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Introduction: Fitting Manuscript Studies into the Historical Network Research

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Introduction: Fitting Manuscript Studies into the Historical Network Research

In September 2023, when this special issue will be published, the application of network analysis and network visualization techniques to traditional historical topics can still be considered an emerging trend within the methodological landscape of humanities research.¹ While studies that make use of social network analysis have made sporadic appearances in historical journals since the 1970s,² the awareness of the network methodology among scholars engaged in the study of the past has only reached a critical mass within the last two decades with the advent of new computational tools. A testament to this development is the establishment of the *Historical Network Research Community* in 2009³ and the *Social Network Researchers of the Middle Ages* (SNARMA) in 2018,⁴ the organization of (bi)annual conferences dedicated to historical network research since 2013, and the appearance of this journal, the *Journal of Historical Network Research* (JHNR), in 2017.

Most historical research featured by the aforementioned venues and in collected volumes dedicated to historical network research belongs under the banner of social network analysis (SNA).⁵ Indeed, social historians should be credited as the first among history practitioners to have taken an interest in network theory, using the methods devised by sociologists and social anthropologists for the examination of contemporary human relations and interactions and

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- 1 A general overview of developments in the field of historical network research in recent decades can be found in Rehbein, "Historical Network Research, Digital History, and Digital Humanities"; Fazioli, "Modeling the Middle Ages."
- 2 See for example Reinhard, *Freunde und Kreaturen*; Smith, "Kin and Neighbors in a Thirteenth-Century Suffolk Community."
- 3 At: <https://historicalnetworkresearch.org/>.
- 4 At: <https://medievalсна.com/>.
- 5 See for example Gamper, Reschke, and Düring, *Knoten und Kanten III*; Brughmans, Collar, and Coward, *The Connected Past*; Kerschbaumer et al., *The Power of Networks*.

transplanting them to historical subjects.⁶ However, SNA is not the only network-based methodology relevant for historical research. Scholars other than historians have also been independently developing, and at times unwittingly experimenting, with network visualization and analysis that does not concern direct human interaction and therefore cannot be properly called social. A notable example is provided by archaeologists applying network analysis to man-made artifacts.⁷ Another group of history practitioners who have made an incursion into the methodological terrain of network theory is the scholars of texts and their written media who are interested in their production, transmission, and reception.

These non-social types of historical network research have not yet seen the same degree of codification as historical SNA. Until now, we have lacked both publications specifically dedicated to this type of historical network research and the degree of theorization that would put it on a similarly firm footing within the field of historical network research as SNA.⁸ This special issue of the JHNR aims to alleviate this situation. It brings together, for the first time, network-based research in manuscript studies. While one or two of the contributions in this issue have a social aspect, most represent examples of historical network research that do not qualify as SNA. Our hope as editors of this issue is twofold. First, we would like it to stimulate interest in (non-social) network-based approaches within manuscript studies by showcasing what has already been undertaken. Second, we would like it to serve as a basis for the discussion of the utility and viability of network-based research as a methodological framework applied to texts and text-bearing objects, especially beyond the confines of SNA. Perhaps the most pressing methodological and theoretical question underpinning the latter objective is to what extent can we, scholars of the text and text-bearing objects, borrow the concepts and models developed in the context of SNA, as our research subjects are not humans and therefore cannot be considered to have friends, families, or business associates. Can we say that texts form cliques, such as when they appear in a historical book in large numbers, as one researcher has?⁹ And if we cannot, is it a matter of terminology, or is it because the concepts and models of SNA are in some way fundamentally unsuitable to the needs of manuscript and text specialists? This issue cannot and will not provide answers to these essential methodological and theoretical questions, but we as editors hope to at least open the

6 On the adoption of SNA by historians, see, among others, Wetherell, “Historical Social Network Analysis.”

7 See the overviews in Knappett, “Networks in Archaeology: Between Scientific Method and Humanistic Metaphor;” Brughmans and Peeples, “Trends in Archaeological Network Research: A Bibliometric Analysis.”

8 To our knowledge, the only attempt at theorization of non-SNA network model in the context of the historical network research has been undertaken in de Valeriola, “Can Historians Trust Centrality?”

9 de Valeriola, “Can Historians Trust Centrality?,” 95.

door to further discussion with the scholarly community interested in historical network research.

