deliver the books to other leading scholars in Florence, including Antonio Magliabechi. Despite the difficult relationship between Magliabechi and Heinsius, the latter continued to send his books to the librarian. The intermediary role of Bassetti enabled Heinsius to do so while keeping a safe distance from Magliabechi.

Figure 18 shows that the position of Bassetti follows a downward trend in the 1680s which implies that he lost his intermediary position again. The death of Nicolaas Heinsius in 1681 laid the seeds of this demise. Consequently, Bassetti’s network turned inwards, as is shown by a high clustering coefficient and a low betweenness centrality score from the 1680s onwards. In these years, he primarily maintained contact with the tightly-knit merchant communities in Amsterdam. This closed network enabled Bassetti to exercise control over his own subjects. The example of the Florentine engineer Pietro Guerrini is illustrative in this respect. As has been discussed in the previous chapter, Guerrini travelled to the Dutch Republic from 1682 until 1684 to spy on the latest technological innovations. Throughout his stay in the Dutch Republic, Guerrini received assistance from Pieter Blaeu and Giovacchino Guasconi, as ordered by Apollonio Bassetti. His decision to put his most loyal correspondents in the service of Guerrini was an informed and strategic choice: through them he could control the young Guerrini, as is shown by the letters Guasconi sent to Bassetti. In these letters, Guasconi informed Bassetti about the whereabouts of Guerrini. On the 7\textsuperscript{th} of July 1684, for example, Guasconi reported that Guerrini had become victim of a serious disease that obstructed him to continue his espionage activities.\textsuperscript{667} Yet, he soon found out that Guerrini was faking his illness so he could stay longer in the company of a Flemish woman “che lo ispiri diversamente”.\textsuperscript{668}

The death of Heinsius caused Bassetti to look inward rather than outward. He interacted more and more with his own agents and less and less with outsiders. As the secretary of state, Bassetti was responsible for the reputation of Cosimo III, and therefore had to be prudent in the exchanges in which he was involved. This might have been the reason why he did not want to take any risks, preferring to have long-standing relationships with persons from whom he knew that he could trust them. Such a closed circle of contacts enabled him to receive and exchange confidential knowledge, maybe even state
secrets (like the secret newsletters of the diplomat Abraham de Wicquefort), that needed to be kept hidden from outsiders.

Bassetti held on to his familiar and conservative network of Tuscan merchants during his entire career, in particular with the Amsterdam based Florentine merchant Giovacchino Guasconi who served the Medici court from 1673 until 1682. Guasconi’s chief responsibilities were to fill Bassetti’s orders for all sorts of imports from the East and the Orient. After the death of Nicolaas Heinsius it seems that Guasconi also took over his role, informing the Grand Duchy about the scholarly developments of the Dutch society. In the 1680s, for instance, he began to send several literary journals to Bassetti, including copies of the Bibliotheca Universalis and Pierre Bayle’s Nouvelles de la République des Lettres. On the 23rd of August 1686, for instance, Guasconi informed Bassetti that he had sent the 21 previous issues of the Nouvelles de la République des Lettres, which were published monthly in Amsterdam.669 Once these issues arrived in Florence, Bassetti was said to be 21 months behind!

Retrieving up-to-date information is an essential feature to run a state. Clearly, Bassetti did not manage to keep up with the scholarly developments in the Republic of Letters. This is exemplified by the tightly-knit network structure of the 1680s onwards as shown in figure 18, which formed an insuperable barrier for the flow of recent and innovative information in his network. He was not able to fill the structural holes left by the absence of Heinsius, unlike Magliabechi who continuously reached out to new generations of correspondents in the Dutch Republic, providing him with varied information and news about recently published books. A way to overcome his difficulties, without relinquishing control over the security of his own network, might have been a collaboration with Magliabechi, whose expertise and network could have served him to obtain every information he needed. Magliabechi, in fact, maintained direct contact with the editors and publishers of the Nouvelles de la République des Lettres, including Pierre Bayle, Henry Desbordes and Jean Le Clerc. Yet, it seems that Magliabechi and Bassetti were working completely independently of each other. Various examples throughout this study have also shed light on the hatred and distrust towards each other, which undoubtedly contributed to the apparently missing cooperation between the two. The clumsy collaboration is exemplified by the following case regarding the purchase of books from the Biblioteca Heinsiana.

