

## Structuring that which cannot be structured: A role for formal models in representing aspects of Medieval Scotland

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Computing offers a bit of a paradox when it comes to historical studies. On one hand, one suspects that almost all academic historians in at least Western Europe and North America have a computer both in their office and at home and use it daily for email, word processing and for surfing the World Wide Web. However, in spite of their daily contact with the machine, they view it as having little or nothing to do with the essence of their research. Now, the fact that historians use the computer every day as a part of their research activities, but both hardly notice it and probably don't often think that it actually affects what they do, turns out to be an interesting phenomenon that is, of course, not restricted to the doing of history. Indeed, the ability of tools such as word processing, email and the WWW to fit into the normal way of doing things so that they are almost invisible, shows an aspect to computing that is significant in its own right. However, this paper presents an example of a more prominent role for the computer in the doing of history. We focus on one of the ways in which computing obviously significantly impacts on the research: representing the product of historical research as highly structured materials in databases, and use the *Paradox of Medieval Scotland* (PoMS 2010) project as the prime example.

The idea of using structured data as an output of historical research does not seem to some to be a comfortable one. The digital historian of American history David Bodenhamer (2008 p. 220) acknowledges that "despite a flurry of interest in quantitative history in the 1960s and 1970s, historians as a group have remained more comfortable with manuscripts than databases." Nonetheless, based upon our experience at the Department of Digital Humanities (DDH) at King's College London of working with a number of different historians on a range of projects, we believe that the potential for database technology and other kinds of highly formal structure to support the doing of history is at least worth looking at more closely.

Of course, the usual research output of an historical project is not a database, but a monograph or article which give arguments in the form of a narrative that presents the writer's research. Indeed, some historiographers such as Alfred Louch (Louch 1969) makes the claim that this focus on narrative as the main form of research output for history is not accidental or based merely on unthinking past practice but is instead "essential to the business of historical explanation". Other historiographers such as Jörn Rüsen have explored potential parallels between historical and literary language as a basis for understanding the central role of narrative in the study of history. Perhaps not all historians would completely subscribe to Rüsen's claims of parallels between scholarly historical and literary discourse, but many might agree with this statement by David Bodenhamer (Bodenhamer 2008, p.244):

"Multiplicity is inherent in the word-narratives used to communicate history. Words are complex forms of information; they have 'halos of meaning', making them wonderfully evocative but imprecise and slippery. [...] Historians embrace this range of meanings. We prefer the medium of words and narratives because it permits us to represent the past as multidimensional, complex, and nonlinear, even though structurally our prose and our logic are sequential."

Here Bodenhamer reminds us that text/language/narrative works particularly well as a way of expressing imprecise and slippery meaning because often the complexity and subtlety of the story an historian has to tell requires it. By using narrative, one is able to express an understanding of history that must be, as Bodenhamer puts it, "multidimensional, complex and nonlinear". In such context – an complex, ambiguous and contradictory one in which history often places us, how can a highly formal, structured object such as a database support the kind of complexity and ambiguity of the human past?

PoMS online is to some significant degree a prosopography, and a look at traditional print prosopographies suggests that these too have always worked in a primarily narrative format. Figure I shows a typical brief article for someone identified as *Eucharius 4* in John Martindale's *Prosopography of the Later Roman Empire* – PLRE (Martindale 1992).

<p><b>Eucherius 4</b> (v.inl. 470)</p> <p>Of noble birth; Sid. Ap. <i>Ep.</i> III 8.2.</p> <p>Addressee of a letter from Sidonius Apollinaris praising him as one to whom the Roman state owed much for his military activities without having rewarded him; Sid. Ap. <i>Ep.</i> III 8 (<i>facile clarescit rempublicam morari beneficia vos mereri</i>) (the date is unknown, but the circumstances to which Sidonius alludes in this letter may have been the attacks by the Visigoths in 471/474).</p> <p>VIR INLVSTRIS: he and Pannychius were 'inlustres'; Sid. Ap. <i>Ep.</i> VII 9.18 (written in 470).</p> <p>He was apparently a candidate for the bishopric of Bourges in 470, but was ineligible since he was twice married and so excluded by the canons; Sid. Ap. <i>Ep.</i> VII 9.18.</p> <p>He was an enemy of Victorius 4 who had him imprisoned and then murdered; Greg. Tur. <i>HR</i> II 20 (<i>super Euchirium vero senatorem calumnias devolvit, sc. Victorius</i>).</p>
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Figure I

Even within the rather terse style of this rather brief article, one can see the complexity and subtlety of narrative playing a role.

