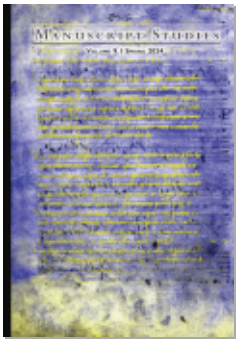
# Syon Abbey's Books and the Strength of Weak Ties

Julia King



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# Syon Abbey's Books and the Strength of Weak Ties

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In the first months of the COVID-19 pandemic, on 3 July 2020, the article "Why Your 'Weak-Tie' Friendships May Mean More Than You Think" was published by the BBC. Author Ian Leslie described the feeling of missing his interactions with people outside of his immediate family: "In lockdown, I don't feel short on affection or emotional support, but I do feel short of friendly faces and casual conversations. Another way of putting this is that I miss my weak ties."[1] The article, recognized by the BBC as one of the best work-related articles of the year, drew from a widely cited 1973 study by sociologist Mark S. Granovetter, "The Strength of Weak Ties."[2] Granovetter argues that within a networked community, new information, and thus novelty, passes more frequently through so-called weak ties of acquaintanceship rather than close ties of friendship or family. While in the BBC article

I am very grateful for advice and comments from Laura Saetveit Miles, Lisa Fagin Davis, Ruth Ahnert, and the two anonymous reviewers for *Manuscript Studies*.

1 Ian Leslie, "Why Your 'Weak-Tie' Friendships May Mean More Than You Think," BBC, 3 July 2020.

2 BBC, "Best of Worklife 2020," https://www.bbc.com/worklife/tags/best-of-worklife-2020; Mark S. Granovetter, "The Strength of Weak Ties," *American Journal of Sociology* 78, no. 6 (1973): 1360–80.

Leslie laments the loss of novelty that he usually gained through his weak tie relationships, Granovetter discusses the way that blue-collar workers in 1970s Boston found jobs through word of mouth from their acquaintances. Commonly accepted as one of the prevailing concepts in network analysis, Granovetter's strength of weak ties (SWT) article has been cited more than fourteen thousand times in social science publications, but less so in the humanities, although it is beginning to gain traction with studies such as Blaine Greteman's work on John Milton.[3] Network analysis has been used with great success in the humanities, so it follows that an investigation of SWT, one of its key concepts, in a humanistic framework would yield similar successes.

What if, in fact, analyzing weak ties within a network could be used to help us understand one of the most complex literary communities of late medieval England? Syon Abbey (1415–2011), England's only Birgittine monastery, is an ideal demographic group to consider when studying the effect of weak tie relationships since it not only has a robust base of secondary scholarship and plentiful extant manuscript material allowing scholars to build network maps, but also it relied on its relationships and the gifts and information that passed through them to build community. While Syon existed long after the dissolution of the monasteries, medieval Syon (1415–1539) has been recognized as an important devotional hub in the literary and cultural lives of the late medieval pious elite.[4] In particular, Syon's place in late medieval England's cultural network was essential for the abbey's flow of books and manuscripts, which played a key part in Birgittine spirituality. By the time of its suppression in 1539, Syon had become the wealthiest house in the country, thanks in part to its network of donors and supporters. Syon was well connected: its supporters included Kings Henry V and Edward IV; prominent courtiers like Margaret Beaufort, Countess of Richmond and Derby (1443–1509), grandmother to Henry VIII; members of the London

3 Stephen P. Borgatti and Daniel S. Halgin, "On Network Theory," *Organization Science* 22, no. 5 (2011): 1168; Blaine Greteman, "Weak Ties and the Making of a Strong Poet: John Milton's Early Publishers," in *Networking Print in Shakespeare's England: Influence, Agency, and Revolutionary Change* (Stanford, CA: Stanford University Press, 2021), 143–75.

4 Hereafter when I refer to Syon Abbey, I will be referring to pre-dissolution Syon, which existed at Syon Abbey in Isleworth, Greater London, 1415–1539.

merchant elite; and Oxford and Cambridge academics.[5] These supporters were themselves members of influential families, or connected to other monasteries and colleges, whose relationships can be considered to be Syon's social network. As I illustrate, this social network was instrumental in providing Syon with a steady flow of books and manuscripts for the brothers' and sisters' all-important devotional study.

Syon Abbey and its networks are ideal for network analysis specifically because there is a discrete corpus of data already available for investigation and a robust field of study that is ready to turn to nontraditional methods to uncover new connections between Syon and its adjacent communities. The field of Syon studies benefits from a community of scholars focused on material evidence found in books, manuscripts, and records, and particularly on reconstructive work. Thanks to the efforts of scholars like Virginia Bainbridge, Martha Driver, Mary C. Erler, Claes Gejrot, Vincent Gillespie, Christopher de Hamel, Ann M. Hutchison, Veronica O'Mara, and Susan Powell, as well as my own, a scholar new to Syon has rich resources at hand. These include a full catalog of the books present in the brothers' library at the turn of the century; transcriptions of the Syon *Martiloge*, the community's martyr book, which records donors and supporters over Syon's lifetime; painstakingly reconstructed lists of the sisters' books gained through the study of handwritten inscriptions and wills; and information about Syon's complex networks of patronage and family relationships found in woodcut evidence and ownership inscriptions.[6] Some might even say that Syon is "done,"

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5 The name "Margaret Beaufort" could refer to a number of late medieval women from the same family. For the purpose of clarity, I will refer to Margaret Beaufort, Countess of Richmond and Derby, as Margaret Beaufort, and her grandmother (also named Margaret Beaufort during the time of her marriage to John Beaufort, First Earl of Somerset) as Margaret Holland, Duchess of Clarence, the name by which she is commonly known in scholarship.

6 Virginia Bainbridge, "Lives of the Sisters of Syon Abbey ca. 1415–1539: Patterns of Vocation from the Syon Martiloge and Other Records," *Medieval People* 36 (for 2021, 2022): 23–66; Martha Driver, "Nuns as Patrons, Artists, Readers: Bridgettine Woodcuts in Printed Books Produced for the English Market," in *Art into Life: Collected Papers from the Kresge Art Museum Medieval Symposia*, ed. Carol Garrett Fisher and Kathleen L. Scott (East Lansing: Michigan State University Press, 1995), 237–67; Mary C. Erler, *Women, Reading, and Piety in Late Medieval England* (Cambridge: Cambridge University Press, 2002); Erler, "Syon Abbey's Care for Books: Its Sacristan Account Rolls 1506/7–1535/6," *Scriptorium* 39, no. 2 (1985):

since the big things have been found and anything else is likely to be found incrementally—one scribble in a manuscript at a time, in the library, after years of study. I disagree. Not only is there still more to discover about Syon from libraries and archives, but the wealth of known knowledge offers us new opportunities for analysis. Erler, in the epilogue to her 2003 monograph *Women, Reading, and Piety*, notes that "one goal of this work has been the recovery of quantifiable information about women's devotional books."[7] Two decades later, the quantitative *analysis* of this data is both possible and overdue, and the discipline of network analysis shows us that there is even more information to be gleaned from the evidence we already have.[8]

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293–307; Claes Gejrot, ed. and trans., *The Martiloge of Syon Abbey: The Texts Relevant to the History of the English Birgittines* (Stockholm: Sällskapet Runica et mediaevalia, 2015); Vincent Gillespie, ed., *Syon Abbey with the Libraries of the Carthusians*, Corpus of British Medieval Library Catalogues 9 (London: British Library, 2001); Christopher de Hamel, *Syon Abbey: The Library of the Bridgettine Nuns and their Peregrinations after the Reformation* (Otley: Roxburghe Club, 1991); Ann M. Hutchison, "What the Nuns Read: Literary Evidence from the English Birgittine House, Syon Abbey," *Medieval Studies*, 57 (1995): 206–22; Julia King, "Inscriptions and Ways of Owning Books among the Sisters of Syon Abbey," *Review of English Studies* 72 (2021): 836–59; Susan Powell, *The Birgittines of Syon Abbey: Preaching and Print* (Turnhout: Brepols, 2017). This list is by no means exhaustive but represents the breadth of reconstructive work on Syon available.

7 Erler, *Women, Reading, and Piety*, 134.

8 Network analysis as a method in digital humanities is thriving; some examples of large-scale network analysis in the humanities include *Mapping the Republic of Letters* project (http://republicofletters.stanford.edu), *Visualizing Historical Networks* (http://histecon.fas.harvard.edu/visualizing/index.html), *Kindred Britain* (http://kindred.stanford.edu/#), Six Degrees of Francis Bacon (http://www.sixdegreesoffrancisbacon.com/). In medieval and manuscript studies, *People of Medieval Scotland* (https://www.poms.ac.uk/), *Mapping Manuscript Migrations* (https://mappingmanuscriptmigrations.org/en/), *Innovating Knowledge* (https://innovatingknowledge.nl/), *Digital Birgitta* (https://birgitta.uib.no/s/birgitta/page/home), *Tudor Networks* (https://tudornetworks.net/), and others illustrate that the potential of network analysis can be applied to problems of provenance, transmission, familial relationships, letter networks, and more. For an overview of the different ways of adapting humanities data for network analysis, see Deryc T. Painter, Bryan C. Daniels, and Jürgen Jost, "Network Analysis for Digital Humanities: Principles, Problems, Extensions," *Isis: A Journal of the History of Science Society* 3, no. 110 (2019): https://doi.org/10.1086/705532. For an explanation of the math of network analysis in the context of digital humanities, see Shawn Graham, Ian Milligan, Scott B. Weingart, and Kim Martin, *Exploring Big Data: The Historian's Macroscope*, 2nd ed. (Singapore: World Scientific, 2022), 191–261, https://doi.org/10.1142/12435 and https://www.themacroscope.org/2.0/, for

