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Versioning Charters: On the Multiple Identities of Historical Legal Documents and their Digital Representation

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Abstract

This chapter proposes a model for the concept of *versions* and how it can be applied in the scholarly discipline of diplomatics, the study of historical legal documents. It describes the various concepts and physical things the discipline of diplomatics connects with the term *charter*, as well as the practice of people working with them. The chapter also connects the history of preparing, engrossing and copying charters, with the archival and scholarly practices of describing, editing, or photographing, including transforming charters into digital representations.

By drawing on the Functional Requirements for Bibliographical Records (FRBR), the Vocabulaire Internationale de la Diplomatique, and charter databases such as monasterium.net and *The Making of Charlemagne's Europe*, the author argues that a model for *versions of charters* should not start with a definition of *charter*, but rather with the network of relationships which can be considered instantiations of *versioning*. W3C Resource Description Framework (RDF) representations of the data fragments used to represent a charter—for example images, descriptions, texts, legal actions, archival and other identifiers—allow a giant graph of charter versions to be created and help to use and approach the rich set of charter databases as integrated resource.

1 Introduction

This chapter proposes a model for the concept of *versions* and how it can be applied to the digital representation of charters, historical legal documents. These representations are often stored in, and published as, databases, which arguably seems to be the most appropriate method for this kind of cultural heritage (Vogeler, "Digitale Urkundenbücher"). The largest of these databases is likely the monasterium.net portal. It contains more than 600,000 charters, and will be used as an source of examples in the following chapter. Besides monasterium.net, there are many other rich databases for charters. The following list names some of the most prominent examples from the rich variety available online:

- Chartae Burgundiae Medii Aevi (Projet CBMA)[1] (Magnani - Gasse-Grandjean "CBMA Les débuts du projet," "CBMA, part I-V "; Rosé),
- Diplomata Belgica (Hemptinne et al.; Deploige et al.)
- ArQuibanc[2] (Piñol Alabart)
- DEEDS[3] (Gervers, *DEEDS*; Gervers, et al. "The Deeds Database"; Gervers and Margolin, "The Deeds Project," "Managing Meta-data")
- The making of Charlemange's Europe database (Rio et al.)
- Cartago (Stichting Digitaal Oorkondenboek Groningen en Drenthe; Heidecker)
- A database of original charters for Germany issued before 1250 (Institut für Mittelalterliche Geschichte der Universität Marburg; Bischoff "Die Datenbank"; Roberg and Klipsch; Baumbach and Meyer)
- Pergamene di Puglia online[4]

All of these resources try to assemble information on charters from different sources, and often, the same charter is published several times in different places simultaneously. For example: the documents recorded in Felix Henri d'Hoop (1870) are held on both monasterium.net[5] and the Diplomata Belgica.[6] Similarly, many of the charters recorded in the Charlemagne-database can also be found in monasterium.net.

For instance, the entry charlemagneseurope.ac.uk/browse/charters/415/ refers to the same charter as monasterium.net/mom/DE-HStAMa/UrkHersfeld/2254/charter, a diploma issued by Charlemagne to the abbey of Hersfeld in 775 (MGH D Kar 89). While the Charlemagne database gives a highly structured description of the transaction recorded in the charter, monasterium.net provides digitised images from the archives. As the monasterium.net portal aggregates metadata from archives and printed editions, much of the metadata might be duplicated in different places on the internet. For example, libraries might have put printed descriptions of the charters online, whilst many of the charters can be found on the website of the archive as well. In order to reconcile all of these sources of information, it is necessary to construct a thorough data model for the relationships between all of the various digital charter representations. This paper considers these relationships as specialisations of the relationship *versions of*, which is the major concern of this volume.