Finally, even a cursory reading of the history of medieval Scotland seems to support the difficulty of trying to pin down what we know of the period well enough to find a suitable structure to express it. Andrew Barrell comments in *Medieval Scotland* (Barrell 2000, p. 19) that twelfth-century kings, "despite their new-fangled ideas", had to "marry feudalism with the older forms of landholding and social structure which still prevailed throughout the realm". Even the king, then, while trying to bring more structure to his kingdom through feudalism, found that he still actually had somehow to accommodate older, perhaps messier, practices already active in the kingdom. See also Barrow's comment that "the king's power and authority was never absolute, however fond contemporaries might be of quoting the Roman Law tag 'whatever pleases the ruler has the force of law'." (Barrow 1981, p. 126)

So, if the king could not fully bring his sense of and desire for order to Scottish society, how are modern historians supposed to do so? To what extent can a highly formal structure such as one finds in a database be useful or helpful to represent the complex and ambiguous aspects of this society?

## ***Finding patterns within Prosopography***

Part of the way to begin to address what might appear here as a paradox is to think about what the humanities, as a branch of academic study, is trying at least in significant part to do. Stephen Ramsay, a scholarly literary critic, but also a prominent figure in the Digital Humanities, observes (Ramsay 2004) that "humanistic inquiry reveals itself as an activity fundamentally dependent upon the location of pattern", and he subsequently goes on to observe that databases – with their requirement for a formal structure – are "perhaps the best suited" of computing technologies for "facilitating and exploiting" pattern. Bodenhamer (2008, p. 222) echoes this by noting that historians seek "[a] point of view that allows us to discern patterns among the events that have occurred" as a way "to understand the significance of our experience". Pattern may be an essential element of humanities research, but it is also an essential idea of any database such as the one we created for PoMS: there is pattern in the discipline of identifying the set of objects that will be represented in the database, and in establishing the kind of information about those objects that the database records and then makes available.

Furthermore, the PoMS database represents prosopographical work, and a database for prosopography should represent things of interest to the prosopographer as much as modelling the history of the society that she or he is studying. A look at printed prosopography, such as Martindale's PLRE mentioned earlier, immediately reveals a publication that is largely made up of a series of articles – narratives – about the persons it describes. However, a closer look at these articles reveals a rather formal, structured text with a carefully defined kind of interests: dates and dating, of course, and information about in which texts the person appeared; but also titles or offices the person held, places with which s/he is associated, other people with whom s/he had connections, etc. Objects of interest being to emerge from the text that can provide the basis for a structure to manage them.

Indeed, across the range of structured prosopographies that we at DDH have worked on (and they range from the clergy of the early-modern to Victorian English Church to the Byzantine Empire) a certain set of core interests, and therefore, structural elements, always appear. Titles people held, or relationships between individuals are seemingly always relevant, for example. In many of our prosopographical projects, historical events that people took part in are of interest. There other categories of information too that we will outline later in this paper. Overall, then, our experience in the DDH with a number of prosopographies has lead us to believe that certain elements of structure represent key interests in the mind of many prosopographer as they carry out their work. Furthermore, in ways we will describe later in this paper, this formal structuring allows us not only to look up a particular person (such as one would do in a print-based prosopography such as PLRE), but to use PoMS's database to approach the data from a whole range of different perspectives.

- Since PoMS formally structures the titles or offices of the people it records, one can use these offices or titles as a starting point in a query and ask PoMS to, say, "tell me about all the people identified as 'justiciar of Lothian'".
- Since PoMS formally records the witness for charters for which we have witness lists, and also links its charters to places and possessions, one can ask PoMS to "list all witnesses to charters associated with Aberdeen"

- ... and, since PoMS records the gender of all the people it references, and also records people specifically identified in *pro anima* clauses, it becomes possible to ask PoMS to “find all the charters that contain any identified women in *pro anima* clauses”.

The PoMS database, then, although it has a strong prosopographical orientation, is not really only an organised collection of people. It also organises a large range of other kinds of information too – titles for offices, places associated with the charters it has worked on, roles the people are identified as playing in these documents, and many other things. The database approach to representing PoMS’s materials allows any object (person, title, place, role, etc.) that is formally recognised in its database structure to be used as the starting point for a query.

