Digital prosopography of Babylonia: new horizons

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Abstract

The named individual is the basic unit of information in social historical research. The cuneiform corpus is exceptionally rich in person data. This paper reflects on the changing practices of person-data management in Assyriology and highlights both the challenges and opportunities that are offered by digital prosopography. It uses the Neo-Babylonian text corpus to illustrate the issues at hand.

Keywords

Digital Methods, Neo-Babylonian, Prosopography, Social History, Network Analysis

Names without faces

Social historians of the Near East have long been blessed with generous data on ancient persons contained in cuneiform texts.[2] In the course of three millennia of cuneiform script use, scribes recorded the names of hundreds of thousands of individuals engaging in all manners of transactions that required documentation — names female and male, names complete and broken, names common and unique, names indigenous and foreign... dazzling numbers of names without faces. The problem of scale is exacerbated by the challenge of identifying unique historical persons behind the names recorded in writing. Who were all these people? How can we securely identify individuals, given the high levels of homonymity occurring in every period, the variations in name orthography, the widespread and ill-understood practices of nick-naming and double-naming, and, above all, given the lapidary state of preservation and publication of the cuneiform text corpus?

Assyriology has grappled with these problems from its very early stages. It has developed tools to tackle the seemingly endless flow of people, to sort out who was who, and to provide scholars with a means of access to this data. New possibilities offered by the digital humanities now invite us to rethink some of these strategies and to complement and enrich them with new approaches that are not only more user-friendly but also allow to ask new questions of the cuneiform data. In this chapter, I will focus

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[2] On the 'embarrassment of riches' that the social historian of Mesopotamia is presented with, see Van De Mieroop 1999, 87–90.

on prosopography as this is the field of study most concerned with identifying the persons behind recorded names and describing their features (*prosōpon*) and relationships. I will use a particular period of Mesopotamian history to illustrate the issues at hand. The period between *c.* 620–480 BCE, also known as the 'long sixth century', is particularly well documented in Babylonia.[3] It was a time of major political, economic, cultural and social transformations, seeing the collapse of the Assyrian Empire, a short period of independence for the Babylonian Empire and the birth of the supersize empire of Cyrus, Darius the Great, and their successors.

Person data in cuneiform texts

The individual represents the smallest data unit of social history. For most periods of the distant past, the named individual is a rare entity found in scant documentation, but in the cuneiform world one is rather presented with an excess of data, often densely concentrated in particular places and times.[4] Estimates of the total number of individuals attested in the cuneiform corpus are not available to my knowledge. Figures relating to segments of the corpus are easier to calculate, albeit with large margins of error. *C.* 51,000 documentary texts from the long 6th century are known, which, at an average of eight individuals per text, record *c.* 400,000 individuals over a period of *c.* 140 years, or *c.* 3000 individuals on average per documented year.[5] Based on some well-studied archives, only about 15–25% of all attested individuals appear more than once, and a smaller percentage appears more than twice.[6] We are, in other words, confronted with a contradictory situation, where the volume of person data is dense but where the volume of data on the same person is limited.

Besides scale, the range of person data is notable. Those most powerful in society appear most often, but many non-elite groups come into purview as well, from slaves, corvee workers and deportees, to cattle breeders, tenants, and artisans. Importantly these people appear as actors and identifiable individuals, and not just as anonymous groups. Moreover, they are presented to us in a variety of life stages and with different gendered roles. This means that our analysis need not be limited to the adult male, but can take into account the adult female, the child, the married couple, widows and widowers, persons in old age, the disabled and ill, the unfree and semi-free.

An additional strength lies in the fact that, for most periods of Mesopotamian history, person data are exactly datable, so that the sequence of events in a person's lifespan can be reconstructed. This opens

[3] Jursa 2005 offers an overview of the available documentary texts, Foster 2007 of the literary texts and Da Riva 2008 of the royal inscriptions. All three categories of texts are subject to continuous study and further exploration. Enrique Jiménez (Munich) currently leads the Electronic Babylonian Literature Project aimed at digitising the corpus of Babylonian literary texts from the 1st millennium BCE (https://iaassyriology.com/in-the-spotlight-the-electronic-babylonian-literature-project/; Jiménez 2020, accessed 17/06/2020); the Munich centre for digital Assyriology is developing an online corpus of the Neo-Babylonian royal inscriptions (RINBE; Novotny and Radner 2018, 145–146); and the archival and administrative texts are the subject both of the NaBuCCo project led by Kathleen Abraham, Michael Jursa, and Shai Gordin (https://nabucco.arts.kuleuven.be/; Abraham *et al.* 2015–2021, accessed 17/06/2020) and of Achemenet for Persian-period cuneiform tablets from Babylonia (http://www.achemenet.com/en/tree/?/textual-sources; Agut-Labordère *et al.* 2017–2021, accessed 05/02/2021).