The impetus to produce this special issue stemmed from the *Networks of Manuscripts, Networks of Texts* international conference taking place virtually at the height of the COVID pandemic on 21–23 October 2020. The conference, organized in the context of Evina Stein’s *Innovating Knowledge* project,¹⁰ was conceived as an opportunity to bring together manuscript and early print specialists who had either already tried their hand at network analysis or were planning to incorporate it into their ongoing research. It was hoped that the conference would serve as a space where researchers from different disciplinary backgrounds could benefit from each other’s research successes and failures, and where a productive cross-fertilization could be achieved by uniting disparate strands of research that had been carried out without previous mutual awareness. The significant interest in the conference, which featured sixteen presentations that covered topics as varied as Old Norse sagas, early modern Kabbalistic texts, public inscriptions from the Tang Dynasty China, and medieval Latin sermon collections, made it clear that there is a community interested in deploying network-based methods on written artifacts and a need to cultivate such methods within the historical network research framework.¹¹

Historical network research within manuscript and textual studies carried out prior to the publication of this special issue belongs to several distinct strands. The earliest attempts to deploy network-based methods on texts and text-bearing objects have stemmed from scholars’ interest in understanding the transmission of pre-modern texts. The interest in multitext books and their role in textual transmission is not new and the issue has been studied from different perspectives, but the implementation of network analysis presents a brand-new perspective developed in the last decade, as several scholars, unbeknownst to each other, experimented with visualizing and modelling the relationship between manuscripts transmitting the same texts as networks.

10 See the website of the project at: <https://innovatingknowledge.nl/>. The funding for the conference was provided by the Dutch Research Organization (NWO) as a part of the VENI grant 275-50-016.

11 The conference program and presentation abstracts are available online at: <https://homo-modernus.net/2020/08/26/conference-programme-networks-of-manuscripts-networks-of-texts/> (accessed July 14, 2023). A report with short summaries of all presentations has already been published in Fernández Riva, “Conference Report: Networks of Manuscripts, Networks of Texts. Amsterdam (Online), 21–23 October 2020.” Some of the conference presentations were recorded and are available via the *Digital Medieval Webinar Repository* (DMWR) at: <https://zenodo.org/communities/dmwr> (accessed July 14, 2023), and the YouTube channel of the *Networks of Manuscripts, Networks of Texts* conference, at: https://www.youtube.com/watch?v=IL9wTG_v5y8&list=PLK3oMFX57ubw-eIToV8O5S3vZWTpDjnHy (accessed July 14, 2023).

Prominent among the early pioneers were scholars of Nordic literature. In 2013, Alaric Hall and Katelin Parsons included a network representing the co-occurrence of Old Norse romance sagas in multitext manuscripts in their article about the transmission of *Konráðs saga keisarasonar*.¹² Two years later, Matias Blobel used network analysis in his MA thesis to explore the genre classification of Old Icelandic texts co-occurring in multitext manuscripts based on the metadata available in the manuscript database *Handrit*.¹³ More recently, Katarzyna A. Kapitan and Tarrin Wills have expanded their research, deploying network analysis on a larger corpus of Old Norse manuscripts that transmit sagas in order to test the genre boundaries proposed for them by traditional scholarship.¹⁴

Independently of scholars of Nordic literature, networks of shared transmission in multitext manuscripts and books were explored by scholars of Latin and non-Nordic European vernacular literature. To provide just a few examples, Octave Julien employed network analysis to explore the co-occurrence of vernacular French and English texts in French and English multitext manuscripts from the late Middle Ages in 2016.¹⁵ In 2018, Zdenko Vozár used the manuscript metadata available via the *Manuscriptorium* digital library¹⁶ to examine the co-occurrence of Latin and Czech texts by the theologians of the Bohemian reformation in fourteenth-century manuscripts from Bohemia.¹⁷ In the following years, Gustavo Fernández Riva articulated some of the general methodological precepts for analyzing shared manuscript transmission of medieval texts, demonstrating them on medieval texts written in German based on the metadata available in the online database *Handschriftencensus*.¹⁸ Around the same time, N. Kivlçim Yavuz experimented with visualizations of the co-occurrence network of late an-

12 Hall and Parsons, “Making Stemmas with Small Samples, and Digital Approaches to Publishing Them.”

13 Blobel, “Web’Scraping Parchment.” The *Handrit* manuscript database is available at: <https://handrit.is/> (accessed July 14, 2023).