### ***"Factoid" Prosopography***

We just mentioned that we have developed common, core, sense of elements that we have applied across a range of prosopographies. We have given this particular structural model the name “factoid prosopography” (The factoid approach is described in more detail in Bradley and Short 2005), and this factoid strategy or paradigm provides a foundation not only for PoMS, but for our other structured prosopographies as well. The *Prosopography of Anglo-Saxon England* (PASE 2006, 2010) project, for example, takes not only Anglo-Saxon charters as its sources as PoMS does, but also works with texts as diverse as saints lives, letters, chronicles and recently coins and Domesday Book. It is the strength of the factoid approach that, in spite of the very diverse nature of the different kinds of sources that our prosopographical projects have worked with, it is able to provide a useful representation of the prosopographer's task and insights across a range of different periods and cultures and sources. Even though, like the other prosopographies in which DDH is involved, the factoid model had to be extended and modified around the edges to meet PoMS's more specific needs, the approach represents a core set of elements and ideas that are shared across all the prosopographies that have taken it up, including PoMS. There is a simplified diagram of it in Figure II.

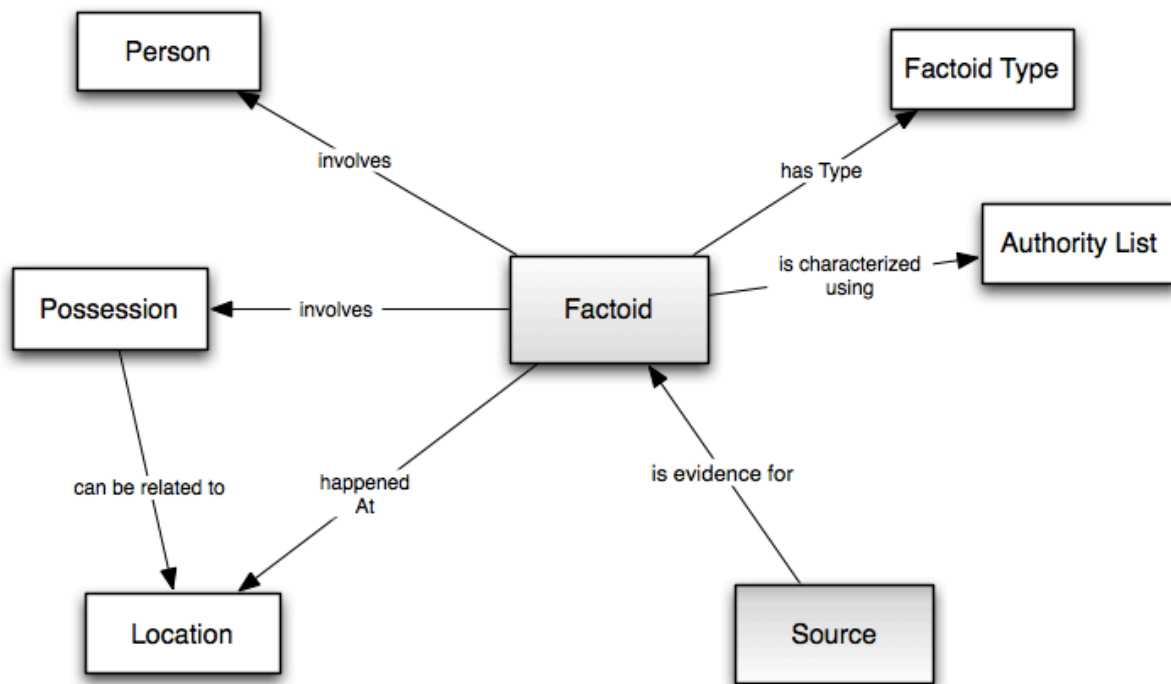


Figure II

In it we see a simplified version of what in the computing field is called a data structure diagram. Each box represents a kind of information – called an entity – that the database is collecting. Thus, for example, the Person box represents the collection of persons in the database, the Source box represents the textual sources that have been described, and so on. The lines between these boxes assert that there can be relationships between the two entities in the database that they connect together. Thus, even though we haven't yet explained what a factoid is, you can see by the line between the Source and Factoid entities that there is a connection between each Factoid and a particular Source. Since there is also a line between Person and Factoid we can see that each Factoid entity connects a person (or group of people) to one of our Sources through itself. In a similar way, there is a line between Possession and Location, because many possessions are pieces of land, and, they, in turn, will have a geographic location attached to them.