[4] Van De Mieroop 1999, 87.

[5] See for the estimate of the size of the corpus Waerzeggers 2018, 94; the figure for the average number of individuals mentioned per text is based on a sample from Prosobab, where 1,770 texts yielded 14,300 unique individuals (https://prosobab.leidenuniv.nl; Waerzeggers *et al.* 2019, accessed 23/06/2020). The texts from which this sample is taken are mostly legal contracts. Administrative texts vary a lot as to the number of persons mentioned, some texts containing long lists of persons while others mentioning only one or two.

[6] In the Marduk-rēmanni archive from Sippar, only 18 persons out of 919 occur five times or more. In the archive of Bēl-rēmanni, a near-homonymous contemporary, we find almost double the amount of regular contacts (19 persons out of 447); see Waerzeggers 2014, 10–12.

the door for collective biographical research, as social groups can easily be delineated and variables and constants in their life courses picked out.

Managing person data in Assyriology

The need to organise and manage person data from cuneiform texts was felt early on in the history of the field of Assyriology. From the early 20th century onwards, a number of formats were developed in answer to this need. Often, inspiration for these formats came from adjacent fields, mostly *Altertumswissenschaften*. Based on the type of person data, one can distinguish between at least five types of studies:[7] (a) those concerned with names and name-giving, (b) those concerned with identifying individuals, (c) those concerned with describing lives, (d) those concerned with reconstructing families, and (e) those concerned with studying social or professional groups of individuals. These initiatives are usually known under the following titles or labels. (a) The 'name book' or 'onomasticon' lists all attested names in a corpus and discusses their onomastic features, such as name etymologies, meanings, and spellings of names. (b) The 'person index' makes the crucial step from name to individual; it deals with the unique historical individuals behind the names recorded in a corpus. (c) The 'who is who', or biographical lexicon, adds more detail and describes the lives of individuals—mostly members of the elite—with regard to their date of birth, marriage and death, education and genealogies, careers and major life events. (d) The 'genealogy' is the study of pedigrees. (e) The 'prosopography' pursues a collective study of the lives of a group of actors.

All these types of study are closely related. In Assyriology, name books usually combine onomastic and biographical information, while prosopographies are seldom concerned with explaining social change through group processes; rather, they take the form of structured lists of persons attested in a particular cuneiform corpus, often featuring genealogies of the most prominent families. In a brief overview of the major publications of person data from 1st millennium BCE cuneiform texts, I will illustrate this flexibility of formats in Assyriological practice.

The *Neubabylonisches Namenbuch* (NNB) by Knut Tallqvist, published in 1905, is an early attempt to collect all named individuals from this particular period in a single volume.[8] Despite its title, the NNB was more than a name book, as it makes the crucial step of identifying discrete historical persons behind the name material. It also attempts to be a complete directory of all attested individuals. The volume can therefore be considered an index of the Neo-Babylonian text corpus (as known at the time). For instance, the entry for Iddin-Marduk, son of Iqīšāya (rendered in the now-outdated form 'Iqîša-aplu') of the Nūr-Sîn family, lists 63 attestations for this individual. While modern-day scholarship, especially the work of Cornelia Wunsch, added many new attestations to this list, Tallqvist's identification of the unique historical person behind the name recordings was for the most part correct.[9] It supplied researchers with a convenient starting point towards this man's records and, from there, to a possible reconstruction of his biography. A follow-up search of Iqîša-aplu in NNB yielded five possible sons of

[7] Verboven *et al.* 2007.

[8] Similar projects on other cuneiform corpora were undertaken around that same time, e.g. Ranke 1905 (Old Babylonian), Huber 1907 (early Old Babylonian), Clay 1912 (Kassite). Tallqvist (1914) went on to produce a name book also for the Neo-Assyrian text corpus. The volumes on the Old Assyrian trade colony in 'Cappadocia' by Stephens 1928 and the one on Nuzi personal names by Gelb *et al.* 1943 stand in this same tradition. Recent successors include Hess 1993 (Amarna), Hölscher 1996 (Nippur), Pruzsinszky 2003 (Emar), Nielsen 2015 (Early Neo-Babylonian), Balke 2017 (Pre-Sargonic). Many of these publications combine an onomastic study of the name material with a prosopographical lexicon of the attested persons. Some of the non-indigenous name materials in cuneiform texts have been assembled in dedicated volumes, e.g. Zadok 1977 on West Semites attested in the Assyrian and Babylonian text corpora of the 1st millennium BCE.

[9] Wunsch 1993.

this person. In this way, NNB makes a step towards genealogy. It was left to the user, however, to decide whether all five persons were sons of the same historical Iqîša-aplu or of different ones.