By bringing the disciplines of traditional manuscript scholarship and network analysis together through the case study of Syon's weak ties, in this article I hope to demonstrate the validity of a promising method of large-scale manuscript data analysis, while also contributing to the vibrant field of Syon scholarship. Through my own research in libraries and archives and the process of distilling these secondary sources, I have constructed a network of Syon's literary community consisting of roughly 550 nodes and 740 edges, with special emphasis on connections relating to Syon's sisters. Using this network as a predictive model, I push our available evidence to new limits and ask, what are the weak ties relating to Syon Abbey? What can they tell us about how Syon's bookish networks worked and what Syon's place was in the larger networks of late medieval book and manuscript exchange in England? Based on my own use of quantitative network analysis, which identifies the sisters, communities, and families who were Syon's weak ties, I reveal that Syon's weak ties were most often individual sisters in particularly devout families who served as a bridge between Syon and other religious communities, providing a conduit for the movement of books and manuscripts. Furthermore, in Syon's practice of appointing particularly well-connected prioresses I identify an awareness of the efficacy of these bridging relationships and their use to broaden the community's network for the benefit of the abbey. It is possible that Syon's ties to other monastic institutions, particularly women's religious houses, were stronger than is to be expected, I argue. While scholars have interrogated the relationship between Syon and its neighbor, the Carthusian Priory of Sheen, Syon's relationships

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a discussion of the specifics of historical data and network analysis. For a medieval perspective, see Toby Burrows, Eero Hyvönen, Lynn Ransom, and Hanno Wijsman, "Mapping Manuscript Migrations: Digging into Data for the History and Provenance of Medieval and Renaissance Manuscripts," *Manuscript Studies* 3, no. 1, (2018): 249–52; Pádraig Mac Carron and Ralph Kenna, "Network Analysis of the Íslendinga sögur—the Sagas of the Icelanders," *European Physical Journal* 86, no. 407 (2013), https://doi.org/10.1140/epjb/e2013-40583-3; Matthew Hammond and Cornell Jackson, *Social Network Analysis and the People of Medieval Scotland 1093–1296 (PoMS) Database* (Glasgow: Centre for Scottish and Celtic Studies, 2017); Gustavo Fernandez Riva, "Network Analysis of Medieval Manuscript Transmission: Some Basic Principles and Methods," *Journal of Historical Network Research* 3, no. 1 (2019), https://doi.org/10.25517/jhnr.v3i1.61.

with other institutions, particularly female religious houses like Dartford Priory and Barking Abbey, have been relatively understudied. Syon's weak ties provide linkages to these houses, suggesting a fruitful area for new research.

The first section of this article discusses the methodological implications of applying network theory and the SWT argument to Syon Abbey and other medieval religious houses and their exchange of books and manuscripts. Then, I discuss the data and the construction of the network itself. The third section lays out the statistical analysis that reveals the important hinge role played by Syon's weak ties, with special attention to women in families with many members in religious orders. Finally, I discuss the evidence for and against the relationships between religious houses that are suggested by network analysis, concluding that these relationships were often more fruitful than is otherwise evident. In an appendix, I provide links to the interactive diagrams I generated using my dataset, which includes an option for JavaScript Object Notation (JSON) export. This article is, in essence, a proof of concept, intended to provide a new direction for Syon scholarship while demonstrating the efficacy of new digital methodologies for research on networks and communities.

## *Strength of Weak Ties*

Granovetter's argument in SWT has several interrelated claims, all of which have relevance for the perennial questions facing Syon scholarship. Granovetter's overarching argument sets the stage for using network analysis; namely, that

> the analysis of processes in interpersonal networks provides the most fruitful micro-macro bridge. In one way or another it is through these networks that small-scale interaction becomes translated into large-scale patterns, and that these, in turn feed back into small groups.[9]

9 Granovetter, "Weak Ties," 1360.

Granovetter's "micro-macro bridge" describes the relationship between small events and larger overarching tendencies made up of many related small events over a period of time. Using network analysis to map these events into a larger diagram, he identified significant patterns. His most important finding stems from this insight: within a network, so-called weak ties, or less close relationships, provided more "diffusion," or information/resource flow, than so-called strong ties:

> Whatever is to be diffused [i.e., information] can reach a larger number of people, and traverse greater social distance . . . , when passed through weak ties rather than strong. If one tells a rumour to all his close friends, and they do likewise, many will hear the rumour a second and third time, since those linked by strong ties tend to share friends.[10]

Applied to Granovetter's research on blue-collar job searches in 1970s America, this means that while job seekers found the same leads over and over again from their friends, they found new jobs to apply for through their acquaintances. In the case of Syon, Granovetter's emphasis on information diffusion can be seen in parallel to a central feature of Birgittine spirituality: the necessity of providing the brothers and sisters with key devotional texts, so that they could read, share, and understand them together. Granovetter's discussion of the micro-macro bridge also implies that even though both the 1970s blue collar workers' job searches and Syon Abbey's bookish networks grew and changed over time, with different people entering and exiting the sphere of influence at different points, the trends that the network can capture are still consistent among the entire group. Thus, I can hypothesize that locating medieval Syon's weak ties through network analysis over the pre-dissolution period also identifies people or institutions that were more likely to be sources of diffusion—in this case, the movement of devotional texts, contained in the books and manuscripts held in Syon's double libraries.

10 Granovetter, "Weak Ties," 1366.

It should be noted that "weak" and "strong" are not value judgments on the quality of a relationship; rather, they indicate closeness or lack thereof between two points on a network, defined by Granovetter as "a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize that tie."[11] Network theorist Stephen P. Borgatti emphasizes the relationship that weak ties play in social network analysis: "For example, in SWT, the reason weak ties are useful is not because they are inherently so but because it is the weak ties that tend to bridge network clusters. It is their structural role that makes them advantageous."[12] This structural role means that weak ties are also sometimes associated with "bridging ties," which are entities within a network that connect two communities who otherwise would not be likely to communicate with each other. Thus, in my network, I identify potential diffusive weak ties by statistically identifying these bridges (see section 2 for more detail on my method). A weak tie can exist without a bridge, of course, but the way weak ties participate in diffusion is through their bridging capacity, bringing information, goods, or knowledge from one group to another.[13]

The flow of books and manuscripts into and out of Syon was a fundamental part of performing Birgittine piety, and thus Syon scholarship has often focused on identifying the who, what, where, when, why, and how of this exchange. The answers to these questions (gained through my own analog archival research and secondary source material) provide the data I used to construct Syon's network. Enclosed brothers and sisters at Syon and other Birgittine houses in Europe were allowed to have "as many [books] as they wyll in whiche ys to lerne or studye."[14] A steady supply of new texts kept the community's spirituality "fresh," and thus it was important for Syon

11 Granovetter, "Weak Ties," 1361.

12 Borgatti and Halgin, "On Network Theory," 1172.

13 Mark S. Granovetter, "The Strength of Weak Ties: A Network Theory Revisited," *Sociological Theory* 1 (1983): 208.

14 James Hogg, ed., *The Rewyll of Seynt Sauioure and Other Middle English Brigittine Legislative Texts*, 4 vols. (Salzburg: Institut für Englische Sprache und Literatur, 1978), 2:49–50.

to have a large and vibrant network of donors, benefactors, and postulants whose family, political, and religious connections led to a varied supply of reading material.

Networks consist of "nodes" and "edges"—often visualized as the familiar circles and lines, respectively, of a network diagram. My network, which is built around the exchange of books and manuscripts that followed the different kinds of personal connections enumerated above, uses nodes to represent donors, and the books they donated are encapsulated in the edge data (see section 3 for more detail). I chose to have nodes represent the main actors in my network: people, communities, or businesses; whereas edges represent any kind of action or relationship: professional or familial relationships, book gifting, patronage, tutoring, or teaching. This data setup creates a unipartite or one-mode network, where nodes and edges are each of one type—people are connected to people, and books to books, rather than people connected to books—to allow for easier quantitative analysis.

Scholarship identifies a few groups who were key to this exchange: pious lay supporters, like Margaret Holland, Duchess of Clarence (1385–1439) were encouraged by the Syon professed brothers who served as their spiritual advisors and tutors (in Clarence's case, Simon Wynter, d. 1448) to share religious texts during their tutorials with friends and other members of their own personal networks, disseminating Birgittine texts outward into the greater literate population of late medieval England.[15] Once print was introduced to England, Syon's abbess, as leader of the community, liaised with printers like William Caxton, Wynkyn de Worde, and Richard Pynson to print and distribute Birgittine texts to the sisters and brothers of Syon, with the added advantage that these printed books reached laypeople too.[16] Wealthy

15 George R. Keiser, "Patronage and Piety in Fifteenth-Century England: Margaret, Duchess of Clarence, Symon Winter and Beinecke MS 317," *Yale University Library Gazette* 60 (1985): 32–46.

16 Mary C. Erler, "The Early Sixteenth Century at Syon: Richard Whitford and Elizabeth Gibbs" in *Manuscript Culture and Medieval Devotional Traditions: Essays in Honour of Michael G. Sargent*, ed. Jennifer N. Brown and Nicole R. Rice (York: York Medieval Press, 2021), 310–26; Julia King, "*Caput et domina*: Abbesses and Women's Literary Leadership at Syon Abbey, 1415–1539," *Mediaeval Journal* 11, no. 1 (2021): 129–68; Powell, *The Brigittines of Syon Abbey*; Driver, "Nuns as Patrons, Artists, Readers."

donors, most notably Margaret Beaufort, mother of King Henry VII, took a special interest in Syon and were also instrumental in facilitating financing and communication between the abbey and printers.[17] The actors within these groups, in addition to the Birgittine brothers and sisters, all make up Syon's network.

While traditional archival scholarship can identify complex community relationships, network analysis's statistical and visualizing capabilities identify these relationships more quickly and at a larger scale.[18] Thus, while prosopographical work done by scholars like Bainbridge, Erler, Hutchison, O'Mara, and others has revealed the often complex familial and professional relationships between Syon brothers and sisters and their relationship to the book and reading culture of both the Birgittines and late medieval women generally, network analysis allows scholars to analyze this prosopographical data statistically (fig. 1).[19]

Syon's closest ties were the internal ties between its brothers and sisters, who were members of an enclosed community, with men and women living in physically separated spaces at the abbey in Isleworth, just west of London. Since they lived alongside each other, with each community hearing the same sermons together and reading books from the same libraries (albeit separated by gender), the variance between the kind of information they were consuming was low. Thus, it stands to reason that any new information or reading material entering the abbey would have had to do so through a weaker tie. These weaker ties could either be second-degree connections—the

17 Powell, "Lady Margaret Beaufort: Books, Printers, and Syon Abbey," in *The Brigittines of Syon Abbey*, 153–213.

18 Ruth Ahnert, Sebastian E. Ahnert, Catherine Nicole Coleman, and Scott B. Weingart, *The Network Turn: Changing Perspectives in the Humanities* (Cambridge: Cambridge University Press, 2020), 6–7.