Over recent years in digital humanities, the W3C proposal for a *semantic web* (Berners-Lee, Hendler and Lassila; W3C *Semantic Web Activities*) has become the

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1   www.cbma-project.eu/.
2   www.ub.edu/arquibanc/.
3   deeds.library.utoronto.ca/.
4   www.sapuglia.it/index.php?option=com_content&view=article&id=213&Itemid=214.
5   monasterium.net/mom/SaintBertin/collection.
6   e.g. www.diplomata-belgica.be/charter_details_en.php?dibe_id=2952, is the same charter as monasterium.net/mom/SaintBertin/3e0efb41-2ece-4e01-bb9f-69f2437ec7a7/charter.

go-to reference method for publishing structured data on the web.[7] This technology allows a single charter to be uniquely identified on the internet by assigning a uniform resource identifier (URI) to it. Other databases can then refer to this URI, for example by properties such as `sameAs`, defined in the W3C semantic web standard *OWL* (W3C *Web Ontology Language*), or as `exactMatch`, defined in the W3C semantic web standard *SKOS* (W3C *Simple Knowledge Organisation System*; Miles and Bechhofer; Isaac and Summers). However, this is only possible if the charter databases agree on the ontological question, "what is a charter?"

The following will attempt to demonstrate that the study of diplomatics has no clear answer to this question, instead offering a rich set of various different concepts for *charters*, represented in charter databases. Additionally, there are further concepts in data models for these databases, for items which could be considered *versions* of charters. Because of this, a semantic web data model for charters is necessary to consider both in tandem: the complex and various meanings of the term charter, and the fact that different versions—both physical and digital representation—of charters exist.

These considerations start with an outline of the concept of *charters* as legal documents, in particular those from the European Middle Ages and early modern times. Firstly, it will be more clearly established what diplomatics—as a well-established historical auxiliary science—considers charters and which concepts have been developed through scholarship to describe different versions of the charter. Following this, it will be discussed to what extent the term version is useful, or if other terms like *description*, *representation*, *surrogate*, *revision*, *adaption*, or *instantiation* can help to provide a clearer picture. The various relationships added by digital technologies will be presented, followed by a final proposal for a conceptual model for *versioning charters* which could be expressed in RDFS.

2 Scholarship

2.1 Basic concepts

Charters are good examples with which to highlight the complexity around the versioning of cultural objects. This is because of their physical and textual form, and their relation to underlying concepts and social activities involved in their creation and use. This is already the case when studying the historical practice connected to charters, and when studying the process of their digitisation. The complexity of the problem becomes clear when leaving the assumption that charters are just a specific form of text. They are, in fact, much more: in this chapter the term "charter"

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[7]   In 2013 the W3C moved the Semantic Web activities into a newly founded *W3C Data Activity*.

is used to relate to a core concept for work undertaken in the scholarly discipline of diplomatics.[8] It is not used as in Medieval Latin (du Cange, II, 292a s.v. *Charta* (1)), but in the widest possible sense, wider even than the definition provided in the Vocabulaire Internationale de la Diplomatique (Carcel Ortí, in the following: VID). Because of this, it has become similar in use to the term *document*, which has gained a much wider meaning due to its use in modern office technologies, where every bit-stream representing something readable by humans can be called document.

There are several English terms which have a similar scope and meaning, or can at least be considered specialised forms of charters, such as *deed*, *instrument*, *title*, *written document*, *act*, *record*, and *indenture*. This broad interpretation is close to the French tradition, which considers all archival documentation to be subjects of the field of diplomatics; an approach followed by Leonard Boyle in his definition of this area of study. Still, this interpretation has not become common in the community of diplomatists (Kölzer).

Even more recent English publications on charters focus on the judicial value of the charters (Mostert and Barnwell; Jarrett and McKinley), although they extend the scope of diplomatics into cultural history. Therefore, applying the term *charter* in the context of diplomatics gives four concepts which form part of the core definition: A charter is something written (1), which gives evidence (2) of a legal fact (3) by means of formal properties (4), which are stable for a specific time period and geographical area. This is a rough translation of the classical definition of *Urkunde*, given by Harry Bresslau at the turn of the 19th century, as a form of *summa* from the golden age of diplomatics:

> *Urkunden sind schriftliche, unter Beobachtung bestimmter, wenn auch nach der Verschiedenheit von Person, Ort, Zeit und Sache wechselnder Formen aufgezeich-nete Erklärungen, die bestimmt sind, als Zeugnis über Vorgänge rechtlicher Natur zu dienen.* (Harry Bresslau, Handbuch der Urkundenlehre, 2nd ed., 1915, p. 1)

> Charters are written declarations recorded in compliance with certain forms, alternating according to differences in person, place, time, and matter, which are meant to serve as a testimony of proceedings of a legal nature (my translation)

The definition in the already-mentioned VID (Carcel Ortí) follows these lines:

> *Les **sources diplomatique** forme d'une part, des actes écrits; de l'autre, des documents résultant des actions juridiques et des activités administratives et*

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8   The most recent resumé of the scope and history of diplomatics is given by Theo Kölzer.

financières de toute personne physique ou morale; enfin des lettres expédiées ex-officio et dont la forme est soumise à certaines règles.

