

Social Network Analysis and the People of Medieval Scotland 1093-1286 (PoMS) Database

by

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with contributions by Cornell Jackson

Preface by John Bradley

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PREFACE

By John Bradley

At first glance one would think that there should be an entirely natural affinity between the study of history and the domain and techniques of Social Network Analysis (SNA). On one hand, out of the documents that historians study arise the historical interpretations of the events, people, and interactions that they describe. On the other, from SNA's perspective, as Steve Borgatti (one of the developers of the highly influential piece of SNA software called UCINET) is quoted as saying in Gretzel 2001, SNA "is the study of social relations among a set of actors". At least a part of what history is about is this too. Furthermore, work in the early 1990s by SNA researchers such as Padgett and Ansell (1993) provided at least one example of useful historical analyses arising from a formal SNA study of the political, economic, friendship and marriage networks of the Medici. Are there other sets of historical data that would benefit from SNA analysis techniques?

From 2006 to 2012 a small group of historians and digital humanities specialists worked to create a representation of material from medieval charters in the People of Medieval Scotland (PoMS) (PoMS 2012) project. When we finished creating PoMS some of us came to realise that the materials we had created could be used to explore what potential there might be for using SNA analysis to support historical thinking about Medieval Scotland. In 2012 there certainly appeared to be at least some potential for an affinity between the PoMS materials and the SNA methodologies. Thus, we approached the Leverhulme foundation for funding to, among other things, explore how well this potential affinity between SNA and medieval history could actually be explored through PoMS. As we said in our proposal, we believed that SNA might offer "a method for processing thousands of individual interactions in different contexts and locations to reveal changing patterns and intensities in social relationships." We are very grateful to Leverhulme that our proposal was funded by them, and the work you see described in this book is the direct result of this funding.

Why were we thinking of PoMS particularly as a source for historical data that might fit with SNA? There were several rather obvious reasons and one that was perhaps not so obvious. First, those who have looked at the published version of PoMS database through its website will be aware that PoMS is in significant part a prosopography. The names of people and institutions that appear in PoMS's medieval charter documents are turned into references to corresponding digital surrogates of historical people

and institutions. Indeed, the formal identifications of these persons was very much one of the things that the PoMS project was about. As a result PoMS researchers went to some length to identify more than 15,000 specific historical people and institutions that are referenced in its documents. Clearly, this identification of individuals that was done as a part of PoMS was an essential preliminary step to applying SNA approaches.

Furthermore, PoMS was not only a prosopography, but also an example of a highly structured one (see a description of PoMS's structure in Bradley and Pasin 2013). Thus, as a structured prosopography, PoMS used the modelling techniques of a relational database not only to focus on the formal identification of historical persons and institutions, but also to formally represent other kinds of historical entities and to record the interconnections between them: things like the historical documents themselves, possessions described in them, pieces of land, permissions and privileges, and many other entities.

Indeed, because PoMS is a relational database, it is able to exploit the relational technology's inherent nature that allows its materials to be queried from many different perspectives. Although PoMS is to a significant degree a prosopography and can draw out material selected by person or institution, we can also ask of the database questions centered around any of the other formally identified objects as well: "what is the total number of charters, and how many have knight service specified as a render", for example, or "what are the places associated in some way with a woman". By being a highly structured database which can be queried for data from many different perspectives PoMS is an example of an entity that in fact enables a "thousand entrances" into its materials (using a phrase that, to some degree, consciously echoes Roland Barthes's influential description of narrative networks as "readerly texts" (Barthes 1974, p. 12)). To repurpose Barthes again, a database like PoMS has "no beginning; it is reversible; we gain access to it by several entrances, none of which can be authoritatively declared to be the main one" (Barthes 1974, p. 5). Like Barthes's readerly texts perhaps, any of the entities that PoMS's structure formally represents (persons or institutions, places, charters, etc) can be exploited as an entry point into its material more or less equally easily.

We mentioned earlier here that there is one not particularly obvious reason why the PoMS database might be suitable for SNA exploration. This particular reason is perhaps rather more hidden from most of PoMS's user community because they access it through PoMS's reasonably rich and sophisticated web interface, and it only allows certain types of questions to be asked of the PoMS data – only some

of PoMS's "thousand entrances" are available there. As mentioned earlier, other kinds of questions that are difficult to explore through the web interface can be asked directly of the database, and it turns out that these fit best with SNA. Thus, by going behind the web interface and getting at the database directly one can select materials that are difficult or virtually impossible to approach through the web interface, and it is the shift in perspective that is thereby enabled that made it seem, at the time the Leverhulme proposal was written, evident to us that an SNA interpretation of the data was a plausible one. What was this shift in perspective?