14 They presented their preliminary results at the *Networks of Manuscripts, Networks of Texts* conference. The recording of their presentation is available at: https://youtu.be/bShYu_Ag-WA (accessed July 14, 2023). They were later published as Kapitan and Wills, “Sagas and Genre.” Kapitan also made methodological observations about the limits of manuscript metadata currently available online for undertaking network analysis; see Kapitan, “Perspectives on Digital Catalogs and Textual Networks of Old Norse Literature.”

15 Julien, “Déliier, lire et relire.”

16 *Manuscriptorium* is available at: <https://www.manuscriptorium.com/en> (accessed July 14, 2023).

17 Vozár, “Metadata for the Middle Ages.”

18 Fernández Riva, “Network Analysis of Medieval Manuscript Transmission;” Fernández Riva and Millet, “Überlieferungsgemeinschaft in deutschsprachigen Handschriften.” The *Handschriftencensus* database is available at: <https://handschriftencensus.de/> (accessed July 14, 2023). Fernández Riva later expanded his research to also include metadata about medieval texts composed in French and Occitan (from the *Jonas* database) and the Ibe-

tique Latin narratives about the Trojan war in medieval manuscripts as a part of her project *Transtextual Networks in the European Middle Ages*.¹⁹ Most recently, Elizabeth Archibald used network visualizations to study the distribution of grammatical texts in Carolingian grammatical handbooks and their mutual relationships,²⁰ and Sébastien de Valeriola and Bastien Dubuisson carried out a network-based examination of Latin hagiographies based on the *Bibliotheca Hagiographica Latina Manuscripta* database²¹ to better understand which saints' lives tend to be clustered together.²²

Another group of scholars who have engaged with network graphs is philologists, who look for alternatives to traditional stemmata for the transmission of complex textual collections and corpora.²³ To provide a recent example, networks proved useful for mapping the complexities of medieval glosses, which are often too 'unruly' to yield easily to a traditional genealogical approach. Two scholars, Bernhard Bauer and Evina Stein, attempted to disentangle the complex relationship between annotated manuscripts displaying gloss parallelism using network graphs as a supplement to, or a substitute for, traditional stemmata.²⁴

Networks have also been used as models for understanding the complex relationships between ancient and medieval texts and their models and sources. Examples of this strand of historical network research include the 2014 study of the sources used by the medieval creators of the Würzburg commentary on Matthew by Malte Rehbein,²⁵ and the 2016 study of Plutarch's sources by Charlotte

rian languages (from the *Philobiblon* database), presenting his preliminary results at the *Networks of Manuscripts, Networks of Texts* conference, see the recorded presentation at: https://youtu.be/_MrS7FHGjQA (accessed July 14, 2023).

19 Yavuz, "Transtextual Networks in the European Middle Ages."

20 Archibald, "Carolingian Schoolbooks and Intellectual Networks: A New Approach." Archibald also presented her ongoing research examining connections between medieval monasteries using medieval library catalogs at the *Networks of Manuscripts, Networks of Texts* conference. The recording of this talk is available at: https://youtu.be/tJ_icEqdIh4 (accessed July 14, 2023).

21 Société des Bollandistes, "Bibliotheca Hagiographica Latina Manuscripta," accessed July 14, 2023, <http://bhlms.fltr.ucl.ac.be/>.

22 de Valeriola, "Can Historians Trust Centrality?"; de Valeriola and Dubuisson, "L'hagiographie à l'aune du numérique."

23 See Hoenen, "The Stemma as a Computational Model."

24 Bauer, "The interconnections of St Gall, Stiftsbibliothek, MS 251 with the Celtic Bede manuscripts;" Bauer, "Venezia, Biblioteca Marciana, Zanetti Lat. 349. An Isolated Manuscript?"; Steinová and Boot, "The Glosses to the First Book of the *Etymologiae* of Isidore of Seville: A Digital Scholarly Edition;" Steinová and Boot, "Editing Glosses as Networks." Stein also presented her preliminary results at the *Networks of Manuscripts, Networks of Texts* conference. The recording of this talk is available at: https://youtu.be/jL_409zSwL4 (accessed July 14, 2023).

