Networks and institutions in the CBDB:
adding the non-kin network of Liu Zhiyuan of the Five Dynasties

Naomi Standen, Newcastle University

Draft paper for a workshop on Prosopography of Middle Period China: Using the Hartwell Database
Warwick University, Department of History, 13-16 December, 2007

It seems easiest to use Anne’s suggested format for this paper, which consists of a largely technical discussion of the very beginnings of my practical research on a topic I have wanted to pursue for a long time. What I’m going to say is that working with the CBDB has been very valuable in helping me to identify just what data I need, in starting to develop methods for collecting that data, and in providing a framework within which to think through ways of organising the data to provide systematically robust analysis.

Two research questions

1. In a situation in which institutions were being remade, how did power work in the meantime?
That is, I am not so much interested in the structure of power but in the mechanics of it. My concern is not the architecture but how it was lived in. And that comes full circle because how it was lived in – the relationships between and everyday interactions of those with influence in the making of major political decisions and the course of events – contributed to how the overall structure changed. In other words, what I’m asking is: how were ruling groups bound together?

2. How important was culture, really, in determining people’s choices in these circumstances? Of the many factors that might have helped to bind people to leaders and/or each other, how important was cultural background in comparison with other considerations like serving together, marriage ties and pledges of allegiance?
To expand a little. We have a pretty good handle now on what changed between the Tang and the Song, but we are perhaps less clear about when and how it happened. This is less true of intellectual and social changes, particularly in the Song, which have been much studied, not least by several of those at this workshop. On the political and structural side, the tenth century is clearly an important place to look for these changes in the happening, but as is well known, a dearth of information and what seems to have been an aversion to messy historical circumstances have left this period, and particularly the supposed interregnum of the Five Dynasties, very little studied. Of course the Five Dynasties weren’t actually an interregnum at all, but a continuation – and continuing development – under new names of the de facto political situation of much of the latter half of the Tang dynasty, overseen by the dominant regional power of the Liao dynasty. The warlord regimes of this period were evidently in the process of evolving into something that could function as the foundations of the Song dynasty as we later know it, but the exact political and structural changes involved have yet to be systematically tracked and explained over an extended timescale.\(^1\) Just how did the rulers and other influential actors of the tenth century and especially the Five Dynasties create the circumstances in which politics and society could be re-made into the centralised, bureaucratic and anti-militaristic forms of late-imperial times, and what was the trajectory and timing of those changes?

The notoriously scanty sources for Five Dynasties political history really amount to just the historical and institutional works. The fiction may offer insights into society and beliefs, but not really the workings of politics; the abundant poetry almost all comes from the Ten Kingdoms south of the Huai. Following the lead of the texts, institutions were a logical place to start work on these questions, especially at a time when institutional history was just what you did anyway. Accordingly, Wang Gungwu and Edmund Worthy offered valuable descriptions of institutional change that have yet to be superseded, and now Peter Lorge has added crucial military change that have yet to be superseded, and now Peter Lorge has added crucial military

\(^1\) The long-awaited *Cambridge history*, Vol. 5a (finally slated for publication in October 2008!) will make some contribution towards this, but the division of labour militates against the adumbration of a long-term analysis. On the time-limitations of the existing indispensable institutional and military studies, see below.
developments. But as this work itself shows, the institutions were not what ran the show in this period. Control of military forces remained the key to political power, which could only be retained by strong and attractive leaders. The location of the military forces that underpinned political power was shifted from the regions to the capital by means of weakening regional military institutions (the governors’ provincial armies) and building the strength of those based in the capital (the palace armies). Central institutions – the bureaucratic departments of the capital – evolved at the same time as administrative tasks became increasingly concentrated in the organs of the court. But these institutions – or more precisely, those who headed them – were not themselves the source of these changes; rather the institutions developed as they did because the people who were actually in overall charge of the regime ordered changes that were carried out effectively. Institutional change was a symptom or outcome, not the driver. The motors of change were individual leaders, backed by those who already had a measure of their own power at imperial courts, at provincial capitals, and sometimes and latterly at the head of centralised armies or, perhaps, certain government bureaus. Unlike the Liao dynasty to the north, none of the Five Dynasties ever made it beyond the stage when charismatic individual leadership was the *sine qua non* of dynastic survival. Whereas by the 950s a drunken incompetent could survive eighteen years on the Liao throne and not bring about the destruction of his inheritance, it would take a further seventy years before the system in the south was able to do without a strong adult leader and sustain the minority of Renzong, who acceded aged 13 and reigned 1022-63.