The Prosopography of the Neo-Assyrian Empire is heir to the tradition of Tallqvist but more ambitious in scope by adding a third type of person data to each entry.[10] Besides the onomastic analysis of names and the disambiguation of unique historical individuals behind homonyms, the PNA includes biographical data on each recorded person. In the words of its first editor-in-charge, Karen Radner, the PNA is both a 'Who Was Who in the Neo-Assyrian Empire (...) and a name book in the conventional sense'.[11] Depending on the quality and number of available sources, the biographical entries offer information on the person's offices, where and when (s)he was active, which transactions (s)he participated in and in which capacity. The PNA's primary goal is to serve as a tool for further research;[12] it does not aim to answer any particular questions about the Neo-Assyrian Empire, its society, institutions or economy. In view of the scale of the project, the PNA was a committee venture that benefited from the long-term financial commitment of Helsinki University, the dedication of an editorial team, and the support of linguistic consultants, cooperating institutions and dozens of contributing scholars, who wrote up the biographical narratives. A similar, but much smaller, project is Julien Monerie's prosopographical dictionary of Greeks attested in cuneiform texts.[13] Like the PNA, it offers narrative articles on each recorded individual, but with only *c.* 250 entries (as compared to PNA's 'close to thirty thousand') the work was manageable for a single researcher.[14]

Whereas for the PNA the biographical index 'is' the goal of the project, other prosopographies are produced as a step towards a socio-economic study of a particular field or milieu. This is the fundamental contrast between the PNA and, for instance, the studies by Mariano San Nicolò, Hans Martin Kümmel, and Herman Bongenaar, who investigated how temple institutions recruited their personnel by collecting data on all recorded office-holders and professional groups.[15] Despite making an important contribution to the history of Neo-Babylonian institutions in this way, Bongenaar stresses that his work serves first and foremost an auxiliary function: 'The present prosopographical study will hopefully facilitate the investigation of [...] issues which are fundamental to our understanding of Neo-Babylonian society and economy'.[16] Similar motivations are quite often expressed by prosopographers in Assyriology.[17] San Nicolò too saw the value of his 'mechanical labour' primarily in its service to the field, in this case by aiding the study of epistolography.[18] His conclusions about long-term trends in temple bureaucracy were literally presented as an after-thought to the catalogue.

History of prosopography

It would take us too far to review the history of prosopography here, especially since excellent and detailed overviews are available, but some historical background is necessary in order to contextualise both the Assyriological traditions of prosopography and the 'new' prosopography that the digital age brings about.[19]

[10] Radner 1998 (A); Radner 1999 (B–G); Baker 2000 (Ḫ–K); Baker 2001 (L–N); Baker 2002 (P–Ṣ); Baker 2011 (Š–Z).
[11] Radner 1998, xi.
[12] Radner 1998, xi.
[13] Monerie 2014.
[14] The estimate of the PNA is given in Radner 1998, xii.
[15] San Nicolò 1941; Kümmel 1979; Bongenaar 1997.
[16] Bongenaar 1997, 5.
[17] E.g. Mayer 1978, 8 (Nuzi prosopography).
[18] San Nicolò 1941, 11.
[19] A useful recent history of prosopography is offered by Delpu 2015; see also Charle 2001; Verboven *et al.* 2007; Eck 2010.

The hybrid nature of prosopography needs to be stressed from the outset. For the Assyriologist, as we have seen, the prosopography is part of the field's research infrastructure; it catalogues the individuals who populate cuneiform texts and mostly serves students as a tool for text interpretation and contextualization. For modern and contemporary historians, however, it is much more than a catalogue and a tool: it is a 'broad programme of research',[20] a 'style of historical research',[21] close to a methodology.[22] This programme is not concerned with the individuals *per se*, but with the information that can be pooled from them collectively in order to explain historical change.[23]

In practice, then, prosopography combines two types of research activity. At base level, it is about identifying and describing the historical actors in a structural and consistent way.[24] In the words of Paul Magdalino, prosopography 'literally reduces history to atoms, for a *prosōpon* is an *atomon*, the indivisible unit of human experience'.[25] At an advanced level, it is about analysing the common and divergent characteristics of many individuals together. The catalogue of persons is, in the latter type of prosopography, not the end-product but the means.[26]

The earliest prosopographies, developed in ancient history since the 19th century, were confined to the first level. Theodor Mommsen proposed the first large-scale prosopographic project to the Berlin Academy of Sciences in 1874.[27] The Prosopographia Imperii Romani (PIR) had the aim of collecting all persons of note in the Roman Empire and to compile lists of the offices they held.[28] While this type of catalogue project did not always invite the respect of subsequent generations of (mostly non-ancient) historians,[29] Mommsen's initiative did spring from the desire to improve historical method by moving away from legal-historical and philological approaches that had dominated the study of Rome's institutional history.[30]

Assyriology stands in this earliest tradition of prosopography, as do other fields where the historical record is sparse and scattered, such as Egyptology, Medieval, and Byzantine studies.[31] In these fields, the prosopography continued as an auxiliary discipline into the second half of the 20th century, when major prosopographical resources saw the light of day, and into the present, when some of these initiatives have transitioned onto to the World Wide Web (see below).