In the memory of Heinsius, Cosimo III desired to purchase a number of valuable books from Heinsius’ library, which was going to be auctioned off in Leiden in 1683. Initially, the complete collection of Nicolaas Heinsius was meant to be bought by the Leiden University Library. However, because of budgetary constraints the library was unable to acquire the collection. Therefore, soon after the death of Nicolaas Heinsius, Johannes du Vivié (1655-1733), a Leiden bookseller and auctioneer, was commissioned to compile a catalogue of the circa 13,000 books contained in Heinsius’ library. A year later, Du Vivié had finished the catalogue and asked Abraham Elzevier to print 350 to 400 copies, which were subsequently distributed across Europe. On the 10th of February 1683, Magliabechi informed Bassetti that Carolus Crucius, one of Magliabechi’s new additions to his network, had sent him the catalogue “nel quale sono certo i più preziosi, ed i più rari Libri, che possano mai trovarsi”.670 Because

669 Guasconi to Bassetti, 23 August 1686, ASF, MdP, 4264, f. 123, “Comprendo dalla gentilissima di V.S.ill.ma 6 dell’orante la riceuta dell’libretto intitolatolo Memorie della repubblica di letterati quale secondo che ogni mese verrà dato in luce glene anderò continuando l’invio e li precedenti numero 21 già stampati come dice tutti insieme per via di mare in congentura di

670 Three letters from Crucius to Magliabechi have survived in the National Library of Florence, Fondo Magliabechiano, VIII 270. They were all written in 1683. Magliabechi to Bassetti, 10 February 1683, ASF, MdP, Carteggi dei Segretari, 1528, “Il
Heinsius had been a “si gran Servidore” of the Grand Duke and a “si caro Amico” of Bassetti, Magliabechi was convinced that Cosimo III was interested in buying several books from the auction. On the 17th of February, Bassetti confirmed that he received the catalogue, but that he is unable to return it to Magliabechi because the Grand Duke “vuole scorrerlo un altro poco”671 On the 5th of March, Magliabechi urged Bassetti to return the catalogue because he had heard from Crucius that the sale had already taken place. In addition, many others, like Prince Francesco Maria de’ Medici and Pietro Maria Cavina (1637-1690) desired to see the catalogue as soon as possible.672 Bassetti answered Magliabechi three days later that the Grand Duke “volveva vederlo un altro poco”.673 More than one month later, long past the auction, Magliabechi sent the catalogue to his friend in Siena, Filippo d’Elci, now that the Grand Duke had finally seen the catalogue.674 Two months after the auction, on the 14th of April 1683, Magliabechi commissioned Pieter Blaeu to buy several books from the Biblioteca Heinsiana for Prince Francesco Maria de’ Medici. Pieter Blaeu answered Magliabechi on the 11th of June 1683 with bad news:

“Mi è pervenuta la nota d’alcuni libri estratti dal Catalogo della libreria del Sig.re Heinsio che desidererebbe il Ser.mo Principio Francesco di Toscana: non ho mancato di far vedere et essaminar la detta nota da’ librari principali di questa Città, li quali hanno fatto comprari, secondo mi dicono, parecchi libri nella vendita della detta Libreria, e tuttavia mi sono accorto che da tutti questi libri non potrà havere se non cinque o sei libri della detta nota al più e non de’ più grandi ma de’ mediiori e ciò a prezzo rigorosi, però mi è parso bene di non comprari quelli pochi: questi libri mi hanno dato per risposta che li libri della detta nota son li più rari di tutta la detta Libreria quantonque non sono li più grandi e grossi: mi dispace fuor di modo che in questa occurenza non posso havere la fortuna di poter servire il detto Ser.mo Sig.re Principe.”675