No doubt personal relationships were key through much of the Five Dynasties (and perhaps beyond), but just how much? For there is equally no doubt that court politics and institutional structure at least started to become – and maybe finished becoming – more important in the latter years of the Wudai and in the Song. We may choose to take Renzong’s survival of his regency as indicating that the exercise of everyday practical political authority – shall we call it governance for short? – now resided in the *systems* of government as maintained by institutions.
(departments and bureaus) that continued to function with an effectiveness adequate to sustaining governmental and administrative order regardless of which particular personnel filled the posts in those institutions or, indeed, the imperial throne. This obviously did not happen overnight, but it is not difficult to see, for example, an increasing willingness among Wudai rulers to retain their predecessors’ personnel in their bureaucratic posts rather than installing their personal followers instead. The archetypal case of this was of course the (in)famous Feng Dao.²

But such developments were neither linear nor uncontested. The existing studies and the texts they are based on offer examples of ongoing and recurrent tensions between the continuing exercise of personal and more or less charismatic leadership by rulers and other leaders on the one hand, and on the other the growing capacity of government departments and bureaus to run the state impersonally – that is, without the constant hands-on intervention of the ruler and without him needing to rely on having individuals picked by his own hand in charge of the key secretariats. The dimensions of these tensions are not always easy to trace, but at their simplest we see chief ministers and holders of other posts in the bureaucracy encroaching on or even challenging the ruler’s will or prerogatives. An example of how crude this could be is the revival of court intrigue represented by the ability of eunuchs allied with the empress to block the emperor’s access to information and so procure the murder in 926 of Li Cunxu’s hand-picked chief minister Guo Chongtao, whose anti-eunuch stance had made him popular with the regular bureaucracy. An example in reverse, but illustrative nevertheless, was the abolition by Shi Jingtang of the Later Jin shumiyuan in 939, only for Feng Dao and his fellow chief ministers to petition for its restoration for several years until Shi Jingtang agreed. Then a paradigmatic case can be found in the rivalry in the mid-940s, during the Liao-Jin war, between a grouping headed by the imperial favourite Li Yantao, who is said to have made court appointments on his own authority, and the career bureaucrat Sang Weihan, who tried and failed to wield his authority as

chief minister to bring Li Yantao under control. In contrast, Guo Wei was not an imperial favourite but was still granted supreme military command while retaining the top position in the bureaucracy and acting as regent to the young emperor, from which position he took over the empire and founded his own Later Zhou dynasty in 951. The powers vested in the institutions headed by Guo Wei were sufficiently real that they could overwhelm anything wielded by the emperor’s personal adherents – none of whom had been deemed suitable for the top jobs given only reluctantly to Guo Wei. The locus of political power had shifted from a ruling group comprising the emperor’s direct personal adherents to the more or less regular operation of bureaucratic departments and bureaus. The question I would like to answer is, exactly when and how did the balance tip, and what was the exact trajectory of this shift, including both ups and downs?

If we want to know how things worked while the institutions were still not strong enough to keep things going *in extremis* (say, during a minority), we need to consider the relationships between the rulers and the people around them. More precisely, we need to investigate what it was that kept ruling groups together (or not). We know that leaders acquired inner circles of followers who were often adopted as sons or married to daughters, but that’s only the beginnings of an explanation. What was the full range of ties that bound these people to each other, in what circumstances were those ties forged – and broken, were some more important than others, and if so, when and why was that? It is at this point that the attractions of using a database become obvious, of which more soon.

The wider goal is to get a better sense of perspective on the determinative role of culture in these pre-late imperial (with apologies for the clumsiness of this locution) societies. The great power in the region in this period, engaging in more or less intimate relations of various kinds with the Wudai powers, was the Liao, led by an overtly different, mutually intermarrying Kitan/Turkish ruling group. More significantly for my purposes here, the Five Dynasties
themselves were dominated by the Shatuo ruling elite of Taiyuan, first as implacable enemies of the Liang (907-923), then as rulers of three successive dynasties (923-950), and finally as an obstacle to the expansion of the Zhou (951-960) and early Song (from 960). Ethnographically, the Shatuo were a Turkic people first recorded in the region of the Gansu Corridor during the Tang (618-907). The few existing studies chiefly describe the survival of Shatuo traditions or treat Five Dynasties politics in terms of ‘ethnic’ differences. These approaches assume the significance of culture, thereby disallowing queries about the extent to which cultural factors may or may not have conditioned the range of options available to particular individuals or groups. But how important were these differences, really?