19 Virginia Bainbridge, "Women and the Transmission of Religious Culture: Benefactresses of Three Bridgettine Convents c. 1400–1600," *Birgittiana* 3 (1997): 55–76; Bainbridge, "Lives of the Sisters of Syon Abbey"; Mary C. Erler, "Syon's 'Special Benefactors and Friends': Some Vowed Women," *Birgittiana* 2 (1996): 209–22; Erler, *Women, Reading, and Piety*; Hutchison, "What the Nuns Read"; Veronica O'Mara, "A Syon Scribe Revealed by Her Signature: Mary Nevel and her Manuscripts," in *Continuity and Change: Papers from the Birgitta Conference at Dartington*, ed. Elin Andersson, Claes Gejrot, E. A. Jones, and Mia Åkestam (Stockholm: Kungl. Vitterhets Historie och Antikvitets Akademien, 2017), 283–308.

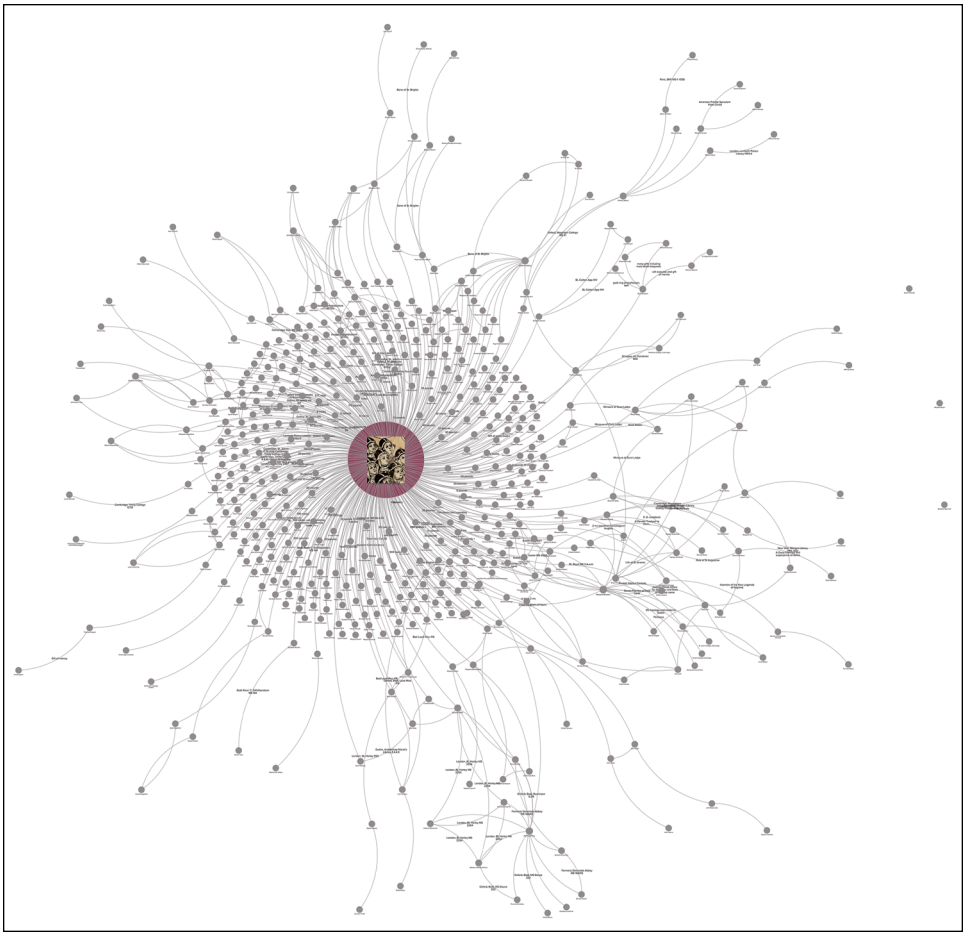

FIGURE 1. A bird's-eye view of Syon Abbey's networks, represented as a force-directed diagram. The central node represents Syon itself.

parents or relatives of a professed brother or sister, or they could be connections that are less intimate or emotionally intense—a one-time donor has a weaker connection to Syon than a ten-time donor.

Some weak ties do not seem to link to broader communities with the data we have, and some weak ties bridge to other communities. For example, some Syon sisters received gifts from their families: Sister Elizabeth Edward (d. after 1561) was the recipient of a prayer book bought for her by her parents,

John and Margaret.[20] John and Margaret Edward are weakly tied to Syon through a second-degree connection, since Elizabeth is strongly tied to them and to her religious community, but the data does not show any further links for the Edward parents to other communities beyond Syon (although of course they were linked to others—their gift of a book to their daughter could indicate a link with a London bookseller, for example). The Edward parents are not directly linked to Syon nor, to our knowledge, to a further community. Therefore, they are a weak tie but not a bridge. However, someone like James Grenehalgh (d. 1530), a Carthusian monk from the neighboring Sheen Priory, was weakly tied to Syon through his function as a tutor for Sister Joanna Sewell (d. 1532). While he was neither professed at the abbey nor had a strong relationship with it, he did have a strong relationship with Sewell—thus, again, a second-degree weak tie. Grenehalgh was strongly tied to his own community at Sheen, however, and therefore serves as a bridging tie between Syon and Sheen. Syon and Sheen's relationship was an important one that resulted in the mixing of Birgittine and Carthusian piety in books and manuscripts. These two examples show us the varieties of ties, strong and weak, that occur within the landscape of a network diagram of Syon's relationships.

## *Weak Ties, Betweenness Centrality, and Network Analysis*

I have chosen to approximate weak tie identification through statistical analysis of the betweenness centrality scores of the nodes in my network. Betweenness centrality, which measures how many times a figure is on the shortest path between two other entities, tends to identify Granovetter's so-called bridging ties, which are typically weak and connect communities. Loet Leydesdorff, investigating the relative interdisciplinarity of scientific journals using betweenness centrality, refers to it as a "relational measure."[21]

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20 London, British Library, Cotton MS Appendix XIV.

21 Loet Leydesdorff, "Betweenness Centrality as the Indicator of the Interdisciplinarity of Scientific Journals," *Journal of the American Society for Information Science and Technology* 58, no. 9 (2007): 8.

Another way of conceptualizing betweenness centrality is asking which figures, were they to be removed from the network, would cause the network to fragment and break down. While betweenness centrality can identify bridging ties, it does not approximate weak ties: as the example of John and Margaret Edward showed, not all weak ties are bridging ties. Nevertheless, it is, as Borgatti points out, still a valid way of identifying a node that can facilitate diffusion in the network and thus can also approximate the effects of a weak tie within Syon's networks.[22] Identifying entities with high betweenness centrality is likely to therefore identify nodes that are potential weak ties that served as conduits of information, books, or manuscripts. This identification of a potential weak tie then allows the researcher to determine, based on historical context and their own expertise, whether the tie is indeed weak.

For Syon, we can use the data that has already been generated by prosopography and manuscript study to generate points of statistical interest that might behave like weak ties to provide new starting points for future analog research. Interrogating qualitative historical data (i.e., the data one might collect on a visit to a library or from a secondary source) statistically has been proven to produce robust results in network analysis. Ruth and Sebastian E. Ahnert's groundbreaking 2015 study "Protestant Letter Networks in the Reign of Mary I: A Quantitative Approach" has proven that statistical centrality measures do in fact provide relatively accurate indications of significant figures within a historical network.[23] Their findings, which first use centrality measures to identify potential figures of interest and then analog historical research to confirm their significance, indicate that network analysis is a relatively accurate way of modeling historical data, even in incomplete and complex datasets. Identifying *significant* weak ties in Syon's network within a dataset populated from secondary scholarship can also

22 Borgatti, however, goes one step further and claims that no basic metric can accurately measure the potential for diffusion. See Stephen P. Borgatti, "Centrality and AIDS," *Connections* 18, no. 1 (1995): 112–15.

23 Ruth Ahnert and Sebastian E. Ahnert, "Protestant Letter Networks in the Reign of Mary I: A Quantitative Approach," *English Literary History* 82 (2015), https://doi:10.1353/elh.2015.0000.

suggest larger trends that point to other individual weak ties that might be equally significant but not as present in secondary scholarship.

In Syon's case, it is necessary to assume that only the tip of the iceberg has been revealed by archival scholarship—like other religious houses, the literary evidence that survives is but a fraction of what was likely in place just before the dissolution of the monasteries. Yann C. Ryan and Sebastian E. Ahnert later proved that missing data does not in fact make networked data or networked computations less robust, concluding after a study of early modern catalogs of letters and state papers that "[statistical] measures are remarkably robust to many types of data removal."[24] These findings mean that the statistical measures that determine Syon's weak ties can be trusted, even though they measure an incomplete dataset. If a pattern of repeated nodes in the graph, for example, suggests that people from a particular family or particular social class were more likely to be book donors, we could speculate that other people fitting that pattern might be book donors, even if we have no extant evidence of their donation.

## *A Brief Note on Data and Modeling Choices*

Networks and any resulting statistical computations or constructed diagrams rely on the quality and structure of the data entered into the network generators, and thus the resulting diagram is influenced by the researchers' choice about what data to input and in what form. My own choices have thus shaped the data that makes up this network and the subsequent results of the analysis. Data preparation is itself an act of analysis and interpretation, which relies on the expertise of the researcher to interpret ambiguous cases and make informed decisions about how to represent them within the dataset and thus the network. While the quantitative statistical outputs of network analysis are objective, the thing that they are measuring is subjective and based on the interpretative act of the researcher. Researchers, in turn, are specialists

24 Yann C. Ryan and Sebastian E. Ahnert, "The Measure of the Archive: The Robustness of Network Analysis in Early Modern Correspondence," *Journal of Cultural Analytics* (2021): 70.

in their chosen subject matter, and each interpretative choice in a dataset reflects that expertise and research. Readers should be aware that just as mapmakers do not represent every single nook and cranny on a shoreline when making a map of the world, networked data, too, has been subject to a careful process of scaling and metaphorization.