gentilissimo, ed eruditissimo signore Crucio, Parente stretto del signore Einsio, che fu si gran Servidor del S.A.S., e si caro Amico di V.S.II.ma, mi ha mandato per la Posta l'Indice de' Libri del detto signore Einsio, che si vedranno spezzatamente a 15 del seguente mese. Mi scrive come vedrà, che me lo manda per la posta, perché S.A.S. possa vedere se vi è cosa alcuna che brami. So che S.A.S. impiegata sempre in affari importantissimi, gravissimi, e santissimi, non può perdere tempo in tal cosa, ma con tutto ciò, per non defraudar quel cortesissimo signore mandò quell'Indice a V.S.II.ma. Sapevo che il signore Einsio aveva una delle più insigne Librerie di Europa, ma con tutti ciò mai mi sarei presuppuesto che fosse tanto preziosissima, come veramente è. Sono in essa i migliori, e più vari Libri del Mondo. Io ne ho qualcuno, e con tutto ciò, se avessi danari, ne comprerei per cinque o sei mila scudi.”; Magliabechi to Bassetti, 13 February 1683, ASF Mediae del Principato, Carteggi dei segretari, 1528, “Ecce lo Catalogo della Libreria del signore Einsio, già così suo caro Amico, nel quale sono certo i più preziosi, ed i più rari Libri, che possano mai trovarsi”.

671 Bassetti to Magliabechi, 17 February 1683, BNCF, Magl. VIII 425, f. 36, “Cola seconda sua lettera ricevette l'indice della Biblioteca Heinsiana, qual posi nelle mani di S.A. nostro signore con dirli ciò ch'ella mi scriveva del pregio che merita una de' più grandi ma de' mediiori e ciò a prezzo rigorosi, però mi è parso bene di non comprari quelli pochi: questi libri mi hanno dato per risposta che li libri della detta nota son li più rari di tutta la detta Libreria quantonque non sono li più grandi e grossi: mi dispace fuor di modo che in questa occurenza non posso havere la fortuna di poter servire il detto Ser.mo Sig.re Principe.”675

672 Magliabechi to Bassetti, 5 March 1673, ASF, MdP, Carteggi dei Segretari, 1528, “Mi nuovo solamente a scriverle, e pregarla, mentre che S.A.S. le avesse restituito l'Indice de' Libri del signore Einsio, a favorirmene, poiche come può vedere dall'inclusa del signore Crucio, I Libri son cominciati a vendersi., e mi fanno instanza di vedere il detto Indice, non solo alcuni qua, ma me ne è anche scritto di fuora, come dal signore Cavina, e da molti altri.”

673 Bassetti to Magliabechi, 8 March 1673, BNCF, Magl. VIII 425, f. 40, “Non solamente il Padrone Serenissimo non mi restituij l'Indice Heinsiano, ma questo giorno avendone io motivato a S.A.S. qualche cosa con buon modo, m'ha detto, che voleva vederlo un'altro poco, ond'ai V.S.II.ma dice mia colpa d'avere trasgressito i suoi ordini

674 Magliabechi to d'Elci, 22 June 1683, in Alfonso Mirto and Henk Th. van Veen, Pieter Blaeu: Lettere Ai Fiorentini: Antonio Magliabechi, Leopoldo e Cosimo III de’ Medici, e Altri, 1660-1705, 235, "I received the list with several books extracted from the catalogue of the library of sir Heinsius desired by Prince Francesco of Tuscany: I did not fail to show and let examine that list to the principal booksellers in this city, who have bought, at least this is what they said to me, many books during the selling of that library. Yet, I noticed that I can only have maximum five or six books from the list from all these booksellers, and not even the biggest books, but the mediocre ones and that at high prices, for which I thought it would be right not to buy these few books. These booksellers have answered me that the books in that list are the rarest of the entire library, even though they are not the biggest and the largest ones. I am very sorry that I cannot have the fortune to serve the Prince in this.”
Meanwhile, Bassetti took the lead on his own, ordering books for the Grand Duke without giving any notice to Magliabechi, who continued to believe that the Grand Duke was still browsing the catalogue, deciding which books to buy. On the 22nd of February 1683, so 5 days after Bassetti received the catalogue from Magliabechi, Bassetti informed Guasconi in Amsterdam that the Grand Duke desired to purchase a number of valuable books from Heinsius’ library. ‘Per mezzo di qualche amico intelligente’, Guasconi needed to do everything he could to obtain the following books: an Islandic Bible, mentioned on the first page under number 9 of the catalogue’s section ‘Theology in folio’ and S. Remigij explanationes epistolarum B. Pauli Apostoli, Mogunt 1514.676