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[20] Eck 2010, 148.

[21] Lemercier and Picard 2012, 605.

[22] There is an ongoing discussion among prosopographers about the status of prosopography. Keats-Rohan (2000, 4) asks 'Is it a technique or a methodology?' Maurin 1982, 824 describes it as a 'new approach to reality'. A recent reflection on this debate is offered by Lemercier and Picard 2012.

[23] Smythe 2008.

[24] There are divergent views on which actors should be included in a data set. If the source base is (relatively) small and fragmented, prosopographers usually aim at total coverage. In modern and contemporary history, the data set needs demarcation because of the large number of sources available. Whether single attestations, unproductive in a relational sense, should be included is also contested, see on this issue Mandouze 1982, 7; Mathisen 2007.

[25] Magdalino 2003, 46.

[26] Bulst 1989, 14.

[27] Eck 2003.

[28] Klebs *et al.* 1897–1898.

[29] Lawrence Stone (1971, 49) ridiculed the obsessive psychology of prosopographers. See also Pelteret 2000, 13 on prosopography's 'bad name'.

[30] Verboven *et al.* 2007, 42.

[31] A recent overview of Egyptological prosopographies is offered by Birk 2020, 3–6; for Byzantine studies, see the contributions collected by Cameron 2003; in Medieval history, the journal *Medieval Prosopography* offers studies in various strands of prosopography.

Since the early 20th century prosopography simultaneously developed in a new direction. Its aggregate nature allowed historians 'to get behind a Cato, an Augustus, to their factions and supporters'.[32] From the collective biographies of many individuals, it was possible to tease out the structures of government, the pathways into the system, the changes over time, etc.[33] Historians of the modern period picked up this trend, at first for studying political elites, but then also for investigating those persons less prominently represented in historical sources. Non-elite prosopography became popular in the 1970s, as it fitted on-trend research agendas inspired by statistical and social-scientific methods. By considering the individual within the totality of the field, it offered historians a way to balance individualist and structuralist approaches to history.[34]

As far as I am aware, after Marc Van De Mieroop's brief illustration of mass prosopography of the Ur III state, only Jonathan Tenney has applied it to Mesopotamian social history, in his statistical study of Babylonian worker populations.[35] The full potential of this research method is yet to be explored in ancient Near Eastern history.

Recently, prosopography has experienced a second youth. Its popularity is visible in the large number of projects across the historical profession that identify themselves as prosopographies.[36] According to Lemercier and Picard, this renewed interest is fed by a number of intersecting developments.[37] First, as a method of quantitative research, prosopography benefits from the turn to big data in the Humanities. Relatedly, there is a renewed interest in the structural constraints of the individual within the social field, an interest driven by the popularity of network theory in history. Prosopography and social network analysis are well-matched companions: prosopography, by correlating texts and persons, yields the incidence matrices that are used for reconstructing the nodes and edges of historical networks. Connections have been at the forefront of the 'new' prosopography since the 1990s.[38] Third and foremost, digital methods increase the usefulness of the prosopographical lexicon or index far beyond the conventional lists of persons contained in paper editions.

The limitations of paper formats are well-known. First, while paper volumes present a stable reflection of the state of a field at a certain time, it is hard to keep them up to date. Addenda are inevitable but soon become cumbersome. This shortcoming plagued prosopographical projects from the very start. No sooner had Theodor Mommsen's dream of a Prosopographia Imperii Romani been realised in 1898 than a new series had to be started to include all new advances in epigraphy; the new PIR took ninety years to complete.[39] A second limitation of paper editions is that they provide no other search options to the user than those set by the editors: in most cases, that is an alphabetical listing of persons. All meaningful connections between texts and individuals are lost, or at least difficult to find. The PNA project published one index volume, so far, allowing users to find entries of professional titles;[40] many