I will briefly mention some of the scaling and sampling parameters in my Syon dataset to provide context for the forthcoming analysis. As discussed earlier, the results of Ryan and Ahnert's work proves that even a reduced dataset will still produce viable results. While their work referenced data that is incomplete owing to a paucity of source material, the same would apply for a dataset that has been subject to sampling boundaries. My method is most closely aligned with what Stanley Wasserman and Katherine Faust call a snowball or small world sampling, where a researcher defines a population of actors (who will be the network's nodes) and asks them to report on their own social ties.[25] I decided that I would include any figures who had a direct connection with the Syon sisters: professed brothers and sisters, lay brothers, deacons, vowesses, and anybody mentioned in the Syon *Martiloge*, as well as direct family members of those connected and their further institutional connections. This created what is known as an "ego network," or a network that is focused on one central node.

While my sampling practice is not literal self-reporting (my actors are obviously long since dead), using primary source documents like the *Martiloge* and prosopographical secondary source research based on wills and other legal documents is a form of self-reporting. The names and gifts recorded in these documents are those that Syon or Syon's connections wished to memorialize or record and thus carry an inherent significance. This sampling grew my network to include, in addition to Syon Abbey, the literary networks of Vadstena, the Birgittine mother house in Sweden; the Dominican Dartford Priory; and the Benedictine Abbeys of St. Albans and Barking; as well as a fair portion of the London merchant elite and the royal families of Lancaster, York, and Tudor. However, it does not, for example, include the full literary

25 Stanley Wasserman and Katherine Faust, eds., *Social Network Analysis: Methods and Applications* (Cambridge: Cambridge University Press, 1994), 34–35.

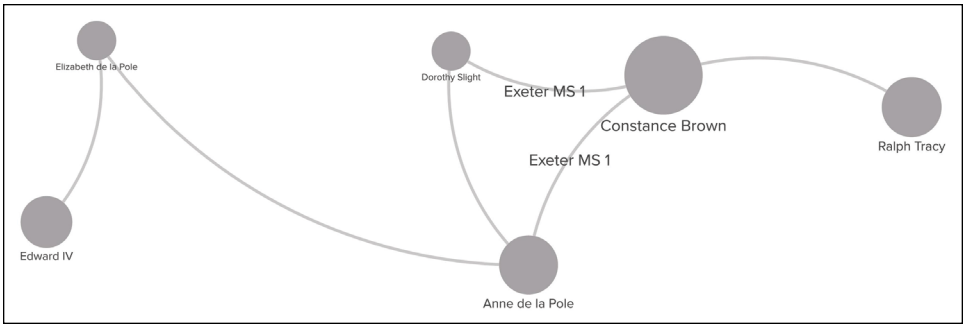


figure 2. An isolate view of Dorothy Slight, Constance Browne, Anne de la Pole, and their extended networks. Slight, Browne, and de la Pole are connected by their shared inscription in Exeter MS 262/1.

networks of Oxford and Cambridge, only those relevant to Syon-affiliated figures in the network like Thomas Gascoigne, Oxford chancellor and potential author of the instructional text *The Myrroure of Our Lady*, or confessor general Thomas Westhawe, formerly of Pembroke College, Cambridge. In this way, I hoped to achieve a "Goldilocks" solution—a dataset that was neither too big nor too small but just right.

My other significant data modeling choice responded to the specifics of my data—how to model the often uncertain relationships between people who inscribed their names in the same book? I decided the best way to do this was to treat them as connected nodes (fig. 2). While people whose inscriptions or names appear in the same book did not necessarily interact with each other (although sometimes they did; see, for example, the infamous case where James Grenehalgh left Joanna Sewell inscriptions in a book he gave to her), it is indisputable that they were all connected with the same book at different points in time. Inscriptions in a book were community building—I write elsewhere that inscriptions "enfold the inscriber into the same community. . . [they] contribute to the juxtaposition of the named individual within her community."[26] For example, Exeter University Library MS 262/1 contains the inscriptions of Sisters Dorothy Slight, Constance

26 King, *Inscriptions and Ways of Owning Books*, 14.

Browne, and a "my lady Anne," presumably Anne de la Pole, Syon prioress. While we do not know whether Slight, Browne, and de la Pole ever interacted, their shared inscriptions in a book, which visually links the three sisters in the eyes of a reader, become a bookish community of the imagination, which is well worth representing within the network.

## *Syon Abbey's Weak Ties*

Who, then, were Syon's weak ties, and what do they suggest about Syon's connections? Calculating centrality measures reveals both expected and unexpected results. Out of a network of 560 nodes and 738 edges, analyzing the nodes with high betweenness centrality reveals two categories of people who helped to link Syon to other institutions: families with members in multiple institutions and special benefactors, often wealthy widows who chose to donate much of their fortunes to multiple institutions or to become vowesses themselves.[27] Erler has discussed the importance of both groups in

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27 For more information about lay women in late-medieval England in addition to the works cited above, see Virginia R. Bainbridge, "Women and the Transmission of Religious Culture: Benefactresses of three Birgittine Convents, c. 1400–1600," *Birgittiana* 3 (1997): 55–76; Susan Groag Bell, "Medieval Women Book Owners: Arbiters of Lay Piety and Ambassadors of Culture," in *Women and Power in the Middle Ages*, eds. Mary Erler and Maryanne Kowaleski (Athens, GA: University of Georgia Press, 1998), 149–87; Driver, "Nuns as Patronesses, Artists, Readers"; Anthony Ian Doyle, "Books Connected with the Vere Family and Barking Abbey," *Transactions of the Essex Archaeological Society* 25, no. 2 (1958): 222–43; Mary C. Erler, "English Vowed Women at the End of the Middle Ages," *Medieval Studies* 57 (1995), 155–203; Erler, "Exchange of Books between Nuns and Laywomen: Three Surviving Examples," in *New Science out of Old Books: Studies in Manuscripts and Early Printed Books in Honour of A. I. Doyle*, ed. Richard Beadle and A. J. Piper (Aldershot: Scolar Press, 1995), 360–73; Gail McMurray Gibson, *The Theatre of Devotion: East Anglian Drama and Society in the Late Middle Ages* (Chicago: University of Chicago Press, 1989); Marilyn Oliva, *The Convent and the Community in Late Medieval England: Female Monasteries in the Diocese of Norwich, 1350–1540* (Woodbridge, Suffolk: Boydell Press, 1998); Susan M. B. Steuer, "Practical Pastoral Care: Vowesses in Northern England in the Later Middle Ages," in *A Companion to Pastoral Care in the Late Middle Ages (1200–1500)*, ed. Ronald J. Stansbury (Leiden: Brill, 2010), 311–38; Diane Watt, ed., *Medieval Women in their Communities* (Cardiff: University of Wales Press, 1997).

her book *Women, Reading, and Piety* as an example of how women's familial and pious relationships facilitated the exchange of books and manuscripts in this period.[28] Her description of Syon's place in the community evokes a network made up of strong and weak ties connecting multiple community groups: "The convent appears at the heart of a local network—a position at once immensely useful to its neighborhood (hence valued by locals) and immensely at odds with traditional notions of religious life (hence reprimanded by ordinaries)."[29] Network analysis and the statistical examination of weak tie relationships and community clusters identify not only the familial networks described by Erler and Bainbridge but also an intriguing suggestion of deeper connections between Syon and other religious communities.

Because the network of Syon's relationships is an ego network with Syon in the center, most centrality calculations unsurprisingly indicate that Syon Abbey is the most significant figure in the network. Calculating degree centrality, or the number of connections each node has, shows that the node representing Syon has 132 connections in the dataset, with the next–most significant node, Lady Margaret Beaufort, having 16 connections, followed by Dartford Priory and Vadstena Abbey, at 12 connections each. This is hardly surprising, given that a wealth of research has established Lady Margaret Beaufort as a prolific donor, and the institutional networks of Dartford and Vadstena have been documented in databases like MLGB3.[30] As seen in table 1, measuring betweenness centrality again gives Syon the top spot, and Margaret Beaufort is awarded second. Syon's position and Beaufort's are, again, not surprising, but removing the central Syon node from the network, as has been done in other studies of historical ego networks, reveals a series of fragmented pairs and triads of nodes and edges—it is clearly in a key structural position within the network.[31]

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28 Erler, *Women, Reading, and Piety*, 85–99.

29 Erler, *Women, Reading, and Piety*, 11.

30 Powell, "Lady Margaret Beaufort"; Medieval Libraries of Great Britain 3, http://mlgb3.bodleian.ox.ac.uk.

31 Evan Bourke, "Female Involvement, Membership, and Centrality: A Social Network Analysis of the Hartlib Circle," *Literature Compass* 14 (1 April 2017): e12388, https://doi.org/10.1111/lic3.12388, is one such example.

TABLE 1. The Top Ten Nodes in Syon's Network Ranked by Betweenness Centrality.

| *Name* | *Ranking* | *Score* | *Non-Syon Association(s)* |
|---|---|---|---|
| Syon Abbey | 1 | 0.939 | X |
| Margaret Beaufort, Countess of Richmond and Derby | 2 | 0.063 | Royal family, London printers |
| Elizabeth Rede | 3 | 0.059 | Dartford Priory |
| Barking Abbey | 4 | 0.059 | X |
| Robert Rede | 5 | 0.043 | Dartford Priory, London Charterhouse |
| Elizabeth de Vere, Countess of Oxford | 6 | 0.040 | Barking Abbey |
| Alice Hampton | 7 | 0.037 | Halliwell Abbey |
| William Roper | 8 | 0.037 | Thomas More Family |
| Matilda Newton | 9 | 0.033 | Barking Abbey |
| Dartford Priory | 10 | 0.032 | X |

Note: Network density is below 0.01.