Bassetti’s letter, however, arrived too late in Amsterdam and Guasconi notified Bassetti that the books he ordered for Cosimo had already been sold. Jansonius, the principal bookseller of Amsterdam, had informed Guasconi that there is also an Islandic Bible in Hamburg and he promised to write to his friends there to sell him the book at a modest price. Moreover, Guasconi visited Johannes Di Vivié in Leiden, who had supervised the sale of the Bibliotheca Heinsiana to ask him who had bought the books. If Guasconi would know the names of the buyers, he maybe could buy the books at a higher price. On the 2nd of April 1683, Guasconi informed Bassetti that he was able to identify the owner of the book San Remigij explanationes epistolarum and convinced him to sell him the book for five florins.677 The Islandic Bible, however, was bought during a secret auction of the Bibliotheca Heinsiana by an English minister who lived in Leiden. He does not want to sell the books, for which he had paid 10 Florins. Besides the Grand Duke, a person in the service of the Vatican Library in Rome had offered him 46 florins, but the minister did not want to sell the bible. Meanwhile, Guasconi had not heard yet from Jansonius, who was trying to buy a similar Icelandic bible in Hamburg. Then, on the 30th of April 1683, Guasconi informed Bassetti that it was also impossible to find the Islandic Bible in Hamburg, because the book which the bookseller Jansonius had in mind had already been sold.678 Bassetti was left empty-handed. This was certainly his own mistake if we consider his marginal position in the network of these years. If he would have relied on the help of Magliabechi who, with his relations, could get better hold of books than the Tuscan merchants in Amsterdam, he would have had a greater chance to obtain what he needed.

The failed dynamics between Bassetti and Magliabechi are in sharp contrast with the information-handling techniques adopted by the successful French secretary of state Jean-Baptiste Colbert, who operated in about the same period. More than Bassetti, Colbert understood the value of librarians, and of the Republic of Letters in general, to receive the information that was needed to run a government. Jacob Soll has argued that the case of Colbert’s information systems shows the extent to which the Republic of Letters coexisted in a symbiotic relationship with the growing sphere of state information and knowledge. Colbert sought out the services of Don Jean Mabillon (1632-1707), librarian of the Abbey of Saint-Germain-des-Prés in Paris to look for documents relative to the rights of the Gallican church, which were central to fortifying Louis’s power and claims over ecclesiastical benefices.679 In 1663, Colbert

676 Bassetti to Guasconi, 22 February 1683, ASF, MdP, 4263, f. 693, “By means of an intelligent friend”
677 Bassetti to Guasconi, 2 April 1683, ASF, MdP, 4263, f. 699, “Circa la bibbia in lingua islandica questa fu comprata alla vendita segreta della libreria Heinsiana da un predicante inglese dimorante in Leijden che sento non la vuole vendere, a lui è costato circa fiorini 10 e dopo persona che gli la ha richiesta per commissione teneva di Rome dicono per servitio della Biblioteca Vaticana gli ha presentato fiorini 46, ma il detto predicante dicono non sene vuole disfare che è quanto in questo gli posso notificare, io ho stimato bene non parlare a detto predicante per non darli subito occasione di maggior retinenza e pretensione. Questo libraio Jansonio che mi haveva dato intenzione di una simile bibbia dice non tener ancora risposta di Hamburgho di dove l’attendeva che non so quello sia per seguirne”.
678 Bassetti to Guasconi, 30 April 1683, ASF, MdP, 4263, f. 703, “Circa la Biblia Islandica ne anco in Hamburgho si hebbe fortuna ritrovarla già che quella che in detto luogo credeva ancora ritrovarsi questo signore Jansonius librario era stata venduta”.
names his own librarian, the mathematician Pierre de Carcavy (1600–1684), royal librarian to consolidate the link between his private collection and the Royal Library. In addition, the librarian Étienne Baluze helped Colbert to manage historical documents for his daily political uses. Colbert insisted that his collection needed to be up-to-date and Baluze was responsible for this, being commissioned to acquire all new publications and archival discoveries.