To answer that question we need to be able to compare the significance of the kind of cultural identifications with which we are all familiar – ethnographic group, place of origin, etc – with connections that are not inherently related to cultural orientation, such as those already mentioned. We know, for example, that Chinese, Turks and Kitan (to take just three groups and just the relationships mentioned earlier) regularly served together, married each other and pledged allegiance to each other. Was such behaviour relatively or statistically unusual? Did culture modify the influence of the other factors upon choices made? If ruling groups appear to be predominantly of one cultural orientation, does this correlate with the locations of the individuals involved – that is, is it more significant that a group was largely made up of Shatuo or that they mostly came from the same province? And did any of this change over time? We won’t get better answers until we place cultural factors within a framework in which other possibilities can be given equal consideration. As such, this project also constitutes a pilot study for a book project that seeks to avoid analyses rooted in modern concerns so as to better understand the significance of culture in the political life of the Five Dynasties. It is my hope that this will lay a basis for more precise understandings of the increasing salience of culture and cultural difference through

4 E.g. Wolfram Eberhard, Conquerors and rulers: social forces in medieval China (Leiden: E.J. Brill, 1965).
the Song, as well as – and this is a goal aimed chiefly at a non-China specialist audience – showing the value of studying premodern history in its own right rather than as simply a precursor to modern nation-states.

**Research process**

So how am I going do it? Obviously I need a database. It is obvious that there is no way one could keep track of all the links between even a few of the individuals involved in these networks simply by the usual methods of dealing with textual sources – reading, note-taking, comparisons, categorised lists and so on; and even less chance that these means would enable one to rearrange such material effectively and efficiently enough to start to identify possible patterns. Using a prosopographical database like the CBDB allows the precise and detailed recording of all links, the retention and consistent use of all data, the ability to rearrange and select from it almost at will, and of course various levels and types of statistical analysis according to need and inclination.

If we can use a database approach to develop a holistic appreciation of all the many ties that served to bind a ruling group one to another, that will enable comparison between what we might call personal networks on the one hand and institutional networks on the other. Personal networks are formed by a multiplicity of direct individual ties to rulers or other significant political players, including the expected ties of marriage, fictive kinship and place of origin, but also more nebulous connections such as serving in the same command, admiration for martial prowess, gratitude for services rendered, reactions elicited (for example, becoming resentful of another, or making them angry). In terms of social network theory and methodology, the obvious way to collect this data is on the basis of an egocentric network, centred on one individual – or rather a set of egocentric networks, one for each emperor or leader. Institutional networks, by contrast, are based primarily on the structural positions of individuals within administrative
departments and bureaus, chiefly in the capital, although political alliances and personal ties must also have played some part. The point is that these networks are not based on direct relationships between individuals and a man conceived very much as their emperor in the sense of a lord and master rather than simply as an impersonal head of state. Institutional networks functioned at a level below that of the emperor and to a certain extent independently of him. In terms of data collection and analysis, connections between the members of institutional networks cannot realistically be egocentric, and analysing them therefore requires a whole-network approach in which all the links of all individuals are recorded, and the emperor is one actor among many, with equal rather than central importance.

The ultimate intention is to be able to compare the results of a personal-networks approach and of an institutional-networks approach to the same data in order to trace the extent to which, at any one point, the practical exercise of the emperor’s authority was dependent – or not – on personal connections. If a large proportion (or perhaps just a large absolute number) of the individuals in an institutional network are directly connected to the emperor by personal ties, then we might reasonably suppose that it is those individual ties that bind the group together and give the emperor’s will its practical force. But if an institutional network is connected to the emperor through the personal ties of only a tiny number (or proportion?) of individuals, or if personal ties to the emperor are entirely absent, then this suggests that the exercise of imperial power has been delegated impersonally to institutions rather than to trusted adherents. A statistical approach will enable us to pin down when specific thresholds of emperor-centredness or institution-centredness are passed (in either direction: this is unlikely to be a linear development), which, if it proves insufficient in itself as an analysis, will at least indicate when we should be looking for further evidence, and what we might most usefully look at.