However, the third spot is held by Elizabeth Rede, a heretofore understudied sister at Dartford Priory and also possibly a sister at Syon Abbey (fig. 3). Elizabeth Rede's name appears in an inscription on the flyleaf of British Library Harley MS 2254, a compilation of Walter Hilton's *The Prickinge of Love* and *Epistle on the Mixed Life*, along with two other inscriptions naming Alice Brauntwaith, Prioress of Dartford, and Johanna Newmarch, all in late fifteenth- or early sixteenth-century hands. The first inscription, written in the middle of the leaf, says "Thys book longish to Dame Alys Braintwaith the worchypfull prioras of Dartford Jesu mercy."[32] Rede's inscription, "Orate pro anima domina Elizabith Rede hujus loci" (Pray for the soul of Lady Elizabeth Rede of this place), and Newmarch's, "Orate pro anima Johanna Newmarche" (Pray for the soul of Johanna Newmarche) follow.[33] Beyond the information in this inscription, little else is known about her: Paul Lee notes that while "nothing" is known about Rede or Newmarch, "Elizabeth Rede, at least, was probably a nun of Dartford, in view of her title and the phrase

32 London, British Library, Harley MS 2254, flyleaf.

33 London, British Library, Harley MS 2254, flyleaf.

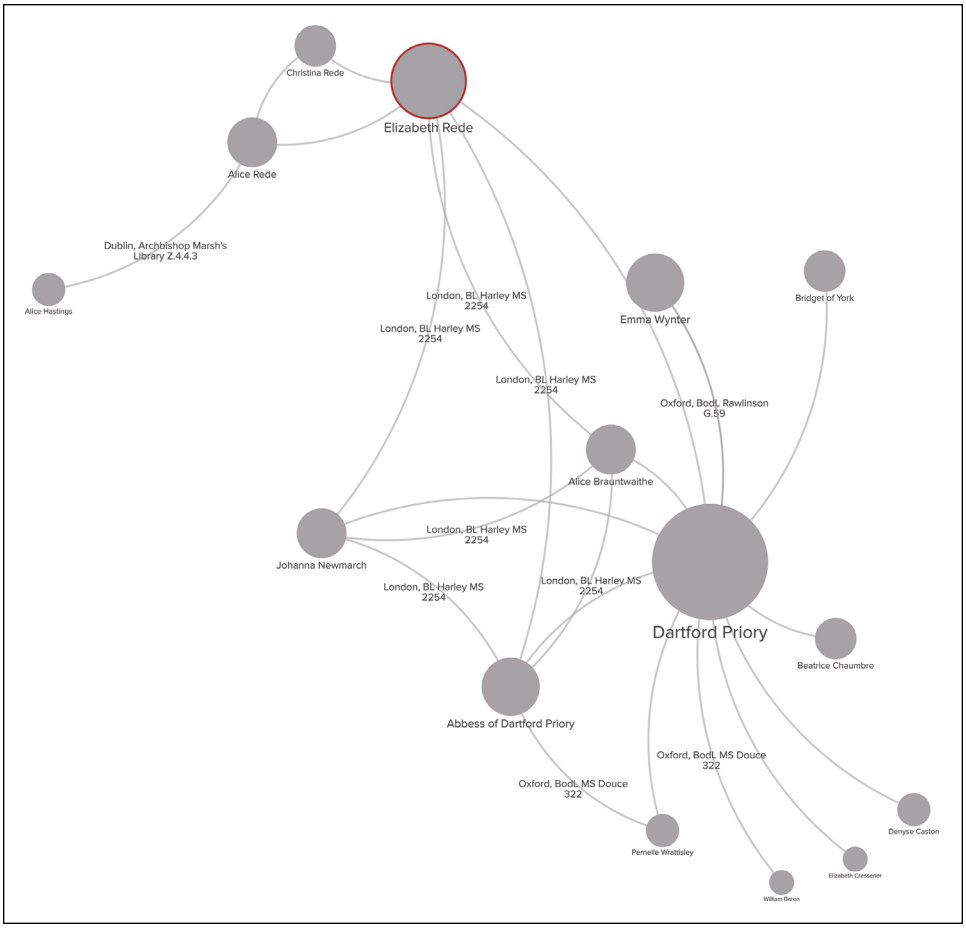


FIGURE 3. Elizabeth Rede's network. Rede is represented by the largest node at left because of her high degree of centrality.

'huius loci' which must refer back to Prioress Alice Branthwayte's inscription above."[34] However, the reason for Rede's high betweenness centrality score is that she shares a name with a Syon sister also named Elizabeth Rede, who was the sister or close family member of another Syon sister, Alice Rade

34 Paul Lee, *Nunneries, Learning and Spirituality in Late Medieval English Society: The Dominican Priory of Dartford* (Rochester, NY: Boydell and Brewer, 2001), 195.

(Rede), and also related to Syon benefactor Sir Robert Rede (d. 1519), the chief justice of Common Pleas.[35]

The tantalizing possibility, of course, is that Elizabeth Rede of Dartford and Elizabeth Rede of Syon were the same person, thus creating a link between Dartford Priory and Syon Abbey. If Elizabeth Rede had been a sister at each institution, then a number of questions arise. Why did she leave Dartford for Syon, or vice versa? What possibilities does this imply for an exchange of sisters between institutions that were famously ascetic and, more importantly, enclosed? Did books or other communication circulate between women's religious houses, even though they were of different orders? All of this seems unlikely, and with available documentation it is difficult to confirm that they were indeed the same person. It should be noted that it is not chronologically impossible. Virginia Bainbridge estimates that the Syon Elizabeth Rede (d. 1538) was a close contemporary of Alice Rade/Rede, who was professed by 1518 and died in 1530.[36] The codicological evidence suggests that the Dartford Elizabeth Rede inscribed Harley MS 2254 after Alice Braintwaith, since the phrase *huius loci* used in Rede's inscription refers back to Braintwaith's reference to Dartford Priory, and Braintwaith was prioress through the 1460s, much earlier than any possible vocation for a contemporary of Alice Rede. Because of this lack of positive evidence, it is impossible to equate both Elizabeth Redes. Nevertheless, the statistical identification of the figure is interesting because of its focus on the Rede family and their connections.

Network analysis allows the luxury of changing a dataset to simulate different hypothetical situations, so what happens to the statistics if there were two Elizabeth Redes? Changing the dataset to include two separate Elizabeth Redes, as seen in table 2, affects the betweenness centrality scores significantly, but still indicates a connection with Dartford Priory. Even when separating the data into two nodes, both labeled Elizabeth Rede, neither of the Elizabeth Redes are within the top ten betweenness centrality scores, or

35 I am grateful to Virginia Bainbridge for providing me with her so-called mini-biography of Elizabeth Rede, in preparation for publication as part of her forthcoming "Syon Martiloge Prosopographical Study."

36 Bainbridge, "Syon Martiloge Prosopographical Study," forthcoming.

TABLE 2. The Top Ten Nodes in Syon's Network Ranked by Betweenness Centrality, with a Separated Elizabeth Rede Node.

| *Name* | *Ranking* | *Score* | *Non Syon Association(s)* |
|---|---|---|---|
| Syon Abbey | 1 | 0.987 | X |
| Emma Wynter | 2 | 0.034 | Dartford Priory |
| Margaret Beaufort, Countess of Richmond and Derby | 3 | 0.029 | Royal family, London printers |
| Barking Abbey | 4 | 0.029 | X |
| Dartford Priory | 5 | 0.027 | X |
| Margery Wynter | 6 | 0.022 | Dartford Priory |
| Robert Rede | 7 | 0.021 | Dartford Priory, London Charterhouse |
| Elizabeth de Vere, Countess of Oxford | 8 | 0.019 | Barking Abbey |
| Simon Wynter | 9 | 0.019 | Margaret Holland |
| Alice Hampton | 10 | 0.018 | Halliwell Priory |

Note: Network Density Is below 0.01.

even within the top fifty, and relative Robert Rede has dropped from fifth to seventh. However, Emma Wynter, another sister of Dartford Priory, now has the second-highest score. Syon and Dartford were linked not only by the Redes but also by Wynter, the sister of Birgittine brother Simon Wynter (who has the ninth-highest betweenness centrality). Emma Wynter's name appears in a Dartford-associated manuscript of the *Dischia catonis*, Oxford, Bodleian Library, MS Rawlinson G.59, on folio 13r.[37] Simon Wynter is best known as the tutor to Margaret Holland, Duchess of Clarence, the grandmother of Margaret Beaufort, who was given special permission to reside near Syon.[38] Emma and Simon's sister Margery Wynter (d. 1470) also has a high betweenness score, placing her sixth, ahead of Simon but behind Emma. Margery Wynter was originally professed at the Benedictine house Sopwell

37 Oxford, Bodleian Library, MS Rawlinson G 59, fol. 13r.

38 Claire M. Waters, *Virgins and Scholars: A Fifteenth-Century Compilation of the Lives of John the Baptist, John the Evangelist, Jerome, and Katherine of Alexandria* (Turnhout: Brepols, 2008), 4.

Priory in 1429 but later transferred to Syon.[39] This is interesting on two levels. First, Margery's transfer is unusual though not improbable at the beginning of Syon's foundation, but it indicates that it was indeed possible to move between religious houses of differing orders—which has implications for the idea of a single Elizabeth Rede moving between Dartford and Syon. Second, does Margery's move to a house where her brother was professed, and trusted enough to act as tutor to a noblewoman, indicate that the Wynter family remained in contact after their professions, enough to suggest that their familial relationship helped to create a relationship between Syon and Dartford?

The example of the two Elizabeth Redes, the Wynter siblings, and their ability to statistically link Syon Abbey and Dartford Priory on a network diagram is indicative of a larger pattern: figures identified through betweenness centrality as a weak tie often served as a tie between Syon and another significant late medieval community, often through ties of family. Within the top twenty, three communities were themselves identified as weak ties: Barking Abbey (#4), Dartford Priory (#10), and Vadstena Abbey (#19). The majority of figures, however, serve as bridging ties between Syon and these or similar institutions. A quarter were laypeople: Robert Rede (#5), Elizabeth de Vere, Countess of Oxford (#6), Alice Hampton (#7), William Roper (#8), and Christopher Ursewyk (#20), and the remainder of the list were professed either at Syon or another religious institution. These patterns suggest that Syon's weak ties link to other monastic communities and also to lay individuals who serve as bridging ties between Syon and other communities.

Some weak ties were part of abbey leadership: Matilda Newton (#9) was Syon's first abbess and had previously been professed at Barking Abbey; Elizabeth Gibbs (#12) was Syon's abbess in the early sixteenth century and had a productive working relationship with both writers among the Syon brothers and printers in the London area. Margaret Windsor (#13) was a Syon prioress and book owner whose godmother, Margaret Beaufort, Countess of Richmond and Derby, financially supported her profession.[40]

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39 Bainbridge, "Lives of the Sisters of Syon Abbey," 36–37.