[32] Barnish 1994, 174.
[33] Cameron 2001, 25.
[34] Stone 1987, 46.
[35] Van De Mieroop 1999, 87–90; Tenney 2011.
[36] A few examples from many: Trismegistos People (Tm; Egypt 800 BC–AD 800); People of Medieval Scotland (PoMS); Prosopography of the Byzantine World (PBW); Prosopography of Anglo-Saxon England (PASE); China Biographical Database (CBDB); Syriac Biographical Dictionary (SBD); People of Northern England Database 1216–1286 (PONE); Clergy of the Church of England Database (CCED); Repertorium Academicum Germanicum (RAG); Prosopographie des chantres de la Renaissance (CESR-CHANTRES); Prosopographie der mittelbyzantinischen Zeit (PMBZ).
[37] Lemercier and Picard 2012.
[38] See Smythe 2008, 177 on the 'new' prosopography. A representative definition of this kind of prosopography is offered by Pelteret 2000, 13: 'the study of identifiable persons and their connections with others for the purpose of enabling the modern student to discern patterns of relationships'.
[39] On the history of this project and the new prospects created by the digital age, see the contributions in Eck and Heil 2018.
[40] Baker 2017.

other searches, such as for geographical and chronological information, social roles of actors, name elements, etc. are impossible to perform unless by browsing manually through thousands of entries.

Digital prosopography

Digital formats offer solutions to both limitations. On an online server additions and updates are easy, cheap and safe to implement, and queries can be customised according to the research interests of the user. It has long been agreed that a good structural model for storing person data digitally is the relational database,[41] and most digital prosopographies use a SQL based platform (e.g. MySQL or SQLite). Alternative technologies such as XML and other NoSQL databases, which offer more flexibility than the schema-based relational model, hold promise for prosopography as well.[42] Several high-profile projects transitioned in the course of the past decades from paper, to CD-ROM, to a web application. Flexible formats invite users to query data in new ways and to ask new questions, pushing entire fields of study into new directions. This is seen clearly in the case of the Prosopography of the Byzantine Empire (PBE), which provided users multiple ways to access indexed data on a CD-ROM, an improvement over the earlier Prosopography of the Later Roman Empire (PLRE) from which this initiative sprang. Its online successor Prosopography of the Byzantine World (PBW) offers users direct access to the relational database, greatly enhancing query control. It also abandoned the narrative article in favor of a list of 'factoids', or assertions that are made about the individuals in the historical records.[43] The factoid model, developed at King's College London, is particularly well-suited for person data collected from many different types of narrative texts.[44]

New horizons

Prosopography still serves a predominantly auxiliary function in cuneiform studies, as explained above. Despite a century and a half of effort, the majority of cuneiform texts are still unpublished or only partially published. In this 'open corpus field', new documents are brought to light continuously through excavation or museum exploration.[45] Given these unique conditions, prosopography will, before it can serve the social historian of Mesopotamia, remain a tool in the hands of the epigraphist who uses it in order to sort out documents, to reconstruct archives, to date undated texts, and to restore broken passages.[46] The back-and-forth process between what is known and what can be added or changed through new texts demands a flexible environment, where adaptations, revisions and updates are easily implemented. Prosopography has long proven its worth as a handmaiden of epigraphy in Classical studies,[47] and the same can be expected for cuneiform epigraphy. In recent years, digital prosopography of the Classical world has boomed to the extent that multiple digital records of the same historical

[41] Keats-Rohan 2000: 'a marriage made in heaven'; see also Mathisen 2007, who looks back on the use of searchable computer databases for prosopographical research since the 1960s.

[42] In recent years, interest in XML databases for prosopography is growing — especially in projects where text editions and biographical research are combined; an example is the Digital Mitford project (https://digitalmitford.org/; Beshero-Bondar 2014–2021, accessed 18/06/2020).

[43] See Bradley and Short 2005, 5–8 on the trajectory of the Prosopography of the Later Roman Empire (PLRE), to the Prosopography of the Byzantine Empire (PBE) and the Prosopography of the Byzantine World (PBW), and its impact on the research community using these tools.

[44] Pasin and Bradley 2015.

[45] Richardson 2014, 68.

[46] Popova 2015.

[47] Karila-Cohen 2016, 874.

individual now require linking across databases.[48] In Assyriology, the creation of online entities for the inhabitants of Mesopotamia is only just beginning.

Berkeley Prosopographical Services (BPS) was set up in 2009 to develop 'a complete package' and 'interactive tool-kit' for analyzing prosopographic datasets.[49] The project caters to all Humanities disciplines, but uses a corpus from Hellenistic Babylonia as its testing ground.[50] BPS offers a flexible workspace for researchers to play around with datasets in customised ways. A distinctive feature of BPS is its disambiguation engine, which allows historians to short-cut much of the manual and mental labour of identifying unique persons behind the name entities in a corpus. The engine uses configurable heuristic rules, allowing researchers to make their own assertions about the identity of named entities. For instance, in case of homonymous individuals, the researcher can agree or disagree with disambiguations proposed by the probabilistic tool or by his or her peers. In this way, users build their own environment where they can challenge existing ideas or follow up on what-if scenarios. So far, BPS has offered a vision of collaborative research in the Digital Humanities through re-usable services, but the tool-kit has yet to be show-cased and implemented. The HBTIN corpus is under construction and includes an index of names, but no prosopographic dataset yet.