5.7. WITH GREAT POWER, COMES GREAT DANGER

Brokers as Magliabechi could use their centrality in a network – their “betweenness” – to engage in a strategic behavior as entrepreneurs. This granted them access to powerful positions in the network, that is, having exclusively access to information and people. The wider the network of a scholar, the greater his status, both because he clearly had the respect and confidence of many other colleagues, and because his extensive network of contacts allowed him to procure exclusively assistance to others. Magliabechi’s large network of contacts put him in the unique position to transmit bibliographical news, books and ideas from one person to another. Besides knowledge, Magliabechi could lend scholars contacts. He could guarantee aspiring scholars an entry into his trans-European network and introduce scholars to each other who were working in the same field. We have seen, for example, how he guaranteed Cuper and entrée in his extensive network of Italian contacts, introducing him to key figures in Italy. This web of socially dependent connections allowed Magliabechi to become and remain one of the leading players in the Republic of Letters for more than 20 years, despite the waning glory of Florence around that time.

At the same time, his brokerage position in the network posed a significant threat to others. Because Magliabechi had access to a wide variety of information, he was often subject of effective targeted ‘attacks’ by his enemies who sought to discover what he was up to. It is therefore not by chance that the letters of Antonio Magliabechi were opened, read and sometimes even deciphered by persons who were eager to know what information he received from the farthest reaches of Europe. A letter from the 25th of September 1674, for instance, shows that Magliabechi urged Heinsius to be careful what he wrote in his letter to him because the letters risked interception by secretary Apollonio Bassetti, who controlled all his incoming mail from the Dutch Republic:

“Odiandomi pertanto a morte, il detto Segretario, […] certo che mi apriranno tutte le lettere, che mi saranno mandate da costà. Per questo la supplico a non mi mandar nel piego di S.A.S. se non le lettere contenenti novità letterarie, o simili cose che possano essere vedute da tutti. Le altre, nelle quali V.S. si degnasse di scrivermi qualcosa che avesse caso che fosse segreta, mi onori di mandarmela a dirittura per la posta.”

To cover himself against the threat of his letters being intercepted, Magliabechi often had to resort to measures of secrecy, something which I have discussed in detail in the introduction of this study. We have seen that, in many cases, he was self-censoring by way of vague allusions and omissions, he wrote confidential information on tiny little papers that could be easily hidden and urged his correspondents to destroy his letters immediately after reading, in an attempt to make the information contained in his

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680 Soll, 99.
681 Soll, 122.
682 Goldgar, Impolite Learning, cit. 30.
683 Magliabechi to N. Heinsius, 29 September 1674, UBL, BUR F 8, “Because that secretary [Bassetti] hates me to death, of course they will open all my letters, that will be sent to me from there [the Dutch Republic]. Therefore, I beg you to send only those letters that contain literary news, or such things that can be seen by everyone, in your mail to Cosimo III. The other letters, in which Your Illustrious Lordship deigns to write me something that you would like to keep secret, you honor me to send them to me immediately by mail.”
letters inaccessible for outsiders. He also protected other important brokers in the network, like Giusto Fontanino (see Appendix 3, table 5), who sent Gisbert Cuper’s letters to Pope Clement XI, simply referring to him as the “amico di Roma” and urged Cuper to tear the letter apart immediately after reading “perché mai in tempo alcuno possa esser veduta da anima vivente, scrivendole la io, in estrema segretezza, e confidenza”. 684

684 Magliabechi to G. Cuper, 28 October 1702, KB, KB, KW 72 D 12, f. 41, “the friend of Rome”, because no single living soul can ever see this, as I write this in extreme secrecy and confidentiality.”