So the project requires two different approaches to data collection, but clearly nobody wants to collect their data twice. Fortunately that is not necessary anyway, since a whole-network
approach should incorporate all the possible egocentric networks for those individuals for whom there is data. But a whole-network approach is also a lot more work. In addition, it is immediately obvious that the sources contain a vast amount of data on links between individuals, so for a test run that also involves working out what data is needed and how best to use the database it seemed wise to impose the greatest possible limitations on the data to be gathered. The simplest way of doing that was to record primarily an egocentric network centred on an individual who was significant but for whom there is relatively little data. Happily, the history of the Five Dynasties provides a candidate ideal in several respects. Liu Zhiyuan, founder of the Later Han (947-950), was tied into preexisting networks, but his short reign (947:2 to 948:2 – I would have said twelve-month reign, but this was a year with an intercalary month) gave him only limited time to create his own. Furthermore, in terms of the existing historiography – scant enough as it is – the Later Han, and especially Liu Zhiyuan’s reign, constitute a void into which none have ventured, since Wang Gungwu’s study stops in 947 with the Liao conquest, while Worthy and Lorge both start with the Later Zhou in 950. So a pilot study of ruling-group networks in the founding of the Later Han is not only manageable but also coherent, and fills a chronological gap into the bargain.

As one might guess for the Wudai, the main sources are published histories including much biographical material. Supplementary sources may include works on institutions, the few surviving inscriptions, private writings, and possibly fictional works. As I am at this point only attempting to trace an egocentric network, and as the emperor’s biography is the annals, that was clearly the place to start. Other advantages of starting there are the likelihood of getting a pretty full list of all his significant appointees and appointments, which will eventually be useful when comparing institutional networks. The annals also include links

that do not involve the emperor, which is a small start towards whole-network data collection. The scale of the work involved may come into focus if you know that two juan of annals, all but a couple of pages devoted to the fourteen lunar months from 947:1 to 948:2, produced over 430 relationships, of which over 300 are links to Liu Zhiyuan.

At this point it may be as well to say a little about Liu Zhiyuan, as seen in his own annals. He was from a Shatuo Turkish family based at Taiyuan in Hedong province, the almost impregnable stronghold of Shatuo leaders for over two centuries (from the mid-ninth to 979). His immediate ancestors married women from elite Chinese patrilines, starting with his great great-grandmother who was a Longxi Li, and so a member of one of the ‘seven old families’. His father served Li Keyong, Prince of Jin (895-908) at Taiyuan, founder of an autonomous regime (895-923) that should not to be confused with Later Jin (936-947) of the Five Dynasties. He served in the retinue of Li Siyuan, the great Later Tang emperor Mingzong (926-933) (though that’s not Li Siyuan in The Curse of the Golden Flower!) in the early 920s, and the annals note his courage, particularly when he rescued his fellow retinue-member Shi Jingtang in battle. When Li Siyuan took the Later Tang throne in 926, Shi Jingtang, in admiration for Liu Zhiyuan’s talents, sought and was granted Liu for his own staff. Liu saved Shi Jingtang again in 934, this time from an assassination attempt by Li Siyuan’s shortlived successor, the by now recently deposed Li Conghou. Shi Jingtang accepted reconfirmation in his post from the new emperor Li Congke, but when Li tried to transfer Shi Jingtang, Liu Zhiyuan urged Shi to rebel. When Shi Jingtang founded the Later Jin, Liu Zhiyuan served faithfully wherever he was sent, supported Shi’s son during the gruelling war with the Liao, and rejected a generous offer to serve the Liao victor, the emperor Deguang. Instead he was persuaded to declare himself emperor of a new dynasty, Later Han, and set about fighting those who had taken service with the Liao.

---

6 There are, of course, rather different interpretations offered of some incidents in the other historical sources, notably Xin Wudai shi and Zizhi tongjian.
departed in the early spring, Liu Zhiyuan was busy making appointments to re-staff primarily the provincial offices. By the late spring he was working on the central administration, and at the end of the summer he was able to reappoint some of those who had finally escaped from Liao captivity. He had just quelled a rebellion by the general Du Chongwei when he died of an illness at 54, leaving his throne to his 18-year old son, to be guided by his advisors.