We quoted Borgatti's short definition of SNA here briefly earlier, and elsewhere in it one finds a bit more of what SNA is about: that it "focus[es] on relationships between actors" (in PoMS its historical persons and institutions) "rather than [their] attributes", that for this reason SNA focuses on a "sense of interdependence: a molecular rather atomistic view", and that one can observe a new set of "emergent effects" and "substantive outcomes" from working on this structure of relationships. Although PoMS's web interface shows relationships between, say, specific people primarily in the context of specific pieces of property, say, or a particular charter, it does not allow for data to be selected that is centred on the relationships themselves. Nonetheless, behind this web interface, PoMS's database allows one to readily extract all relationship-oriented data between people that PoMS has recorded (more than 11,000 grantor-beneficiary relationships, for example) and present this data to SNA methods for processing. What happens then if, as Borgatti suggests, we take up an SNA perspective on this data and focus on its relationship-driven data; for example on PoMS's 11,000 grantor-beneficiary relationships? What new structures (using Borgatti's sense of the word) can be detected between the interdependence between PoMS's historical persons by their establishing of connections of granter and beneficiary? This is, indeed, one of the questions you can find explored later in this book. Furthermore, PoMS does not record only grantor-beneficiary relationships between people but several other kinds too: through family connections, tenurial and lordship relationships, and employment relationships. Indeed, a look through the rest of this book will show how SNA techniques have been applied to these other relationships that PoMS reveals. Furthermore, considerable work has been done in our research to explore evidence of relationships between people that arise from co-witnessing of charters. In all these cases, relationship-centred data was first drawn from PoMS's database, and then fed into a range of different SNA processes to explore what might be revealed.

Although you will see much energy and enthusiasm about exploring SNA in evidence in this book, it was also evident from the very beginning that the team had to approach this SNA exploration in a critical spirit.

First, PoMS works with data that the PoMS team has extracted from its medieval documentary sources into a formal structure that by its very nature could of course only partially correspond to what was actually happening in that medieval period. The charters that survive to the present day and that we could use to harvest our data are incomplete records of all the legal and legal-like transactions that happened in Medieval Scotland – likely even an incomplete record of transactions that originally had charters. Because of what happened in their transmission to us today what has survived is almost certainly skewed in various ways. Does this partial and skewed data characteristic of PoMS need to constrain our interpretation of what SNA suggests to us? Furthermore, the database modelling approach forces clarity of structure upon us for material that was created in an era and in a society where such structures were no way nearly as clearly defined as a database suggests. Is our data model too rigid to accommodate the subtleties of this medieval society?

Finally, we have the concern about the appropriateness of SNA's "world view" and its mathematical network-orientation to this material. We quote here an article with, truth be told, quite different purposes than the ones we were working with in PoMS: Nishant Shah's analysis of events that have happened in modern-day China. Talking of recent political events, Shah notes that:

The event has to be legible: it can be written, quantified as data, visually mapped and attributed to definite actors, and graphically reduced to transactions, actions and processes. The event has to be intelligible: once it has been documented, it can be sorted, put into databases, forced to reproduce itself only in a language that the network understands, and can be extricated from its contexts of meaning making, (Shah 2013, p. 670, highlighting added)

Like the events Shah is writing about here which, he claims, had to be formalised and processed in the ways he describes to fit with the world view he was interested in exploring, PoMS too has, in its formalisation process that extracted data for the database, turned its material that it has drawn from medieval charters into relatively clear-cut events, has attributed these events to specific historical actors, and turned them into explicit formal transactions with relationships between these individuals.

The process seems highly reductive. Once the material had been formalised in this way it was, of course, possible to extract networks of individuals that could be given to SNA techniques for processing. However, in squeezing these medieval sources into this particular expression of formal structured data, and then further processing that data into suitable formal SNA “networks”, and thereby taking the material out of its richer and more complex social and historical context, are we losing important aspects of the material that therefore prevents whatever the network analysis seems to show from being historically significant? Can the structures that we think we are seeing emerging from this reductive process be satisfactorily turned into proper historical insights?

Of course, SNA is not the only time that highly formal models have been explored as a way of reductively thinking about historical phenomena, and some of these formal approaches have been well established as historical sub-disciplines. Take the field of economic history as an example. Like our SNA application to historical materials, economic history attempts to take the reductive approaches of economics, with its highly formal mathematical models, and uses its perspective to try to explain historic human behaviour in terms of a set of these underlying mathematical models. As the well-known economic historian Marc Flandreau says in his 2001 article:

The seduction of economics was its abstraction, its ability to operate a fairly sophisticated conceptual machine capable of moving at high speed and to land it, as a helicopter, in the tidy glades that can be found in even the most inaccessible jungles. The seduction of history came from qualities that are exactly opposite. The same jungles are explored on foot with a duty to collect every single exotic flower along the way, taking the petals, leaves and roots together, writing where they were picked in a booklet, and studying them back in the office both for themselves and in relation to each other. While in history elegance and scholarly achievement is often a thick book, in economics, it is a lean one. (Flandreau 2001)

Later he proposes the idea that the essence of economic history is not in the proportion between the two contrasting approaches, but in the challenge of striking the balance itself – not in the building of a permanent intellectual bridge between the methods of history and economics, but in the view one gets from this bridge’s provisional construction. Something useful can come from this work, in spite of the fact that “a clear and systematic explanation” that connects the two fields cannot be satisfactorily found.

Perhaps a similar sense of potential, but with some significant discomfort, is where we find we have ended up in the application of SNA to support an historical analysis of medieval charters through the PoMS database. Like Flambeau, this tension has turned out to be one of the major constant concerns of our work. We found ourselves doing our best to put SNA analyses into an historical context and trying to say, as historians, “what does this presentation usefully say to us about medieval Scotland”. In fact, we suspect that even after several years of work here, we find that we’ve really just beginning to understand some of the aspects of this question...

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