The diplomatic sources are first: written acts; second: those documents which result from legal acts, and administrative and financial activities carried out by any kind of physical person or legal body; and third: official letters which therefore have a form following certain rules. (my translation).

This is in line with the use of the word *charter* in the English language since the Middle Ages, as it is documented in Glasgow's *Historical Thesaurus of English* (Samuels et al., s.v. "charter"). Therefore, a working definition for this paper, which deals with different perspectives on the subject, might be that charters are written documentations of legal acts in their historical development. This includes testaments, wills, contracts, privileges, orders, obligations, certifications, and similar. In this chapter, European medieval charters are used as the primary example of charters. Certainly, the tradition has roots in Roman administration and legal culture, and it also has followers in early modern times. I have argued previously that the concepts developed in European medieval documentation, the connected conceptual models, and the technical realisations in formal ontologies and schemata could even be applied globally (Vogeler "Digital Diplomatics").

The working definition and the definition given by the VID already lead to the first important concept, which must be considered when talking about versions of charters. Diplomatists study the charter as a double instantiation:

- the legal act executed by humans or the legal fact accepted by humans in the past
- the artefact created by humans to document this act or to bring this fact into existence

This difference is discussed in much of the recent scholarship around diplomatics (e.g. Heidecker; Mosert and Barnwell; Jarrett and McKinley; Barret, Stutzmann and Vogeler), which studies charters as records which "owe their existence to the fact, that there were people at one time or another who had felt the need to […] preserve in writing the memory of a transaction or event" (Boyle, 89). Research could therefore profit from a clear modelling of this double instantiation.

This distinction between artefact and abstract legal fact is similar to the relationship between the FRBR concepts of *work* and *item* (IFLA; Bekiari et al.). Consequently, written artefacts could be considered embodiments of one abstract work, whilst at the same time each being considered a version of the other.

It becomes complex when we want to talk more specifically about the relationship between the written artefacts. These versions can be classified according to how they instantiate the legal fact. Diplomatics has developed a detailed set of considerations for this relationship. There is a legal perspective, in which the relationship can be

distinguished between artefacts which create the legal fact (dispositive document, *charta*)—whose destruction eliminates the legal fact (Sennis)—and those which document an existing legal fact in a way that it can be used as proof in court (evidential / probatory document). In a temporal perspective, the instantiations of the legal fact can represent different stages in the production and use of a charter:

- The *engrossment* or *original* (VID 42) is the version which legal discussion would refer to as authoritative
- A draft can precede it, which is a non-accorded preparatory text
- Finally, copies can follow an engrossment, which convey the correct text representing the legal fact, but carry legal value only in their reference to the original

Going deeper into the historical documentary practice, further forms may be distinguished. In early medieval times in many regions north of the Alps, charters were only considered a written means for memorising a transaction, and the people who could testify this (Johanek; Molitor, "Das Traditionsbuch," "Zum Traditionsbuchwesen"; Härtel 108–17). They are thus evidential, but lack any intrinsic legal value themselves. These *notitiae* were written in a less formal way, sometimes in preparation for, or during, the ritual which brought the legal fact into existence. Many of them have only survived in books (*libri traditionum*), where they were stored in order to gain an overview of monastic possessions and to create a collective memory of the relationship between benefactors and monks (Borgolte). In this case, there is no engrossment of the legal act.