Having completed work on the annals, the next stage is obviously to start working on the biographies of those connected to Liu Zhiyuan. The biographies of course provide individual information like place of origin and ascribed cultural group. Dates will, I hope, come most easily from Ershiwushi renming da cidian, but since these are not entirely reliable they will have to be checked against the biographies too. But my chief concern will be to pull out the links between individuals in the same way as for the annals. A brief preliminary collection of data from the Jiu Wudai shi biographies of two major characters, Du Chongwei and Gao Xingzhou, suggests that, as one would expect, the biographies contain a wider range of types of association and a smaller proportion of appointments. Naturally they also contain more lateral connections between people who may or may not also have connections to Liu Zhiyuan, which will contribute to building up the whole-network data that is (or may be – see below) the ultimate goal of the data-collection exercise.

One question that naturally arises is how many degrees of separation from Liu Zhiyuan should be plotted? This is a particularly important methodological issue for Liu because he is among the last representatives of an intimately interconnected group that provided most of the rulers of three, perhaps four, of the Five Dynasties. From Li Siyuan (926-933) of Later Tang to Guo Wei (951-954) of Later Zhou all the dynastic founders and several of their successors were connected by service as subordinates or fellow officers of the preceding founder.7 The whole-network approach would suggest that ultimately the sources should be recorded exhaustively, but

---

7 This general point was of course noted by Wang Gungwu long ago.
in practice it may be more appropriate to adopt a hybrid methodology that pursues the idea of multiple egocentric approaches. It will be links (or not) to the emperor that will be analytically critical whether dealing with personal or institutional networks, so it should not damage the results if the data collected does not include every last lateral link between those who do not themselves have links to an emperor.

Then, in order to make the desired comparison with institutional networks it will be necessary to map the governmental structure of the Five Dynasties, checking Hucker’s very brief summary against the survey of the administrative system(s) in the *Wudai huiyao*, and then incorporating Wang Gungwu’s analysis of the changing structural positions and power of particular bureaus. While I have not yet attempted to tabulate this data, it should be relatively straightforward, if fiddly, to do so.

**Using the CBDB**

This is in some ways quite a technical discussion despite my not being a software person, so I hope it is a) not too boring and b) makes sense to those who understand the technical side much better than I do.

I already knew there was not much Five Dynasties data in the CBDB, and certainly not on the military, governmental and almost entirely non-literary types in whom I’m interested. My encounter with the CBDB would therefore be all about data entry at this point. Having sorted out some bootstrapping problems I proceeded to start entering data. Those who are currently working on the data entry would surely have told me for free how long-winded a process this is. There are some automatic fill-ins, but more would undoubtedly help. For example, entering a Gregorian year could automatically generate the corresponding reign era and vice versa, though both would need to remain editable by the user. It would also speed up data entry if fields like the source text
defaulted to whatever you had inserted in the last record created rather than always reverting to the *Songren zhuanji ziliao suoyin*.

I’m sure you get faster with practice, but having said that, I found there was also a lot of what you might call background work to be done. The data that interests me is not in an area of activity that was one of Hartwell’s concerns, is for a period other than the Song, and comes from source texts not on Hartwell’s list. I successfully added my current source text (the *Jiu Wudai shi*) to the table of source texts, but also found I needed to add to the lists of options in others among the CBDB’s tables, namely those related to the Postings and the Associations sections of the main form of the database. A perhaps surprising number of official posts current – nay, commonplace – in the Five Dynasties were not yet in the OFFICE_CODES table. Song literati postings are perhaps weighted quite heavily towards capital and literary offices that were of less significance during the Wudai. Certainly at the beginning of Liu Zhiyuan’s brief reign he was chiefly concerned with provincial postings, and only later began to appoint to the capital offices.

As to associations, working with the CBDB it becomes very apparent just how great is the literary bias of the sources and of the intentions of the original data-collection process. There were few relationships that matched what I was finding in a militarised age. Furthermore, the relationships that individuals have with their emperor (that is, the ones I’m interested in) are very different from those they tend to have with each other (the ones collected by Hartwell), and almost none of the emperor-to-subject links I was finding in my text were available in the existing list, so the ASSOC_CODES table grew by nearly 70 items before I stopped working with the CBDB itself three pages into Liu Zhiyuan’s annals, in the autumn of 946. I continued to record new relationships in another format, and ended up with 148, most of which do not have equivalents in the existing CBDB ASSOC_CODES table. As an aside, I suspect it may be that many people will find they are looking within a fairly readily defined subset of links for much of the time. Would it therefore be worth considering adding an option of broadly dividing the list
into, say, civil and military, or literary and administrative, or capital and regional, or some such? A small point, but perhaps this might further improve CBDB’s user-friendliness.