The diagram is simplified here in several ways. First, as a part of the design task one specifies list of *attributes* that belong to each of these entities. For example, one attribute of a Person would be the name the prosopography uses to identify him or her. None of the attributes for any of the entities, Factoid, Person, Source, etc. are shown here, although all these entities have them. Furthermore, there are actually more entities in PoMS's database than the key ones this diagram shows. Finally, PoMS, like our other prosopographies, extends this base model to suit its particular interests. Both PoMS and PASE, for instance, work with Charters, but because Charters are the particular interest of PoMS the level of detail recorded about the charters is substantially extended beyond what is recorded in the PASE database. All these "extensions" to our factoid model can, in fact, be readily accommodated within the base model we show here.

The central box in the diagram in Figure II is labelled "Factoid", so we can deduce that the project collects information on database entities called "factoids". Unlike Persons or

Sources it is probably not immediately clear what Factoids are – so we should now turn to look into this, since the factoid approach is, as the diagram suggests, central to the way the model works.

The factoid model makes central the idea that, from the point of view of a prosopographical project, a source text makes assertions about people. Most documents make more than one assertion, and many of these assertions may involve more than one person.

Thus, a "factoid" represents some information from a spot in a particular source text that says something about a person or about several persons. The diagram in figure III shows a representation of a particular Factoid from our Anglo-Saxon prosopography. The bit of text from the story which is the subject of this factoid is the event (described in section 24-5 of the standard published version of the 8th century East Anglian monk Felix's *Vita Sancti Guthlaci*) when Guthlac searches for a solitary place for contemplation while he is visiting the monastery of Repton. Not all the structural story is shown in this diagram – dating of events like this can also be accommodated in the factoid model for example even though this is not shown in figure III, and although this factoid does in fact have links to objects such as Authority Lists shown in Figure II, they are not shown here.

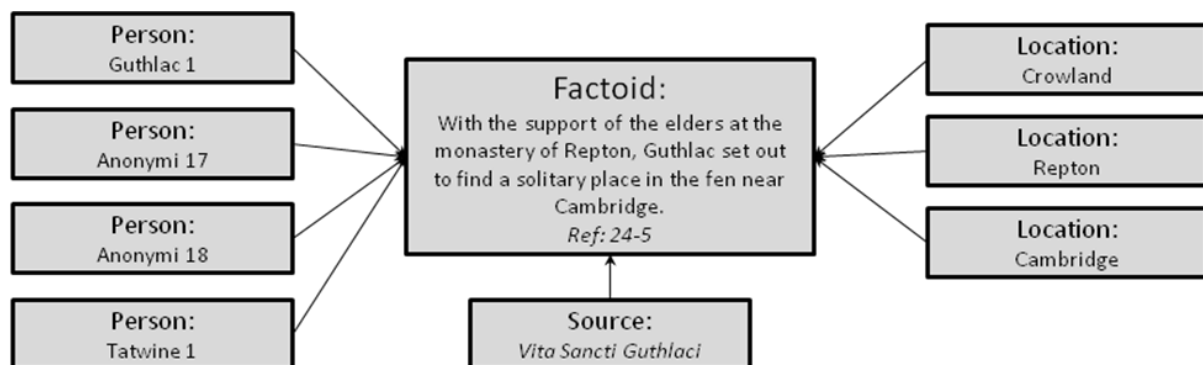


Figure III

However, from what is shown, we can see that the Factoid entity (shown in the middle box labelled *Factoid* and representing the instance of this Factoid entity) connects together individual people and places through a bit of text (transcribed here into modern English) that came from Felix's *Vita*. The standard reference to the spot in the *Vita* where this event is reported is shown in the Factoid itself as "24-5". Under the factoid box we see a link to the Source entity that represents the *Vita* (an instance, then, of the Source entity). Although we only see one factoid in Figure III, all factoids that represent material drawn from this work will be linked to this same Source entity.

To the left we see the list of people referenced in the text fragment, and therefore formally linked to this particular factoid by the model. One sees St. Guthlac himself (here identified as *Guthlac 1*, to separate him from other persons also named Guthlac). The two anonymous people are, first the Elders of the monastery who consent to allow Guthlac to seek the solitary life, and, second, a group of people who live near a particular fen that seemed suitable, and could be consulted for their knowledge about it. Tatwine is the person named in the *Life* who first suggested that an island near Crowland would be suitable. As well as the list of persons recorded as linked to this event shown on the left, we can see on the right links from the same Factoid to three geographical locations, Crowland, Repton and Cambridge, which are represented by three instances of the *Location* entity.