40 For information about Elizabeth Gibbs, see Erler, "The Early Sixteenth Century at Syon"; and King, *Caput et domina*. For information on Margaret Windsor, see Susan Powell, "Syon

Thus, each of these women connected Syon with a larger community: Barking Abbey, London-area printers and booksellers, and the wider connections of Margaret Beaufort. The remaining eight figures, making up just under half of the non-Syon figures on the list, were each professed women with ties to other religious institutions. Not only does this suggest to me that Syon's ties to other women's houses were perhaps closer than we have imagined, but it also lends further evidence to the claim that population of late medieval England supported a varied and diverse number of religious houses. After all, as extant wills demonstrate, many gentry and elite testators gave to more than one religious institution.

Sometimes the ties between religious houses are self-evident, where a family with one member at Syon and another at a second foundation has created a bridging tie within the network. This is what happened with the amalgamated Elizabeth Rede figure, the Wynters, and also Helen Wyche (#14), whose sister Margaret was professed at the Cistercian Catesby Priory. Their father, the mercer Hugh Wyche, was lord mayor of London in 1461 and along with their mother, Alice, served as a benefactor of Syon Abbey and of Queen's College, Cambridge.[41] Syon and Catesby connect indirectly as a result of the Wyche family. It is important to stress, however, that in these situations it is difficult to judge whether this connection was active. In other words, we do not know whether any information, communication, or in our case, books, traveled between Syon and Catesby through the Wyche family. This uncertainty, however, does not negate the connection's noteworthiness. By being determined as statistically relevant, the Catesby connections have been brought out as venues for potential further research. The connection between the Wyches, Syon, and Catesby also follows the larger pattern of Syon's connections with other religious houses. Thus, these bridging ties serve at least two purposes: contributing to repeated patterns throughout the dataset and indicating future points of research.

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Abbey in the Reign of Henry VIII and Beyond," in *The Birgittines of Syon Abbey*, 215–26.

41 Bainbridge, "Lives of the Sisters of Syon Abbey," 37–38.

Identifying Syon's weak bridging ties suggested that Syon was closer to other religious houses than previously thought and indicated that this might be one such future research point. Another method of network analysis, identifying statistically detected communities, highlighted family groups with members in multiple houses or lay individuals who donated to multiple institutions. These two methods combined highlighted the same area for future research. Statistical community detection in humanistic network analysis, like identifying weak ties, serves as a heuristic rather than an exact calculation.[42] It provides an area of potential research or a hypothesis to be tested by isolating groups of nodes and edges that seem more connected to each other than to any other nodes. While there are several ways of detecting communities, I used the speaker-listener label propagation algorithm (SLPA), which allows individual nodes to be part of two different communities at once and is the default algorithm used by kumu.io, the program I use to create my networks.[43] Other common network analysis programs, like Gephi, use the older Louvain method for community detection, which carries the inherent flaw that individual nodes are limited to membership in a single community. In the case of Syon's networks, because of the omnipresence of Syon Abbey within the ego network, most figures do belong to both the Syon community and to their own individual subcommunities, and thus the SPLA algorithm is most relevant to this dataset.

In this case, the top ten communities identified by the algorithm can be linked with identified weak ties. After the large "Syon Abbey" community, the next nine algorithmically identified communities link to one of the weak ties identified by betweenness centrality, as can be seen in table 3. I have named each community based on their shared attributes (itself an interpretative act of research): in all cases but that of the "dissolution of the monasteries" community, which will be discussed later in this essay, the communities

42 Painter, Daniels, and Jost, "Network Analysis for Digital Humanities," 544, provide a succinct definition of community detection.

43 For more information about the different types of community detection methods, including SLPA, see Jierui Xie, Stephen Kelley, and Boleslaw K. Szymanski, "Overlapping Community Detection in Networks: The State of the Art and Comparative Study," *ACM Computing Surveys* 45, no. 4 (2013), https://doi.org/10.48550/arXiv.1110.5813.

TABLE 3. The Top Ten Communities Identified by kumu.io's SLPA Algorithm and the Weak Tie Communities Connected to Them

| *Communities (labels designated by the author)* | *Community Members (identified by SLPA algorithm)* | *Connected Top 20 Weak Tie (identified by betweenness)* |
|---|---|---|
| Syon Abbey | 437 members—mostly professed or donors | Syon Abbey (#1) |
| Margaret Beaufort, Countess of Richmond and Derby | Wynkyn de Worde; Denney Abbey, St. John's College (Cambridge); Petronilla Davenport; Richard Whitford; Richard Pynson; William Caxton; Cecily, Duchess of York; Margaret Beaufort; Thomas Stanley; George Stanley; Robert Redman; Katherine Brereton; Christ's College (Cambridge); William Bonde; Robert Brereton | Margaret Beaufort, Countess of Richmond and Derby (#2) |
| Dartford Priory | Beatrice Chaumbre; Denyse Caston; Dartford Priory; Edward IV; Emma Wynter; Bridget of York; William Baron; Elizabeth Cressener; Pernelle Wrattisley; Unnamed Abbess of Dartford Priory; Anne, Duchess of Exeter; Elizabeth of York; Joanna Newmarch; Alice Brauntwaithe; Elizabeth Rede | Elizabeth Rede (#3), Robert Rede (#5), |
| Wyche Family | Helen Wyche; Catesby Priory; John Wycliff; Hugh and Alice Wyche; Queen's College (Cambridge); Richard Wyche; Margaret Wyche | Helen Wyche (#14) |
| Barking Abbey | Marie Hastings; Sibilla de Felton; Philippa Coucy; Anne de Vere; Barking Abbey; Elizabeth de Vere | Elizabeth de Vere (#6), Matilda Newton (#9) |
| Alice Hampton—Halliwell Priory | Elizabeth Prudde; Alice Hampton; Minchinhampton Church; Edmond Bellond; Halliwell Nunnery; St Augustine's London | Alice Hampton (#7) |
| Battle Abbey | John Newton; Anne Colville; Battle Abbey; John Tiptoft; Clemence Tharebrough | Anne Colville (#11) |
| Ursewyk Family | Elizabeth Ursewyk; parents of Christopher Ursewyk; Furness Abbey; Christopher Ursewyk; Margaret Ursewyk | Margaret Ursewyk (#18); Christopher Ursewyk (#20) |
| More/Roper Family | John Roper; Jane Roper; William Roper; John Fyneux | William Roper (#8) |
| Dissolution of the Monasteries | Blackfriars Priory; Jasper Fyllol; Thomas Cromwell; Elizabeth Archeley; Henry VIII | Elizabeth Archeley (#16) |

were made up either of a family or a religious house. It is interesting to note that the detected communities do not necessarily contain all people within the network a researcher might expect to be there. For example, the "More/Roper Family" community does not include Sir Thomas More (1478–1535) himself or his daughter Margaret (More) Roper (1505–44), who is the person memorialized in the Syon *Martiloge* and thus the reason the family is in the broader Syon network in the first place. This is because both More and Roper are statistically more connected with the larger Syon "community" than with the community centered on Roper's husband, William (c. 1496–1578). William Roper's connections, in turn, are more connected to him than to the central Syon node. Nevertheless, the fact that the communities are cohesive within the broader Syon context makes them useful as a heuristic. Even if the detected communities do not include everyone a researcher might expect, they can still be used as a starting point of research into communities that are potentially connected by Syon's bridging ties.

One example of the relationship between a weak tie and an identified "community" is Alice Hampton, a vowess at the house of Augustinian cannonesses at Halliwell, who appears as number seven on the list of figures with high betweenness centrality. This is because of an extant will that allows researchers to link her not only with Syon Abbey, to whom she left her estate, but also Minchinhampton Church, to whom she left a gold profession ring and a bell, as well as directly to Halliwell prioress Elizabeth Prudd, as part of her indenture agreement. Prudd and friar Edmond Bellond served as the executors of her will, completing the map of connections.

Figure 4 shows a typical cluster of nodes within the Syon network. Other families have similar patterns of bequest that are not identified as particularly statistically significant, like Thomas Tempest and his sister-in-law Mabel Tempest, who gave who gave money to both Syon and to the Gilbertine Sempringham Priory in Lincolnshire.[44] The Hampton and Tempest bequests were not particularly unusual within the wider context of late medieval religious gift giving, which was a rich culture of small donations and bequests

44 Gejrot, *Martiloge*, 143.

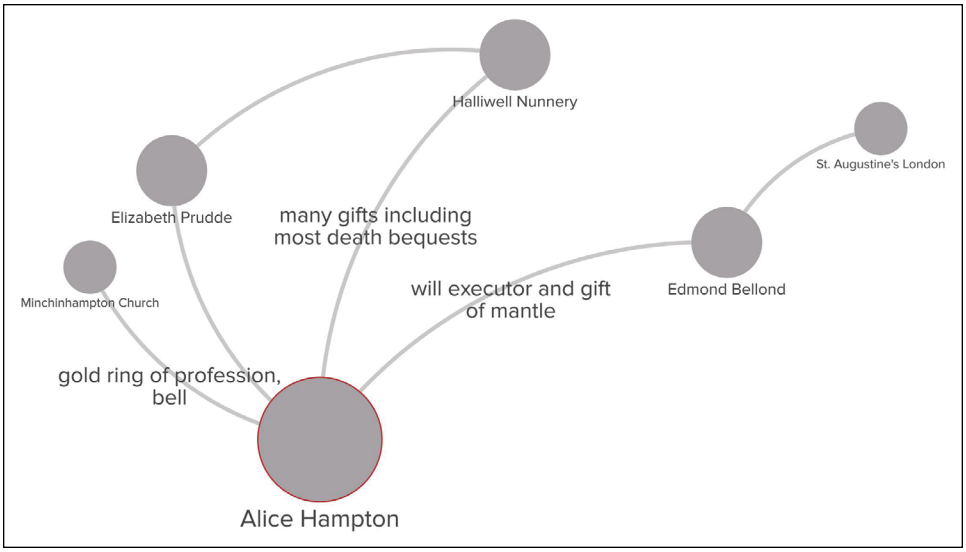


figure 4. Alice Hampton's non-Syon network.

to different religious houses.[45] However, after running the native community detection algorithm, the Alice Hampton network was picked out as significant, while the Tempest one was not.