I stopped entering data directly into the CBDB not just because it was so slow for me, but chiefly because of discussions about how new data from researchers (as opposed to data entered by staff on the CBDB project proper) would be added to the database. Since this seems most likely to involve extracting the new data into spreadsheets and then uploading from those (Michael can explain the technical details), it seemed easiest to start with the spreadsheets in the first place. Accordingly I created one main sheet to track relationships, which loosely resembles the lists you get under the Social Network Relationship tab in Michael’s LookAtNetworks form. I also needed a separate sheet for individuals, which looks a bit like the lists under the People Participating in the Social Network tab in LookAtNetworks. I began by assembling this Individuals sheet manually, since it includes information that is not relevant to the Relationships sheet, but ended up generating most of it from the Relationships sheet, deleting some columns and including the extra information I needed in extra columns. There are, I think, ways of doing this more efficiently than the trial-and-error I used, but on the other hand, it might only need to be done once anyway if you organise your work schedule appropriately. It also proved convenient to make my own spreadsheet equivalent of the ASSOC_CODES table. At the point of adding the new data to the CBDB this list would need to be checked against the existing CBDB list to eliminate duplication and standardise wording in both English and Chinese, but it seemed inefficient and to little purpose to take the time to do that as I went along.

When it came to actual work practices, the spreadsheets proved to have numerous advantages. First, it speeded up data entry enormously simply in terms of the number of keystrokes involved and the processing time taken – that is, there were no computer-derived pauses between fields or long hunts for particular relationships in the ASSOC_CODES table. Second, and more important, working with my own spreadsheets let me play freely with new
fields and what kind of data went in which fields. Thus I was able to establish much more fully
and precisely what kinds of information I actually require for what I want to do. I’ll discuss the
detailed results of this exercise in a little while.

When I got to the end of all I could attempt to do before this workshop – my two juan of
Liu Zhiyuan’s annals – I had a spreadsheet of links not just between Liu Zhiyuan and a second
party but between second and third parties that did not (always) involve Liu Zhiyuan at all. It was
easy to sort these so as to pull out all associations with Liu Zhiyuan, and then to sort again to
examine the kinds of links that people had with him. Again, I’ll discuss some of the results
shortly.

As I worked I came to a fuller understanding of the theoretical point that a database like
CBDB is to be of general use to many researchers it must try to convert as much as possible of
the material in its sources into data. That is, it must attempt to codify more than just the
relationship information. In a Chinese history the annalistic material is essentially the emperor’s
biography, and like biographies, it consists largely of a set of relationships. The exceptions are
edicts, astronomical and climatic information, deaths, self-declarations (e.g. as governor or
emperor) and travel (chiefly that of the emperor). Tabulating the information in edicts, and in
astronomical observations and climatic records, are two distinct exercises, which in some cases
have already been done and may gain little from a database approach. Deaths go into my
Individuals spreadsheet and the BIOG_MAIN table of CBDB. Self-declarations are readily and
logically coded as associations with self. Almost all travel is in fact undertaken in relationship
with somebody else. For example, going to visit somebody, attacking somebody’s city, and so on.
These just go into the database along with the other relationships. There were only a handful of
instances of travel unconnected with another person, and these almost all involved the
movements of the emperor. Eventually I went back and incorporated these few instances into my
main spreadsheet of relationships, under headings that slotted into the Associations and Location
of Event fields. If one wished to, one could code the emperor’s return to the capital as an association with himself – taking the capital as his city.

As a last note on working with the CBDB, it is, I think, worth reiterating that the sheer density of data contained in the annals and biographies of even a short history like the *Jiu Wudai shi* means that data collection from these sources (as, doubtless, from any sources) is unlikely ever to be a fast process. Nobody should undertake additions to the database without understanding clearly just how much work is involved. This means that anything that reduces the time and effort needed to add new material is to be welcomed, and I understand that automatic data collection is being considered. The work I have done would suggest that automation would have definite possibilities, though it could not, I think, be a complete answer. I don’t know what technical solutions are being entertained for this task, but on the basis that repetitive tasks are what computers do best, then certain types of link seem ripe for automatic collection, notably those connected with the granting of offices. Since links of this kind constitute about half of the associations found in Liu Zhiyuan’s annals, automated recording of these links alone would save a significant amount of time when working on the annals. Probably less time would be saved when working with the biographies due to their greater incidence of narremes and larger proportion of idiosyncratic contents, but lists of postings still take up a noticeable proportion of almost any biography, and over the large numbers of lives liable to be involved in any collection of new data, even a relatively small proportion of time saved would quickly add up. However, my work with these materials also suggests strongly – though without any technical rationale, and I would be happy to be wrong! – that whether working with annals or biographies, manual work would still be the indispensible adjunct to any automatic trawl in order to pick out the more detailed and arcane connections, which of course are often more important.
Evaluation