Furthermore, diplomatic culture has created other forms of valid written documentation that should be considered in the context of versioning: in northwestern Europe and England in the 9th to 13th centuries, the practice of *indenture* (or *chirograph*) was widespread. The parties of a contract wrote a duplicate of the text on one parchment, cut it in half between the two texts—often through a word like *chirographum* or through the alphabet written in this place—with each party handed one part to preserve (Bischoff, "Zur Frühgeschichte"; Trusen; Parisse; López and Encarnación; Lowe; Herold; Bedos-Rezak; Groß). Each part could gain value as proof when it corresponded and matched the other. This created two written artefacts, which—theoretically—only represent the legal fact when viewed together, although in historical practice each single part served as documentation in court.

An additional fact to consider is that the diplomatic practice over time creates versions of the same legal fact in different wordings. That is obviously the case with translations, but it even happened in a culture in which no neutral form of contractual agreement existed, so each party had to create a charter declaring its own will to agree on the legal fact. The agreements between the city and Bishop of Lübeck between 1220 and 1230 demonstrate the variety of diplomatic forms that this could take: for example, charters issued by third parties, two charters with the same text and the

same seal but with different names as issuers, and charter text in two engrossments with two seals (Prange).

The Papal administration is famous for similar cases of double documentation. When rights were granted to petitioners, one document was issued addressing the beneficiary, and a second was issued ordering a close by ecclesiastical official to execute the grant. The two documents are of course similar in the core legal descriptive text, but differ in the manner of communication with the addressee. They also differ in form, as the grant carries more solemn features than the order. The difference in physical features has even led to a terminology for these documents. The grant is called *littera cum serico*, as the thread connecting the seal to the parchment is made of silk, while the order is called *littera cum filo canapis*, after the hemp used for its thread. This practice of double documentation even creates single entries for both charters in modern archival and diplomatics metadata (e.g. Barbiche no. 296–no. 300).

This combination of both grant and order were practiced in other administrations, such as that of the Normans in the Kingdom of Sicily (Enzensberger 98–100). Considering the two documents as the representation of a single legal fact hides that the two were designed for entirely different social interactions (order and permission), so the individual legal fact could be considered as a version of the common legal fact. Administrative practice in the Middle Ages, as well as archival practice, shows that this was a common approach. It was usual for the beneficiary to receive both pieces of parchment: the one carrying the text with the grant and the one ordering the grant to be executed. From the grantee's perspective, both documented the same legal fact.

The clerks also created notes when preparing formal engrossments, for example on the back or in the margin of the document. In the Middle Ages, the papal chancery was the first to establish note taking as part of the procedures in central administration, and other central administrations followed (Csendes et al.). In Italy, a different notarial culture developed in the 11th century and spread over the whole continent in the centuries that followed. In this culture, the notary was a person involved in the documentation of a transaction to secure a neutral and authentic version of the agreement. His credibility was so strong, that the notes of the transaction in a notary's register (the *imbreviatura*) could be accepted as proof in court (Costamagna 22–4; Härtel 83–7).

Administrative and legal culture created a variety of other forms of copies, for example those collected in chartularies, those copied on single sheets with no further context, and those inserted into historiographic narratives. The colloquium of the Commission Internationale de la Diplomatique in 1999 (Kosto and Winroth) studied examples of these and even the copies of charters can take a variety of forms, meaning that the legal fact can be taken over by the issuer of a new charter.

This is particularly the case when sovereigns inherit the throne, and older rights are confirmed as still existing. They refer to the *retroacta*, i.e. the charters of the

predecessors brought to the prince's court to prove the rights of the petitioner. At least in German diplomatics, this type of copy is also known as *transsumptum*, while copies executed by people claiming not to be involved in the legal fact carry the name *vidimus*. British diplomatics uses for the latter example the term *inspeximus*. In the case of the *vidimus* the original presented to the court or to the notary is only copied verbally, claiming that the copy and the original are verbally identical and thus prove the same fact. The last method was often used to create formally-incontestable versions of forged documents. Both types of copies repeat large parts of the text of the original, thus they are subsumed under the term of *insertum* in diplomatics terminology, which again creates an unclear situation when talking about versions of charters and leaves a number of questions unanswered. Is it right talk about the full charter, including framing text and inserted original? Or do we talk about the inserted text taken from the older document? Is the copy just a version of the original or an original in its own right, citing the text of an older charter?