Why should Alice Hampton and her community seem more significant than the Tempests? Alice Hampton's bequests, which reached three different religious institutions and two individuals, were calculated to be more statistically significant than the Tempests' because of this variance in recipients. Another reason is the insularity of the Hampton bequests: while Alice Hampton donated to many organizations, they did not interact with anyone else in the larger network to thus fulfill the requirements of statistical "community." Erler, who has written extensively about these types of family connections within the female religious communities of late medieval England, discusses Hampton's history with Syon Abbey the passage of her estate to the abbey through a complex agreement involving the king's license

45 For more on wills as an expression of devotionality, see Gail McMurray Gibson, *The Theater of Devotion: East Anglian Drama and Society in the Late Middle Ages* (Chicago: University of Chicago Press, 1989).

under mortmain, attributing this to "regional loyalties," given that the bulk of Hampton's bequests went to individuals at Halliwell.[46] Erler also notes that "more unusual was [Hampton's] double affiliation with two female houses, Syon and Halliwell."[47] However, the betweenness centrality and community detections highlight repeated cases of double affiliation—that is, a family group with members in multiple religious houses or individual donors with multiple loyalties. The statistical measures highlight the cases where this phenomenon occurs and suggest that double affiliation for an individual or within family groups was not unusual at all.

Another interesting case is the community I have labeled as "Dissolution of the Monasteries." Community members identified by the algorithm include Blackfriars Priory, Thomas Cromwell, Sister Elizabeth Archeley, Jasper Fyloll, and King Henry VIII. They seem unrelated until one considers that Cromwell, Fyloll, and Henry VIII were all involved in the dissolution. Bibliographic evidence connects Archeley and Blackfriars to the group. Fyloll is a curious case. His name is written in the flyleaf of at least two manuscripts: Oxford, Bodleian Library, MS Bodley 264, the famous illuminated Alexander Prose Romance, and a Syon-associated devotional book, Cambridge, Magdalene College, MS F.4.13. Fyloll is most associated with his role as a sort of enforcer during the Reformation, since after an unsuccessful legal career he tried to convert the monks at the London Charterhouse and wrote a treatise titled *Agaynst the possessyons of the Clergye* around 1530.[48] Consuelo Dutschke describes him as a "somewhat less than serious student, rather inept lawyer, and enthusiastic convert to the new form of religion," but in Fyloll's inscription in MS F.4.13 he describes himself as "Jasper Fyloll of the blacke freers in London," an odd association for someone so vehemently anticlerical.[49]

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46 Erler, *Some Vowed Women*, 211–18.

47 Erler, *Some Vowed Women*, 217.

48 Jasper Fyloll, *Agaynst the possessyons of the clergye: Harkyn what great auctorytes shall nowe folowe for proffer thereof* (London: J. Skot, 1537?), STC 11489; authorship attributed by M. R. James, *The Romance of Alexander: A Collotype Facsimile of MS Bodley 264* (Oxford: Oxford University Press, 1933), 3.

49 Consuelo Dutschke, "The Truth in the Book: The Marco Polo Texts in Royal 19.D.i and Oxford, Bodley 264," *Scriptorium* 52 (1998): 299; Cambridge, Magdalene College MS F.4.13, fol. 1r.

Syon's donor list mentions a "Fylow" who gave a copy of Nicholas of Lyra's *Repertorium* to the brothers; Vincent Gillespie suggests this could also be the same Jasper Fyloll.[50] There is much fruitful ground for research here, but one would have to come across the manuscript evidence almost by chance: a scholar of religious manuscripts would be unlikely to search for the Alexander Romance in MS Bodley 264, for example. The statistical identification of Fyloll as part of the "Dissolution group" brings him to the researcher's attention and highlights the ways the interplay between close reading, historical insight, and quantitative measures are iterative and dynamic.

## *Connected Religious Communities: Implications of a Closer Relationship?*

In the sections above, I have described some of the layers of connection uncovered by investigating Syon's weak ties and bridging relationships. These connections, often already identified by secondary scholarship, serve as a kind of double confirmation. The first confirmation is that network analysis and the secondary scholarship are identifying the same kinds of connections, so network analysis itself is a valid form of inquiry. The second is that because these types of connections are both quantitatively and qualitatively confirmed to be significant, we can start to imagine and fill in the gaps when the network analysis identifies similar points of connection. In this section, I will describe how these layers can be put together to form a more multidimensional picture of the landscape and allow for a more informed speculation, focusing on the way that an analysis of Syon's weak ties implies a closer relationship between Syon and other female religious houses.

Syon's weak ties, whether they were vowesses with links to multiple religious foundations or family members related across the institutional divide, suggest that it may have had closer relationships with other women's religious houses than has been previously assumed. Syon certainly did communicate with other religious communities: the well-studied relationship

50 Gillespie, *Syon Abbey*, SS1.474-7, 143; 578.

between Syon and the neighboring Carthusian Priory of Sheen, for example, is positive evidence for Syon's openness to collaboration and communication with houses of different orders. Syon and Sheen, both royal foundations of Henry V and built across the river from each other, were intended to be close neighbors, and they shared a close textual relationship.[51] Sheen and Syon shared familial relationships too: Constance Browne, abbess from 1518 to 1520, was the cousin of Sheen prior Ralph Tracy, who was later murdered by one of his monks in the cellar.[52]

Neither did Syon's enclosure preclude brothers and sisters from having relationships with outsiders. While the sisters of Syon were fully enclosed, the brothers could communicate with the outside world, as indicated by their presence at the Syon pardon sermons.[53] We also know, thanks to A. I. Doyle's identification of a letter in Durham University Library, MS Cosin V.iii.16 that Syon sent letters and books to other female religious houses.[54] It begins:

> Welbiloved Susturs in oure lord iesu crist Aftur dew saluting knowe ye that of such goostly writingis as oure susturs have with us we sende you part. Consailing and willyng you for encresse of oure

51 Michael G. Sargent, "The Transmission by the English Carthusians of Some Late Medieval Spiritual Writings," *Journal of Ecclesiastical History* 27 (1976): 225–40; and Sargent, "The Transmission by the English Carthusians of Some Late Medieval Spiritual Writings: a Reconsideration of Walter Hilton and Nicholas Love," in *The Capital's Charterhouses and the Record of English Carthusianism*, ed. Julian Luxford (Toronto: Pontifical Institute of Mediaeval Studies, 2023: 117–151); Laura Saetveit Miles, "Beinecke MS 317 and Its New Witness to the Latin Door Verses from London Charterhouse: A Story of Carthusian and Birgittine Literary Exchange," in Brown and Rice, *Manuscript Culture and Medieval Devotional Traditions*, 3–24; Vincent Gillespie, "The Permeable Cloister? Charterhouse, Contemplation, and Urban Piety in Medieval England: The Case of London," in *The Urban Church in Late Medieval England: Essays in Honour of Clive Burgess*, ed. David Harry and Christian Steer (Donnington: Shaun Tyas, 2019), 238–57.

52 George Aungier, *The History and Antiquities of Syon Monastery, the Parish of Isleworth and the Chapelry of Hounslow* (London: J. B. Nichols and Son, 1840), 533.

53 Powell, "Preaching at Syon Abbey," in *The Birgittines of Syon* Abbey, 53–55.

54 Anthony Ian Doyle, "A Letter Written by Thomas Betson, Brother of Syon Abbey," in *The Medieval Book and the Modern Collector: Essays in Honour of Toshiyuki Takamiya*, ed. Takami Matsuda, Richard A. Linenthal, and John Scahill (Cambridge: D. S. Brewer, 2004), 255–67.

> mede to lete this be comoun emong you & yif copy of them to othere of religioun that dwell nygh you.[55]

Doyle suggests that this letter, a fair copy of an original, was written by Thomas Betson (d. 1516), who served as the abbey's librarian. But we do not know to which house the recipient sisters belonged, nor do we know which texts they might have shared. But by looking at the relationships highlighted by SWT, we can start to speculate about the possibility of this closer relationship and also its potential for book exchange.

Two well-known examples of extra-claustral relationships illustrate the way identifying bridging relationships within a network can point to possible moments of book and manuscript exchange: the aforementioned relationship between laywoman Margaret Holland, Duchess of Clarence, and her Birgittine tutor Simon Wynter; and the relationship between Birgittine sister Joanna Sewell and her Carthusian tutor James Grenehalgh. It seems possible for other laywomen, particularly vowesses, to have had tutors or for sisters to have had confessors or tutors from outside of Syon. In each case, interestingly, their relationships were tied to larger systems of book distribution (in the case of the Holland-Wynter relationship) or were part of a larger relationship between two institutions that included small-scale book exchange (in the case of the Sewell-Grenehalgh relationship).

We also know that both the relationship between Wynter and Holland and the relationship between Sewell and Grenehalgh were at the heart of larger networks of textual connection. Simon Wynter, in the Life of St. Jerome he composed specifically for Holland, exhorts her to share the text with anyone else who might find it useful, writing "not oonly ye shulde knowe hit the more cleerly to youre goostly profyte, but also hit shulde mowe abyde and turne to edification of other that wolde rede hit or here hit."[56] The text was copied in at least four different manuscripts that are, according to Clare M. Waters, examples of "monastic politics and religious instruction . . . a window onto the intertwined lay and monastic devotional cultures of

55 Durham, Durham University Library, MS Cosin V.iii.16, fol. 188r.

56 London, Lambeth Palace Library, MS 432, fol. 1r.

fifteenth-century England."[57] Similarly, James Grenehalgh, a Carthusian monk of Sheen, annotated and shared at least four manuscripts and printed books with his protégée Johanna Sewell, a nun of Syon.[58] If we accept the Holland-Wynter and Sewell-Grenehalgh bridging ties are hallmarks of the Syon-Sheen relationship, we could then hypothesize that the other weak ties identified by the statistical analysis of Syon's networks might also suggest a larger network between religious foundations than the extant evidence can support.

Thus, it is worth following up the suggestions of connections that are made by the identification of weak ties because of the potential that they have for identifying channels for the flow of books. Let us return to the idea of a closer link between Syon and Dartford, suggested by the identification of the amalgamated Elizabeth Rede figure. Regardless of whether there were one or two Elizabeth Redes, the statistical analysis indicates that the relationship between Syon Abbey and Dartford Priory is a useful one to interrogate. Even if two Elizabeth Redes existed, the Rede family itself is known to have been active in providing vocations to religious houses throughout the south of England, including Malling Abbey (Kent) and Waltham Abbey (Essex) in addition to Syon and Dartford. Sir Robert Rede (d. 1519) was an active donor to the Carthusian Order, and he built both a burial chapel and founded a chantry at the London Charterhouse. Julian Luxford describes him as a "binary character," divided between his life as an urban professional and a country gentleman, with a "rich and tentacular spiritual profile."[59] Sir Robert Rede, too, serves as a significant weak tie, connecting a number of high- and low-profile religious houses across England with his donations. Given his connections with the Carthusian Order, his connection with the Birgittines of Syon seems like a natural fit, in addition to his familial connections to Dartford through his relative Elizabeth.