My efforts to work with the CBDB have shown me a great deal about what databases can do now and could do in future, and confirmed me in my conviction that this is the only sane and rational way to undertake prosopographical research. I have a couple of thoughts about things I would like to able to do with CBDB and/or things I would find it helpful for CBDB to be able to do. I have also found that working with (and I suppose one might say alongside) the database offers a powerful new dimension for analysis that I had not anticipated. I’ll start there.

Working with spreadsheets (preparatory to an eventual upload to CBDB) meant I was essentially producing a long list of links/associations/relationships. (Of course, ultimately these same lists might be pulled out of CBDB). I had thought of this as merely a means to an end, and an end that was yet a rather daunting distance away. What I had not anticipated was that tabulating the data in this way, even without sorting and other organisation, made highly visible certain patterns in the data. But this is not a matter of finding that results leap out from this methodology – it’s better than that. What was apparent just from looking down the list of relationships between individuals was that – at least for my purposes – these links themselves fell naturally into different types. Cleverer or better organised people than me might have worked out from first principles that this was likely to be the case, but I had been thinking in terms of a longish list of what I had in mind as fairly specific links – receiving an official post, serving together, fictive kinship and so on. What I had produced in reality (and I note that this was not least out of an attempt to remain as close as practicable to the wording of the original text) was a much larger set of relationships – nearly 150 – which gave me data that was more finely grained than I had anticipated. Yet at the same time I could split those 150 relationships into four broad categories that contribute to my analysis and thereby shape my further research.
What the tabulation of the data showed me was that links could be categorised on the basis of how they were formed and what the power relationships were in that association.

Table 1. Four sets of relationships (a very preliminary and tentative listing)

<table>
<thead>
<tr>
<th>Givens</th>
<th>Circumstances</th>
<th>Deliberate creations</th>
<th>Relationships of unequal power (potential relationship-breakers?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>native-place, kinship, cultural group</td>
<td>martial and other encounters - fighting alongside or under command of etc – or possibly against; prior service with or under authority of or in authority over; visits, joint service, inc discussions with shared experiences inc joint appointments to same post or bureau, relationship with relatives, eg posthumous titles etc for fathers etc</td>
<td>adoption (none in this material) repeated/multiple post-giving (not just single posts or occasions, though confirmation and retirement posts may be included) marriages urging leader to power (taking throne, seizing cities, etc)</td>
<td>submitted or gave allegiance (in battle, during siege, etc) provoked response in (anger, admiration, advice taken or rejected) sent or received envoy/message refusal – of posts, acceptance of mandate, etc given task – signs of especial trust; or just given orders? transfer of position rescues etc</td>
</tr>
</tbody>
</table>

*Givens* are things the parties can do nothing about, like being from the same native place, being brothers, and so on. *Circumstances* are situations in which the parties find themselves that are not of their own making, such as being appointed by a superior to joint command of an army. These are not the same as Givens because they can change. *Deliberate creations* are where one or more parties consciously establish a relationship and/or obligation between themselves. *Unequal power relationships*: many links in the first three sets also involve differential power, but this last set contains links where the power difference is central to how the relationship works; or perhaps doesn’t work, for these are instances and associations where things could go either way – the relationship could be broken or it could be strengthened. It is apparent, then, that these four sets of links are formed by considering the degree of agency of those involved in the relationships.

Spotting these sets of links instantly gave me another way of grouping the data and another layer of possible analysis that connects directly to the concerns in my research questions about how groups are bound together (or not). In addition to being able to consider the influence
of a specific link, for example, marriage ties, I will now be in a position to consider the significance of individual and perhaps collective agency in the formation of groups by categorising together links such as marriage ties and, inter alia, instances where one individual is given a disproportionate number of posts to be held simultaneously. These are not links that one might naturally place together, and it is difficult to imagine how such a categorisation might have been arrived at by more traditional methods of handling the source material. This promises to be a powerful way of approaching the same dataset, to set alongside the egocentric and institution-centred analyses discussed earlier.