In PASE, like most prosopographies that deal with a diverse range of types of sources, a single text will usually yield many factoids – perhaps hundreds – because most of PASE's sources make a large number of assertions about the people that they talk about. Thus, one of the important characteristics of the factoid is that it represents information found in a *particular textual bit* of its source, not the entire source, and as a result any particular source might well yield hundreds of factoids.

You will probably have noticed the ironic twinge to the name “factoid”. This is intentional, and reflects a concern that must be important to historians when working with their sources in this way: a factoid represents something a source says out of its textual and perhaps cultural context. Furthermore, primary sources may say things that, based on other evidence we have available to us, we do not believe to be true. Perhaps the source is thought to be a forgery, a particular statement is thought now to be a lie or half-truth, or a statement that arises out of what we now consider prejudice. Factoids, however, represent what a particular source says *on its own*, rather than what we now believe arising out of our reading of a range of sources. If two sources contradict each other, two contradictory factoids will be recorded. For this reason, we call the factoid model *source driven*. All factoids contain, however, a note field that allows the researcher to make a statement about the assertion they have made in the factoid if they wish. The researcher can, then, use this mechanism to, for example, say something to the effect that although this source states something here, we no longer believe that this is actually correct.

### ***Factoids in PoMS***

At first it might seem that this characteristic of the factoid – that it accommodates a large number of different assertions, and kinds of assertions, from any particular source – is not necessary in PoMS. PoMS is, after all, centered on charters, and one thinks of a charter usually recording a single sort of event – a transaction between individuals. However, a more detailed reading of the charter texts, makes it evident that even a simple charter does not make only a single, explicit assertion about the transaction that it is mainly about, but will indirectly also make other relevant assertions as well: perhaps it will name someone and give them a title – indirectly asserting that the title belonged to them at the time the document was written, or perhaps it will identify someone as a brother, daughter, cousin, etc of someone else. Sometimes, even though a charter might be primarily about one or two transactions, it might also mention in passing other earlier transactions that in some way or other were linked to or justified these ones. Hence, since the factoid model allows a single document to have more than one factoid associated with it, it allows us to assert more than one thing, and more than one kind of assertion, about each charter. It is possible to record perhaps one or more transactions, various assertions about titles people held, various assertions about relationships between the people mentioned in the charter, and perhaps assertions about objects that they possessed that not only were involved in the primary transaction that the charter is mainly about, but others that although mentioned in passing in this primary transaction are not in fact involved in it at all.

In summary, then, by identifying a “factoid layer” in this data we allow each charter to provide us with a range of different kinds of assertions. With the other factoid prosopographies we have been involved in the kinds of assertions that are recorded is rather broad – this, in part, because of the diverse nature of the sources that they may be working with. With PoMS, however, so far all the sources have been charters, and thus the kinds of factoids needed are quite limited. Thus, out of the 5,891 charters that were in the database at the time this query was asked of it (July 2010):

1. 11,475 transactions as Factoids had been recorded by July 2010. Many charters had only one transaction identified in them, but many in fact had more than two – giving, an average, therefore, of almost 2 transactions per charter.
2. Some charters assert, often in passing, ownership of objects – usually land – that are not being directly involved in the main action that the charter represents. These secondary ownership assertions are recorded as "possession" factoids. The number of this kind of possession assertion – which had occurred 2882 times in July 2010, is about half of the total number of charters.
3. Many charters assert, again often in passing, relationships between persons – not only familial relations such as sister or cousin, but also relationships like patron or servant. In July 2010, on 5891 charters, we had a little over 15,000 of these relationship assertions recorded.
4. Finally, charters often accompany a reference to a person with his/her title, office or occupation. On average, each charter had generated somewhat more than 6 of these when we checked in July 2010.

As one might expect, the principal transaction represents a particularly rich source of data. It is an occasion where often a significant set of people are shown as having been brought together. Not only the principals in the transaction such as the grantor or beneficiary are introduced into the transaction factoid, but also a set of witnesses, and sometimes other identified persons, such as those explicitly identified occasionally in *pro anima* clauses. Indeed, there are more than 35 different roles that can be attached to people associated with charter transactions in PoMS including things like "serf" or "scribe". The PoMS web application allow us to exploit this richness of role by allowing us to look up all people who appear in, say, *pro anima* clauses, or had the role of scribe in a charter.