Prosobab is an open-source, web-based initiative at Leiden University that offers a prosopography of recorded inhabitants of Babylonia, in the period when southern Mesopotamia was governed by the Babylonian and Persian empires respectively (*c.* 620–330 BCE).[51] Whereas BPS builds datasets from TEI/XML text files, the main input of Prosobab is plain text handled via webforms and stored in a structured relational database (MySQL). The data can be extracted in CSV, Excel and JSON format and processed easily afterwards. A feature of Prosobab is that the distinction between evidentiary and conclusional data is always maintained. A name attestation in a source text belongs to the realm of facts ('evidentiary'), whereas the identification of a person belongs to the realm of interpretation by the researcher, who decides, through an intellectual process ('conclusional'), whether to collapse multiple attestations of the same name into one person or to split them into several persons.

The disambiguation process can no doubt be (semi-)automated, but the text corpus underlying Prosobab does not make the development of such a tool worthwhile. First, persons are mostly mentioned by name, patronymic, and family name—three-tiered onomastic strings that usually yield unique combinations. Second, in case of two-tiered name chains (name, patronymic), most instances of homonymy can easily be resolved by investigating the close-knit social networks from which most archival texts spring. Problems do arise when one person is attested with different names (e.g. a short name, nickname, or second name) and when in certain types of texts, such as letters, long chains of filiation are avoided as a matter of convention. In such cases, an automated tool could offer help.

The database reflects the distinction between evidentiary and conclusional in its structure (**Figure 1**). It identifies three items of interest: the 'tablet', the 'attestation', and the 'individual'. The Tablet table collects information on the cuneiform text recording the person entity, such as place of writing, date, publication, document type, objects mentioned, etc. The Attestation table collects information attributed by the source text to the named entity, such as her or his title, role in the transaction, the spelling of the name, the documented relationships, etc. The Individual table contains conclusional data: the editor decides which attestations of the same name refer to the same individual. For each

[48] The SNAP (Standards for Networking Ancient Prosopographies) project aims to address this problem through Linked Open Data methods, see Bodard *et al.* 2017.

[49] See http://berkeleyprosopography.org/ (accessed 18/06/2020); Pearce and Schmitz 2014; Schmitz and Pearce 2013.

[50] The HBTIN (Hellenistic Babylonia: Texts, Images and Names) corpus is developed as part of Oracc (Open Richly Annotated Cuneiform Corpus) by Laurie E. Pearce (http://oracc.museum.upenn.edu/hbtin/; Pearce *et al.* 2009, accessed 18/06/2020).

[51] Waerzeggers *et al.* 2019; https://prosobab.leidenuniv.nl/ (accessed 18/06/2020).