So working with the database has had, for me, some important analytical benefits and has pushed me forward significantly in this area. Shifting to working with spreadsheets and so freeing myself to establish just what fields I needed in my dataset also raised some technical points.

1. In order to compare egocentric and institutional networks I will need to be able to readily pull out time-slices of who was in which government department or bureau in which year (or ideally, which month!)

2. Members of a particular department or bureau of course held numerous different posts, each of which is listed as a single position in the CBDB. That is, the contents of the “Posting” field are things like zhongshu shilang and zhongshu sheren, combining both department name and actual position held. I am not certain how easy it would be to pull out everybody whose posting includes the word zhongshu. Perhaps it is simply a matter of a string search. But if this would be a problem, I found, in my spreadsheet, that a fairly easy solution was to put the department/bureau name in the field for Location of Office. This was originally intended for placing provincial officials geographically, but the capital bureaus may be seen as the functional equivalents of geographical locations in this context, so it works rather well.
3. Three-way relationships are important, because so much of what I want to record needs to be of the form who gave or did what to whom. For me it is not enough to know, for example, that X gave Y a post, I also need to know which post was given. But we’re not just talking about that fifty per cent of the links that involve official postings. Those involve two people and a thing, but there are of course many three-way relationships that involve three people. I don’t know whether or not this distinction would make things computationally complicated. Links involving three people include, for example, X sends Y to attack Z, or X and Y are in competition for the service of Z, and so on. Such associations are important for locating individuals who act as channels for other people’s connections, who can be important features of some networks. Not having a readymade method for recording three-way connections while I was working, I resorted to setting down the relationships in sets, such as X gave Y an order to attack, X ordered an attack on Z, Y attacked Z. Splitting up the interaction into pairs like this may possibly have some analytical advantages that haven’t dawned on me yet, but it is certainly unwieldy to record them in this way and it seems fairly likely that if you wanted to extract the two-way relationships from the three-way, this could be achieved computationally more easily than building up three-way from two-way links.

I have also dipped, very superficially, into a little social networks theory, which has been surprisingly stimulating! For example, reading about two-mode data helped me to formulate my proposed method for comparing personal and institutional networks as sources of practical imperial authority.8 Such delving as I have done so far also raises one potentially important question regarding the structure of the CBDB. When creating new links in the ASSOC_CODES table it is emphasised that each type of association should be paired with its directional opposite,

---

8 Two-mode data involves considering not just ties among one kind of actor (say, individuals in the histories) but the ways in which two different kinds of actors or groups – say, individuals on the one hand and government bureaus on the other – link each other. Bonnie Erickson, ‘Social networks and history: a review essay’, *Historical Methods*, 30:3 (1997), 152.
so X gave office to Y is paired with Y given office by X. This means that when you enter a link in which X does something to Y, the database is able to generate automatically the link in Y’s biographical record in which Y has something done to them by X. This is important for ensuring that each link is captured from both ends, but it’s not clear (at least to me) whether it would then be possible to tabulate relationships received but not sent and vice versa. That is, can we readily build a list of all things done to Y as opposed to all things done by Y? And further, can we build lists of links experienced by one party but not the other? The classic case being that where a lowly X knows Y, but Y is so exalted that they don’t know of X’s existence. Such directionality of links is of course particularly important when mapping associations in a strongly hierarchical society. There may already be a facility in CBDB for indicating in which direction a particular link is flowing, but if not then I’m not sure how it might be done. Perhaps with some system of tickboxes to show which of the parties is giving the relationship and which receiving, in which the ticks do not need to be the same for each party? How then to show associations based on equality of position? There are not many of those, to be sure, but they might include serving under the same commander. CBDB has been compared to other large prosopographical databases, but I’d be curious to know the extent to which the designs of any of these databases have been influenced by up-to-date theoretical developments.

On that perhaps rather abstruse note I shall draw to a close. Overall my first foray into really trying to work with the CBDB has given me a very positive view of its eventual usefulness for work such as that I’m attempting. Pretty much all the fields I want are already in the CBDB, with just some finer grain desirable on some items, like dates. I would also welcome an easy way of picking out all the staff of a given bureau at a given point in time. But in general the structure of the database seems robust enough to collect and manipulate most and probably all of the kinds of
data I need, and I fancy that the modifications needed to add – or make more visible – the extra features I would ideally like to see are little more than tweaks.