25 Rehbein, "From the Scholarly Edition to Visualization."

Schubert.²⁶ Within this category we should perhaps also mention the potential utility of co-citation networks devised by modern scientometrists for adaptation in historical co-citation studies. A solitary example of such an adaptation is a 2021 study carried out by Richard Pollard and Anne-Gaëlle Weber, who examined the co-citation of ancient and medieval Latin authors in the *Patrologia Latina* database in order to assess which of them may have been counted among the medieval Church Fathers.²⁷

Networks have likewise served to model the diffusion of ideas using texts and text-bearing objects as a proxy. Perhaps the most ambitious project of this type was carried out by Matteo Valleriani, whose research team studied the diffusion and evolution of astronomical knowledge in Europe based on early modern university textbooks in the context of *The Sphere* project.²⁸ Several other projects presented at the *Networks of Manuscripts, Networks of Texts* conference also fall into this category.²⁹

Finally, this overview should not omit mentioning the existence of social network analysis that makes use of texts and text-bearing objects as proxies for human relations or historical social networks. There are far too many projects carried out within this strand of historical network research for us to be able to mention them all here, not to mention that many are not strictly concerned with manuscripts or texts, nor do they contribute to our knowledge about them. Nevertheless, two types of such research do belong to manuscript and textual studies. First is the promising (albeit rarely undertaken) use of social network analysis in paleographic research to map the relationships between copyists, il-

26 Schubert, “Die Visualisierung von Quellennetzwerken am Beispiel Plutarchs.”

27 Pollard and Weber, “Le canon des Pères à l’époque carolingienne et la place de Flavius Josèphe.”

28 Valleriani et al., “The Emergence of Epistemic Communities in the Sphaera Corpus”; Zamani et al., “Evolution and Transformation of Early Modern Cosmological Knowledge”; Valleriani et al., “The Network of Early Modern Printers and Its Impact on the Evolution of Scientific Knowledge.” See also the project website; Valleriani et al., “The Sphere. Knowledge System Evolution and the Shared Scientific Identity of Europe.”

29 These include *The Irish Foundation of Carolingian Europe – the case of calendrical science (computus)* led by Immo Warntjes at the Trinity College Dublin (<https://computus.tchpc.tcd.ie/>) making use of early medieval computistic manuscripts to trace the diffusion of scientific ideas in Carolingian Europe, and Sara Steffen’s PhD project at the University of Basel “*Von der Eydgnoschafft will ichs heben an [...]*”. *Liedflugschriften als (vokale) Medien eidgenössischer Bündnisbeziehungen im 16. Jahrhundert* focusing on the diffusion of ideas via the practice of contrafactum in the printed ballads of the sixteenth-century Switzerland. The recording of Immo Warntjes’s presentation is available at: <https://youtu.be/AJPru72uUTA> (accessed July 15, 2023). The recording of Sara Steffen’s presentation is available at: <https://youtu.be/CAnzH-AKNog> (accessed July 15, 2023). Another project with a similar ambition of tracing the diffusion of ideas using medieval manuscripts is Bisagni et al., “Ireland and Carolingian Brittany.”

luminators and other historical individuals that collaborated together within a manuscript-producing institution. To our knowledge, the only completed study of this type is the contribution by Katharina Kaska within this issue. Second, scholars have likewise been interested in using network visualizations and analysis to investigate the historical networks of book producers and owners in order to better understand the reception of specific works or authors. Recent examples of research projects in this area include the *ReVISION* project led by Laura Saetveit Miles, which examines the circulation of works by Saint Birgitta of Sweden in England.³⁰

This special issue compiles six articles that grew out of and expanded upon some of the presentations at the aforementioned conference, *Networks of Manuscripts, Networks of Texts*. The papers not only offer concrete test cases of the use of network analysis in the field of manuscript studies, but also methodological reflections and diverse innovations. Thematically, they reflect a variety of perspectives and deal with many different kinds of texts from the European Middle Ages. The special issue follows an approximately chronological order, spanning from early medieval sermons and glosses to late medieval chronicles.

The article by Shari Boodts and Iris Denis showcases how network analysis tools can be incorporated and applied in the context of a wider research project and a scholarly database. The authors deal with patristic sermons and their textual transmission, and are the scholars behind a digital research tool for their study: PASSIM. These sermons, as with many other textual genres, display a high degree of variation and it is not uncommon to find extensive rewriting of one or more sources to create a testimony that can in many ways be considered a new text. Network visualizations are included in PASSIM to allow researchers to explore the database and the complex relationship between the sermons. The article explains the main features of these visualizations as well as their limitations and uses one sermon as an example of the kind of research enabled by their tool.