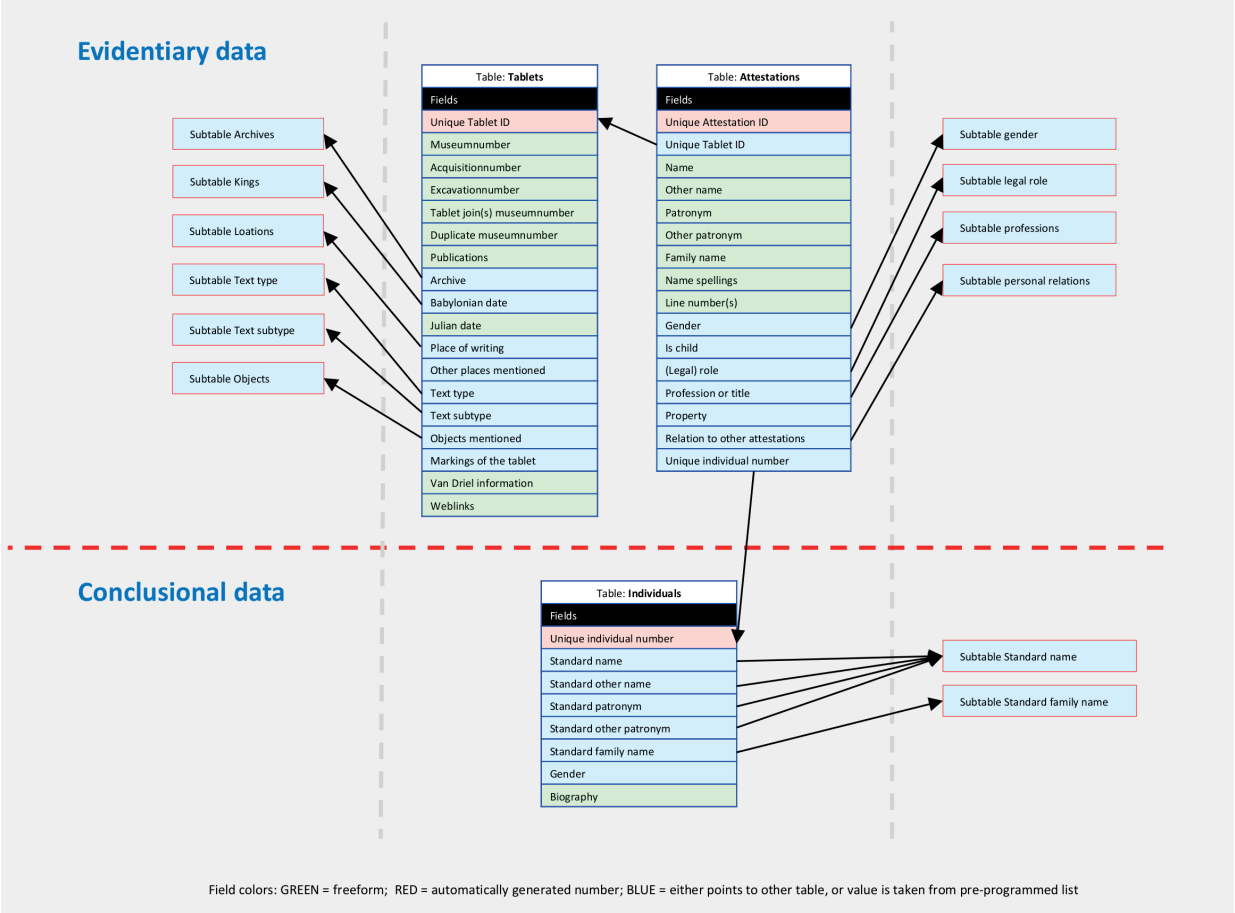

Figure 1: *Prosobab structure (courtesy M.M. Gross and G. Suurmeijer).*

attribution, radio buttons signal three levels of certainty in the editorial decision process. The table takes the form of an 'ID card', showing a standardised name, basic information allowing a location of the individual in time, place, and society, and a list of all attested transactions. Users who do not wish to follow the authorial decisions by the Prosobab team can disregard the ID cards and work only from the Attestations Table, which reflects the structured data contained in the cuneiform texts as closely as possible.

Prosobab allows users control over how they query data by combining any number of fields in customised searches. For instance, users can look for all sales that were transacted in a particular year or on a specific day of the calendar. Or they can look for women who acted as creditors to their husbands, or for slaves working as artisans. Moreover, a browse function offers an extra path of entry for users who are not familiar with the Babylonian name repertoire. Besides flexible searches, Prosobab allows users to export all data in any preferred digital format, such as XML or Excel, and to store the files on their local systems. This is especially useful for those who want to study and visualise networks from Prosobab data. At the moment, the web interface does not feature built-in SNA and visualization tools, but by extracting data to an Excel spreadsheet and using open-source software like Gephi, it is fairly easy to study and display networks. Maarja Seire wrote a tutorial to assist users in this process (**Figure 2**).[52]

[52] Seire 2020.