The variety of different versions of charters can probably best be modelled starting with the relationship between legal fact and written artefact. The legal fact can be considered a common reference point. Versions of this take the form of written artefacts which are used for a number of different purposes. Some of them can be used as proof in court, some of them bring the legal fact into existence, and others are just a support for memorising information. The legal fact stated in the charters might never have existed (forgery) or the wording given might have changed according to the textual form of the written documentation.

The FRBR term *manifestation* for this kind of relationship might be helpful to reduce the term *version* to relationships between these manifestations of one legal fact/act only. Diplomatics terminology offers different typologies for these versions as *draft*, *imbreviatura*, *engrossment/original*, *authentic copy*, *copy*, *multiple exemplars*, *duplicate*, *vidimus*, or *transsumptum*. For most of them, an accepted VID definition exists, and the concepts can be represented in SKOS in the following way (Vogeler, "Von der Terminologie"):

- vid:353 for the draft[9]
- vid:357 for the imbreviatura
- vid:46 for the engrossment
- vid:54 for an authentic copy
- vid:53 for any kind of copy
- vid:43 for multiple exemplars, to which
- vid:45 (duplicate) is a specialisation.

Only the distinction between *vidimus* and *transsumptum* is defined differently by the VID, as noted by Rolf Große in 1996.

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[9] The prefix "vid" stands in for the namespace string, "www.cei.lmu.de/VID/#VID_".

All of these manifestations of the legal act demonstrate that the sequential relationship which they may possess has to be considered independent from the legal status. While the duplicate originals in a chirograph are contemporary to each other, copies are created later and imply the existence of an original as antegraph. A draft, or the *imbreviatura*, precedes the engrossment and suggests its existence (although it might have never existed). The legal culture around the *notitiae* allows for multiple non-contemporary versions, which can simply be other manifestations of the legal act, while no legally binding original was ever produced. The basic concepts behind the sequence are therefore not very well covered by the terminology of diplomatics itself and could be reduced to the relationships between antegraph, apograph, or duplicate. This certainly applies as well to copies of copies, which leads into the administrative, archival and scholarly practice of creating new versions of a charter in later periods.

2.2 Handling the tradition

The versions of a charter created at a substantially later point than the legal act are handled in several different distinct communities, including administrative practice, archives, and scholarship. Their individual approaches to the charters create other types of versions. It seems straightforward to cover these by using terms such as *description*, *metadata*, *representation*, or *surrogate*, suggesting that they are only referencing the original. Facsimiles are considered surrogates, archival metadata would be called description and scholarly edition would be classified under representation. These forms are compatible with the historical practice described above: copies are the results of the administrative practice in the same way as archives. Thus, archivists worked like medieval copyists and created subject-oriented collections, sorted by subject or issuer. This change in context adds information to the single document and can therefore be considered a new version. Since the 19th century, archivists have changed their approach and now consider the artefacts part of historical records. Most of them follow the archival principal of *respect des fonds* / *Provenienzprinzip*, established as best practice during the 19th century (Mueller et al. 1898; Schwineköper; Uhl). This meant that charters had to be put back into the context from which they originated, again changing the context and therefore the interpretation of the charter. There is even a discussion around whether charters would require a different way for the principle of respect des fonds to be applied (Hartmann and Engelhardt).

Nevertheless, most of archival practice is well covered by the term *description*, which involves metadata helping the archivist to handle the artefacts and the historical researcher to find information documented by the charters. Putting this combination of features of the written artefact together with a verbal description of the legal fact in relationship to other versions can create confusion: There are archives which

prefer the content perspective, putting two physical objects in one description. The Papal chancery issued the incorporation of Berchtesgaden into the archbishopric of Salzburg on June 16th 1393 (AUR 1393 VI 16) in two verbally-identical charters, both authenticated by a Papal bull. The archivists in the Haus-, Hof- und Staatsarchiv decided to put both pieces into one metadata entry.[10]

Focusing on the legal act as well, other archivists split the description of one single artefact into two entries, to reflect the multiple legal facts reported. This can be found, for instance, in the copy of a document for the Hungarian King Andreas II by the chapter of Bratislava in the National Archives of Slovakia, which is in two entries: one for the copied charter (n. 64 ins. 1.1) and one for the charter copy (n. 64).[11]

Scholarship has developed its own methods of representing charters, and they bring another way of conceptualising charters to light. In print culture at least, scholarly editions are considered good representations of a charter. Typical scholarly editions of charters demonstrate that a charter is a combined object. For example, modern editions like those in the MGH Diplomata series include a verbal description of the legal content (*regest*); the transcription or critical text of the document; a description of the textual witnesses to the document; and a critical comment reflecting on the authenticity status, the production and the historical context of the document. It therefore represents all facets of the charters which have been discussed in the first section of this paper: the legal fact (in the *regest* and the critical comment), the artefacts carrying a text (in description of the textual witnesses and the very text itself) and the relationship between both in the critical comment.