Evina Stein's article deals with mapping and analyzing organic corpora of medieval glosses. Unlike gloss commentaries or scholia, organic glosses did not come into being in a systematic fashion, but rather arose from the uncoordinated activity of many small, anonymous annotators with modest objectives. They were likewise circulated in an unsystematic fashion and as a result, annotated manuscripts of certain medieval texts display gloss parallelism that is highly indicative of some form of transmission; however, it does not allow scholars to speak of the existence of commentary traditions. Stein proposes a network-based method

30 Miles, Zieman and King, "ReVISION: Re-assessing St. Birgitta and her Revelations in Medieval England."

to understand how organic glosses may have been transmitted, demonstrating this on the corpus of early medieval glosses to the first book of the *Etymologiae* of Isidore of Seville. Based on a network analysis of a co-occurrence network of glosses shared by multiple manuscripts, she identifies several regional patterns of gloss transmission and chronological layers of the corpus studied. She also discusses some of the limits of the methods, avenues for its future refinement, and applications for the study of medieval glossing.

Katharina Kaska's article analyses scribal collaboration in the scriptoria of three Austrian Cistercian houses – Heiligenkreuz, Zwettl, and Baumgartenberg – in the twelfth century. This article combines newly produced data with previously available palaeographic observations, proposing a network-based model to represent and study participation of scribes in the copying of multi-scribe manuscript both within the three Cistercian houses and in collaboration among them. This method offers many advantages over the tabular presentation found in previous publications on the subject. The challenges of data gathering and analysis posed by the material are carefully considered. An important methodological aspect of this paper is the differentiation between manuscripts, texts and codicological units, which is not always considered in databases and analyses of manuscript transmission. Kaska then showcases the utility of her network model on the case of the hagiographic collection *Magnum legendarium Austriacum*.

The article by Dominique Stutzmann and Louis Chevalier deals with books of hours, a profusely transmitted kind of late medieval devotional manuscript book. As “compilations of compilations”, these manuscripts consist of many discrete textual parts, which are often themselves constituted by smaller units. The order and composition of the individual units is key to identifying how different manuscripts of books of hours relate to each other, as well as the origins and circulation of each collection. In this paper, Stutzmann and Chevalier review past attempts to organize this vast material using diverse philological methods, and offer network analysis as a complementary tool that can help to determine connections and identify patterns of similarity. This method enables them, for example, to better explore hybridization – cases where certain books showcase a mix of two or more common and stable types. The authors understand that certain relevant aspects of the books cannot be easily modelled with networks, such as the order of the textual units; they thus combine network visualization with other methods to better explore these aspects.

Ina Serif's article explores the combination of network analysis and topic modelling. This combination should address two difficulties when performing a network analysis of shared manuscript transmission. It can create matrices of similarity between documents based solely on a full text transcription that can be created with handwritten text recognition tools, such as *Transkribus*. For that reason, the method can be applied to manuscripts that have not been previously edited or catalogued with enough metadata in a digital format. It also avoids an

often-subjective human determination of textual units. By replacing shared textual units with automatically detected shared topics, it is possible to compare the similarities between two documents and the text they transmit in a more abstract way, without the need to identify textual units. Using a late medieval German chronicle, Serif proposes and explores these methods, identifying their benefits but also their many as yet unsolved challenges and difficulties.

Catherine Emerson's article combines the more traditional social networks with networks of manuscripts in her analysis of manuscripts of fifteenth-century French chronicles and their owners, particularly the works of Nicole Gilles. Several different kinds of networks are represented in this article: networks of manuscripts and people linked by documentary evidence; networks of individuals connected by their ownership of manuscripts; and networks of manuscripts based on their material features. This last type of network provides an interesting way of comparing manuscripts, which is very different from the more usual shared textual transmission, and which is potentially worth exploring in a much wider scope.

As editors of this special issue, we hope this collective publication – the first to deal with historical network research in manuscript and textual studies – will not be the last. We are well aware that many methodological and theoretical obstacles still need to be overcome before the network-based approach appeals to the broader community of traditionally trained manuscript specialists and textual scholars. We realized this in part by observing that a common thread that runs through all the studies published in this issue, is that the authors faced similar challenges. These include problems arising from the reuse of pre-existing data, the extensive need for data preparation and cleaning, the definition of the units of analysis (manuscript, codicological unit, text), dealing with uncertainty within and fragmentation of historical evidence, as well as representing historically evolving networks. Even as this issue is published, it is fair to admit that the utility of the networks for the research of historical manuscripts and texts is yet to be proven. It is our wish that this special issue will soon be followed by other dedicated publications that lead to a maturation of these network-based methodologies within manuscript and textual studies. For now, let it be the first swallow heralding the coming of a new season.

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