### ***Authority Lists***

Another way in which a formal structure like PoMS's can help is in its management and presentation of *authority lists*. The idea of authority lists originally came from library science, and is a mechanism underlying the *classification* of objects. For certain attributes attached to an entity, one does not want the person providing the data to have simply a text field into which a value is put – but instead one wants to exploit a classification scheme available for that kind of data, and constrain the data enterer to select from a list of items. A rudimentary example of an authority list is for handling gender. If a text box was provided as the way to identify one of PoMS's person's gender, then one researcher might be entering "male" or "female", and the other "woman" or "man". Better to provide a drop down box that provides both data providers with the two choices in a controlled fashion. This helps the database user too. If s/he wanted to filter persons so that only women were included, and a text box was provided to specify this then the user might well use language to identify the gender that was different from that used in the database itself and as a result not get anyone. Better, again, to filter for gender as a constraint by selecting from the possible values that PoMS actually used for gender coding.

Gender might be an obvious kind of data to manage with an authority list, but PoMS has 25 other kinds of its data managed as authority lists as well. An example of material managed as an authority list that is perhaps not so obvious is for the different kinds of *tenendas clauses* that appear in PoMS's charters. PoMS has classified the clauses it found in its charters into 28 different items, ranging from frequently used terms such as "of me and my



heirs" (1088 occurrences) or "in free, pure and/or perpetual alms" (2002 occurrences) to much less frequently used expressions such as "of king and his heirs" (fifteen occurrences) and "in feu and alms" (nine occurrences). A user of the PoMS database, if interested in locating uses of tenendas clauses, is not presented with a text field in which s/he types in the one that interests him/her. Instead, s/he will choose from the list PoMS prepared, and will therefore be able to see immediately all the forms that were actually found in PoMS's charters and how the PoMS research team has chosen to organise them.

One important thing to recognise about authority lists such as the one managing the kinds of *tenendas clauses* is that they grow over the life of the project. The PoMS team probably could have made up a list of clauses that were likely to turn up in the charters before the project started, but even after data entry is underway it is straightforward to add new terms to, say, the tenendas clause authority list when a new and previously unexpected clause form appears. In the end, then, the authority list of Tenendas clauses shows the project's view of what all the occurring Tenendas clauses were, and represents an act of informed classification on them. The authority list represents a perhaps small but serious piece of historical intellectual work in its own right.

An even richer and more complex authority list that has arisen from PoMS work manages the identification of possessions. Since PoMS is so much charter-oriented, many possessions were pieces of land, or objects on land that actually were referenced in its charters. PoMS's possession structure is hierarchical – so within the "Lands" group one can see all the land possessions organised by shires, and within that the names of places that have land properties that the charters refer to. Then, within each place can be organised the kinds of places that actually turned up in the charters PoMS worked through. Thus, inside the entry for Stirling, for example, one can find references to its tofts, churches, ploughgates, the castle, meadows, parks, and a saltpan.

Although most possessions were land, PoMS also records as possession-like things unfree persons or sources of revenue granted by the king. Furthermore, PoMS records rights such as licenses to build a mill-pond or permission to take stone as possessions: indeed PoMS has identified over a hundred kinds of privileges that are transacted in its charters. Looking at the list of rights that PoMS records here – based, as they are, on rights that actually appear in the charter sources, perhaps presents information that could fuel the beginnings of an entirely new research topic in its own right.

### ***Models, Modelling, Analysis and Interpretation***

We have now presented a quick review of many of the kinds of information and their interrelationships that the PoMS database holds. We call the resulting structure a "formal model". Indeed, by adopting methods originally developed within the artificial intelligence field of study, we could further refine and disambiguate our model, so to transform it into what is called a "formal ontology" (cf. Gruber 2009). In a nutshell, formal ontologies are highly formalized models that can be easily reused within different digital projects and that allow complex data-integration mechanisms. Constructing a formal ontology for the domain of Anglo-Saxon England is in fact one of the research endeavours we are currently involved in, to the purpose of facilitating the creation and interoperability of digital prosopographies.