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57 Waters, *Virgins and Scholars*, 4.

58 Philadelphia, Rosenbach Museum and Library, Inc. H491; London, British Library, Additional MS 24661; Cambridge, Emmanuel College, MS 35; Michael G. Sargent, "James Grenehalgh as Textual Critic," *Analecta Cartusiana* 85, 2 vols. (1984), 1:85–109.

59 Julian Luxford, "Sir Robert Rede and Religion," in Harry and Steer, *The Urban Church in Late Medieval England*, 258–59, 274.

Dominican Dartford Priory and Birgittine Syon Abbey were similar foundations, despite their differing orders. Syon was founded by King Henry V in 1415, and Dartford Priory by King Edward III in ca. 1349. Like Syon, Dartford was the only female religious house of its order in England, and like Syon, Dartford was associated with a community of men at Kings Langley Friary, for whom they provided administrative and financial support.[60] The case of the Wynter siblings is an intriguing one, from a bibliographic perspective: given Simon Wynter's hope that his charge Margaret Holland would distribute his Life of St. Jerome to other women readers, it is possible that he would have had similar gifts or instructions for his sister. The devotional reading material of the Dartford sisters is similar to that of the Syon sisters: of the eight extant books identified with Dartford, two are copies of Walter Hilton's translation of the *Stimulus amoris*.[61] It is worth asking what kind of connections the two foundations had with each other.

Dartford is not the only religious house identified by betweenness centrality: Elizabeth de Vere, Countess of Oxford, who has the sixth-highest betweenness centrality score, links Syon with Barking Abbey, the venerable Benedictine house founded in the seventh century. De Vere, listed in the *Martiloge* as one of Syon's benefactors, was a prolific book donor to Barking, where her sister Anne was abbess.[62] Syon's relationship with de Vere is certainly a weak tie; we have no extant evidence of family relationships or spiritual closeness shown by a profession or a role like vowess. Of course, as a book donor to Barking, it seems possible that the donation that garnered de Vere's inclusion in the *Martiloge* could have also been a literary one. This alone does not imply a closer relationship between Syon and Barking. However, Syon's early history shows that it had ties with Barking from its foundation: Syon's first abbess, appointed until an election could occur, was Barking nun Matilda Newton. Her dismissal, which stemmed from a dispute

60 Lee, *Nunneries, Learning and Spirituality*, 16–17.

61 London, British Library, Harley MS 2254; New Haven, Beinecke Rare Book and Manuscript Library, MS Osborn a75; see https://sdbm.library.upenn.edu/manuscripts/27194 for up-to-date provenance information.

62 Doyle, "Books Connected with the Vere Family and Barking Abbey."

over manual labor, led to her being sent back to Barking in disgrace.[63] However, she was not the only nun to come from Barking and move to Syon, and in Syon's early days it is probable that some of the norms and practices from Barking would have been taken up by the early community at Syon alongside those consciously imported from Vadstena, since that is what the incoming sisters from Barking were used to. Once again, the identified weak-tie relationship signposts a relationship between the two institutions and indicates an area of further research.

## *Conclusion*

Whatever the relationship between Syon and other religious communities, Syon knew how to take advantage of its weak tie relationships and was aware of people within its community who could connect it to other groups. I have identified a case where Syon's conscious attention to cultivating these networks is clear: Syon's prioresses. Bainbridge has suggested Syon appointed prioresses using "a policy of using local networks of power and kinship in service of the abbey," and indeed, most Syon prioresses were well connected, surprisingly, sometimes more so than the abbesses to whom they were subordinate.[64] The prioress's role was chiefly to be deputy to the abbess, but an examination of the individual connections of the Syon prioresses reveals that the strength of their personal networks was an important factor in their appointment. In other words, the best qualification for a Syon prioress was in fact to have the right connections at the right time. This kind of calculated office holding does not appear in other royal foundations: Dartford, for example, seems to have simply drawn upon the London citizenry for its prioresses, even as it was a haven for many well-born women, including a daughter

63 F. R. Johnston, "Joan North, First Abbess of Syon, 1420–33: 'Qui celestia simul et terrena moderaris,'" *Birgittiana* 1 (1996): 50.

64 Virginia Bainbridge, "Who Were the English Birgittines? The Brothers and Sisters of Syon Abbey 1415–1600," in *Saint Birgitta, Syon and Vadstena: Papers from a Symposium in Stockholm, 4–6 October 2007*, ed. Claes Gejrot, Sara Risberg, and Mia Åkestam (Stockholm: Kungl. Vitterhets Historie och Antikvitets Akademien, 2010), 43.

of Edward IV.[65] At Syon the first prioress, Katherine Neandester, came from Sweden and the Birgittine motherhouse at Vadstena, and was able to provide a connection with the original community there at a time when the English Birgittines were concerned with starting off on the right foot. In 1428 Joan Suckling became the third prioress. She came from a local landowning family at a time when village rivalries meant local groups "beat their bounds on different days to avoid bloodshed."[66] Her connection to a local family (and thus Syon's connection with the family's network) would have therefore been useful at this troubled time. These prioresses' connections could have been coincidental to their leadership ability or their seniority when it came to taking up high office. However, the case of Anne de la Pole, seventh prioress (c. 1476–1501) proves that these appointments were made with Syon's network in mind. Anne de la Pole was the niece of King Edward IV and was elected prioress at the age of eighteen or nineteen.[67] Given that the minimum age for entry to Syon was eighteen, and that postulants were required to undergo a year of proof, de la Pole could not have built up the necessary leadership experience for the role of prioress by the time of her election. Her value as prioress was likely to have been, therefore, her connection to the royal family. In other words, Syon was taking advantage of Anne de la Pole's role as a structural bridge within their network.

Throughout this article I have shown how taking the theory proposed in Granovetter's "Strength of Weak Ties" and applying it to Syon Abbey by using network analysis and statistical measurement can highlight individuals and communities within Syon Abbey's network that bridge communities, and how this modeling can indicate future areas of research in the field. These weak ties both confirm existing scholarship by Erler, Bainbridge, and others on the importance of family ties and networks connected to Syon

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65 "Friaries: The Dominican Nuns of Dartford," in *A History of the County of Kent*, vol. 2, ed. William Page (London: Victoria County History, 1926), 181–90.

66 Johnston, "Joan North," 53.

67 Anne de la Pole's birthdate is uncertain but most sources place it between 1475 and 1476. Her predecessor, Helena Eton, died in 1492, and de la Pole was prioress before she received a book from her grandmother Cecily Neville in 1495.

Abbey, and they suggest new venues for research on Syon's connections with other female monastic houses. It has been my purpose not to find all of the hard evidence necessary to fully develop these relationships but rather to illustrate a distant view of the landscape of late medieval women's religious communities that allows researchers to orient themselves to new focused explorations.

The application of quantitative or algorithmic methods of inquiry to qualitative humanities research is currently a hot-button topic in scholarship. Digital humanities institutes ask questions about big data, machine learning, and the application of artificial intelligence to large datasets. This quantitative approach is not new to manuscript scholars even outside of the digital humanities sphere: in 2008 Michael G. Sargent critically examined the extent of surviving manuscripts in Middle English, refuting the then-common idea that accepting numbers of surviving manuscripts prima facie as an indication of popularity was a fallacy, asking instead whether we might consider the numbers as a starting point for a possible readership.[68] Just as in my method of identifying Syon's weak ties as a starting point, Sargent points to using quantitative analysis as another tool in the researcher's arsenal, rather than the be-all and end-all of research. Responding to Sargent, A. R. Bennett points out, "There is no final aggregation or data set. Rather, the data can grow and/or be resampled in any number of ways, however it becomes meaningful to readers."[69] Ahnert and Ahnert's work on Protestant letter-writing networks during the reign of Mary I serves a similar function: their confirmation that statistical measures in network analysis do highlight points of significance, using a structural approach rather than an analog "reputational" one, shows that even if there is missing data, what a network shows us can be trusted to a reasonable degree.[70] We can and should trust quantitative

68 Michael G. Sargent, "What Do the Numbers Mean? A Textual Critic's Observations on Some Patterns of Middle English Manuscript Transmission," in *Design and Distribution of Manuscripts in England*, ed. Margaret Connolly and Linne R. Mooney (York: York Medieval Press, 2008), 206.

69 A. R. Bennett, "What Do the Numbers Mean? The Case for Corpus Studies," in Brown and Rice, *Manuscript Culture and Medieval Devotional Traditions*, 54.

70 Ahnert and Ahnert, "Protestant Letter Networks."

research tools within a qualitative subject, perhaps even if the physical evidence the networks are pointing to are no longer extant. Most recently, a team of scientists and manuscript scholars worked together to use unseen species modeling, an ecological method, to estimate computationally the survival rate of medieval literary manuscripts across Europe.[71] Similarly, network analysis can point to books and manuscripts that we may never find or to connections between people that may have included the movement of a no-longer-extant book. The job of the network is to suggest these points of connection, whereas the job of the researcher is to investigate its likelihood. These examples, along with my own work in this paper, show the robustness of this quantitative, statistical, and model-oriented way of thinking about the big questions in manuscript studies.

71 Mike Kestemont, Folgert Karsdorp, Elisabeth de Bruijn, Matthew Driscoll, Katarzyna A. Kapitan, Pádraig Ó Macháin, Daniel Sawyer, Remco Sleiderink, and Anne Chao, "Forgotten Books: The Application of Unseen Species Models to the Survival of Culture," *Science* 375, no. 6582 (February 2022): 769, https://doi.org/10.1126/science.abl7655.

## *Appendix A: Network Visualizations*

My networks were made using the data visualization tool kumu.io. To view the network maps and calculated statistics for this project, visit https://kumu.io/julialmking/strength-of-weak-ties-syon-abbey-public-view. A search function is available in the upper left-hand corner, and clicking on each node will reveal its centrality metrics. To access this project's data on GitHub directly, visit https://github.com/kingjulia/SyonAbbey.