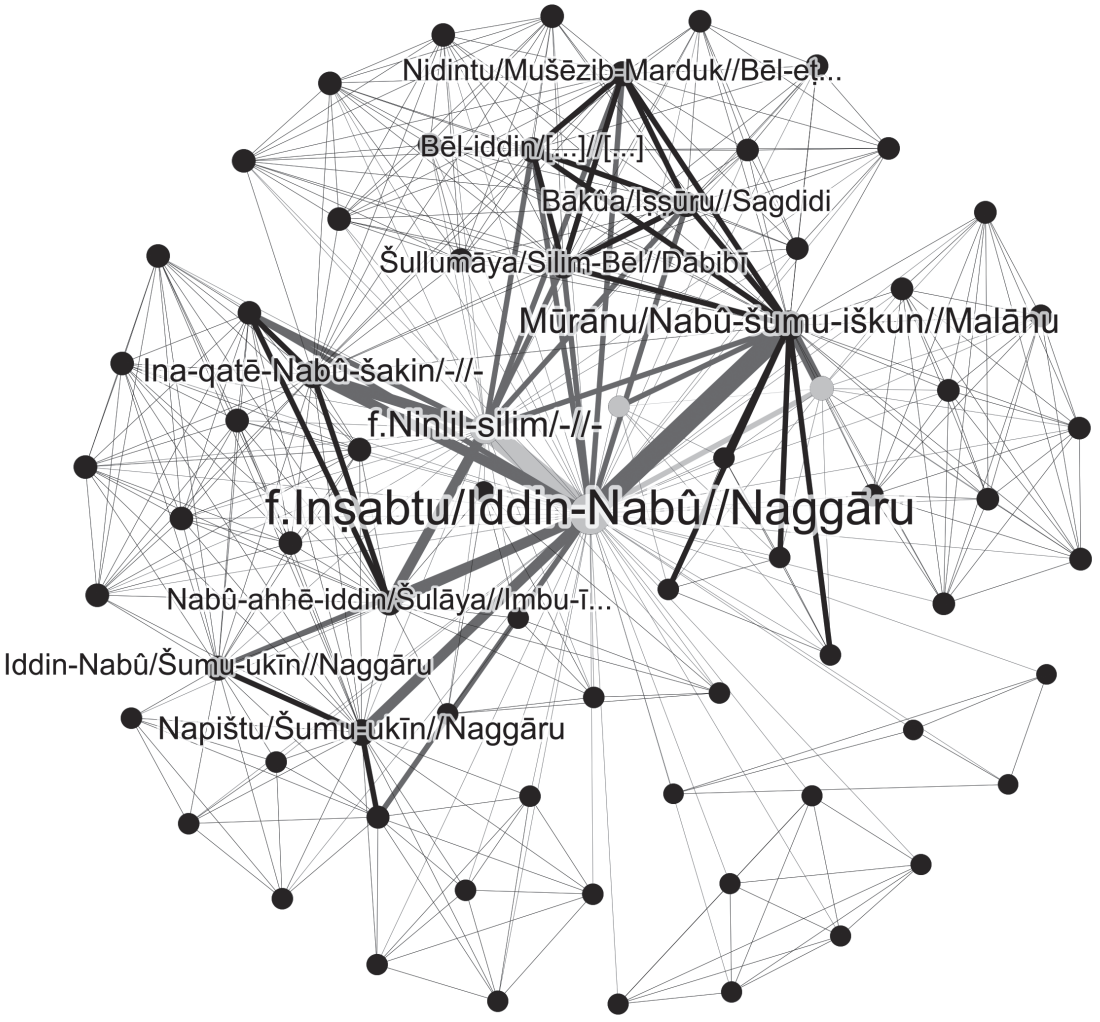

Figure 2: *The social network of the woman Inṣabtu, based on data from Prosobab, drawn with Gephi (courtesy M. Seire).*

A weakness of Prosobab is that it divorces the person data from the text. In a digital environment, one would ideally want to consult the text and the person data together, whether by tagging texts with biographical markup, or by including text editions in the relational database. Prosobab harvests person data manually without also digitising the texts. This choice is based on a number of pragmatic considerations, not in the least limits of time and labour. Moreover, several text corpus initiatives have been established or are well underway (CDLI, Oracc, NaBuCCo, Achemenet). Prosobab includes weblinks whenever such digital corpora are available, but an integrated display of the text would certainly be welcome. Linking person data to digitalised source texts will be facilitated by the stable identifiers for attestations and persons that Prosobab generates in the form of URI's; in this way, Prosobab can serve as an external authority list for TEI initiatives.

Challenges

While online prosopography offers benefits, sustainability is a major concern in the face of advancing technologies.[53] Alongside the development of online tools, more reflection on the pitfalls of statistical analysis and the gaps and structural deficiencies of the cuneiform text corpus is required.[54] The 'labour-intensity' of prosopography — whether on paper or online — poses a well-known challenge that forces researchers to limit the scope of the study or to set up large collaborations.[55] In the case of BPS, the dataset is yet to be developed from HBTIN. Prosobab releases new data intermittently, but it is far removed from full coverage; indeed, given the open-ended nature of the text corpus, full coverage is impossible. Both HBTIN and Prosobab are set to profit from linking up to other initiatives, such as a yet-to-be-developed online version of PNA or of the Early Neo-Babylonian personal name book by Nielsen.[56] There are also possibilities outside of Assyriology. Trismegistos holds data on more than 350,000 individuals from Egypt, many of whom are contemporaries to the individuals contained in Prosobab.[57] Such synchronicities are lost due to the silo effect of separate databases. Visions of large-scale linked data require resources rarely seen in our field. Most digital initiatives are project-based and face the challenge of securing funding after the project's lifespan. Crowdsourcing seems less feasible for such an arcane field as cuneiform studies, but it is perhaps not unrealistic.[58]

On a more positive note, the online publication of research data already presents a massive improvement from the time when researchers produced their own research databases, put them on CD-ROMs or USB-sticks, and rarely shared them with anybody else. Today's practices of sharing and re-using data will hopefully create a more inclusive and sociable field.

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[53] Burdick *et al.* 2012.
[54] Stone 1971, 58; Carney 1973; Eck 1993, 395–396.
[55] E.g. Monerie 2014 and the PNA project, respectively.
[56] Nielsen 2015.
[57] Depauw and Gheldof 2014.
[58] On the vulnerability of prosopographic databases, see Mathisen 2007.

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