Note that the PoMS model, in that it identifies objects of interest to the prosopographer and formally represents at least some of their interconnections, has (even when it is empty of data) an existence in its own right that represents thinking about PoMS's prosopography. One of the prominent theorists in the digital Humanities, Willard McCarty, has called the task

of understanding the materials well enough to create such a formal model an act of “synthetic analysis”, and he notes in his article “What’s going on” (McCarty 2008) that the model that comes out of it is an intellectual outcome and worthy of exploitation and then criticism too. Ramsay (Ramsay 2004, p. 195), in the chapter mentioned earlier, echoes this idea when he notes that the computer ontology (another name for a model) “has considerable intellectual value”.

Once the model is populated with data it becomes a new mechanism to explore the data it represents. Since it is possible to use any of the database entities it contains as starting points in a query, the computer can support the entering of the prosopography data by its user from many different doors – not only the “door” of a person. With PoMS, for example, one need not start only by looking up a person, but can enter the data by looking up a place, or through titles, by dates – indeed in many ways. Being able to do this is a direct result of creating a formal relational structure that represents the issues at hand, and putting the data into that structure. The database, by allowing the data to be examined through these alternative entry mechanisms can often juxtapose it in new ways, and these new views of the material can open new perspectives on the part of the human user. For example, perhaps new understanding emerges in the user’s mind when he or she is able readily to see for the first time all women who were grantors in the PoMS charters. Critically querying the data from many perspectives is one of the ways that the database provides a representation that can be broadly assessed, evaluated and tested. As a result of this querying activity, however, the user is encouraged to reflect not only on the data and its historical significance, but on the structure that represents it. New questions and understanding can arise from critically thinking about *both* the data *and* the structure that holds it.

For this reason, McCarty (McCarty 2002) is more interested in “modelling” than in “models”, since “modelling” represents an ongoing process that develops as one’s understanding of the materials-in-the-model grows. McCarty suggests that we need to engage not only in a first level questioning centred on the data, but also a second level of questioning involving the fitness of the structure that holds it. To what extent does both the model *and* data one sees match up with ones understanding of things. Do things turn up that don’t seem right, or things not turn up that you expected to see? Is this a problem with the data in the model, or with the model itself? If the model seems at fault, can part of it be refined to more closely match how things now seem to be? If so, changing the model by altering the entities, attributes of those entities and the connections between them might provide better insight into how materials the model holds are actually interconnected. Thus, not only the data in the model, but the model itself may go through a number of interactions as one continually refines one understanding of how it represent the material in light of what the database shows, and what ones historical understanding of the material expects.

Indeed, McCarty goes on to recognise that due to the complexity and ambiguity of historical materials, *any* formal model for them might well work 95% of the time, but occasionally fail against some particularly dense or ambiguous material. The analyst-researcher might be able to make the existing model more sophisticated to accommodate some of these thorny bits – but in the end occasionally the data itself will be so subtle or obscure that it simply cannot readily be modelled at all. In McCarty’s perhaps startling view, this kind of failure is a useful thing. As in other areas of human endeavour, we often learn more from failure than success, and this kind of failure allows us to focus our attention on particular aspects of the complexities and richness in our materials that, if we were not seeking a structure that explained some aspects of our material in some rigorous way, we might miss altogether.

## ***Structure and Narrative***

We discussed the significance of narrative as the primary mechanism to present historical research earlier, and noted its ability to be "multidimensional, complex and nonlinear". The PoMS database is not presented in a narrative form, yet we believe that in a somewhat different sense it is multidimensional, complex and nonlinear too. As Anne Kelly Knowles (Knowles 2008) notes in her piece about roles for structured data in Geographic Information Systems for history, some scholars will find the "inconclusiveness of this [...] approach" frustrating, and that its non-sequential orientation "leaves the work for final synthesis to the reader". They would argue that it is hard to get a grasp from a database of the materials overall that perhaps a well crafted "grand historical narrative" would present. Indeed, as William G Thomas III notes (Thomas 2004):

"One recent British historian argues: 'The declining importance of the so-called grand narratives of national and class histories, and the fragmentation and loss of cultural authority of scholarly history in the face of increasingly diffuse popular and political uses of "history," cannot be separated from the impact of the new technologies" (p. 61)

Perhaps, then, the complex and multifaceted nature of our database is, in fact, more like what a contemporary view of history is about: it is provisional, it is fragmented, and can simultaneously represent a number of different perspectives. Its structure can in fact accommodate contradiction and diversity. It expects a significant degree of interpretation from its users, more in fact than a "grand narrative" history would do. The extent that the underlying structure of PoMS corresponds to contemporary thinking on some aspects of Medieval Scotland is the extent to which PoMS will have been successful.

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