However, this also provides a further representation, namely the abstract "text" as reconstructed in a stemmatologic critical edition. Michele Ansani (2006) argued that this method is better-adapted to the study of charters than it might be to other medieval texts. With charters it can be assumed that one authoritative original existed from which all copies derived in different ways. It can also be assumed that the existence of the original was implied in copies—at least in authenticated ones—and most likely in forgeries which gain impact only by being assumed as original. Literary texts on the other hand might result from oral traditions, which were simultaneously written down in different versions, and indeed gained only presence in contemporary culture if the single manuscript was read, which was the authoritative version to the reader or listener.

In the beginning of this chapter the types of charters were introduced, to which Ansani's assumption does not apply (*notitiae*, duplicates etc.), but his position still holds true in the work of 19th and early 20th c. scholarship where the text of a charter was a separately-existing item. FRBR can help to understand this better when it sets

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[10] monasterium.net/mom/AT-HHStA/SbgE/AUR_1393_VI_16/charter.
[11] monasterium.net/mom/SK-SNA/4156-SukromnyArchivBratislavskejKapituly/64%28ins_1.1%29/charter
      and monasterium.net/mom/SK-SNA/4156-SukromnyArchivBratislavskejKapituly/64/charter.

the expression level as essential for bringing the abstract work into existence, while it still does not have to be physically embodied in a manifestation or an item. The stemmatological scholarly editions consider this abstract concept as *text*.

The focus on the text of a charter as an abstract object leads to another form of a charter itself. The linguistic skills necessary to understand the original text of the charters cannot be expected from modern students. In the European Middle Ages most of them were written in Latin, and even vernacular texts are often not any easier to understand for modern students. As charters are an important source of historical information, it seems that translations into modern languages are needed to provide access to the content of the charters—this creates another type of version to consider. An example in print is the source collection in the Freiherr-vom-Stein-Gedächtnisausgabe (Buchner and Schmale). Digital examples of this are the results of a teaching experiment undertaken by Tilmann Lohse in Berlin. Even contemporaries created translated duplicates of a charter (Schulze).

Like historical copies and archival descriptions, scholarly editions can create several different representations of a charter just by re-contextualisation: charters published in a regional collection (Kölzer et al.) can get into a scholarly edition organised by issuer or by archival fonds. This does not change the physical description or the textual representation but can alter the description of the content. Abstracts can highlight information of more importance in one particular context. They can even reduce the content of a charter to partial information of relevance in a totally new context.

The printed version of the Chartularium Sangallense (Clavadetscher and Sonderegger) is an example of this—and with it the online version on monasterium.net. The Chartularium Sangallense contains full editions of all charters if the author, addressee, or the subject is from the Canton of Saint Gall. Additionally, it records all other charters mentioning persons from the region as abstracts highlighting this person. For example, the charter by the Provost of the Cathedral in Zurich confirming the endowment of an annual Mass in the year 1327 is linked to the Canton of Saint Gall only by the provost's origins in Toggenburg, in the heart of the Canton (Clavadestscher and Sonderegger vol. 6, n. 3307). The legal fact reported by these charters might be similar to all the others, but for the research interest of the editors of the Chartularium Sangallense, the name of one witness is more important than the possession granted by the Emperor to a third party.

In addition to the versioning of a charter as draft, engrossment and copy, or as expressions and manifestations of the legal fact, scholarship and archival practice creates additional versions of charters. Examples of this include calendars like the Regesta Imperii or Saywers list of Anglo-Saxon Charters; scholarly editions such as the Monumenta Germaniae Historica or the British Academy Anglo-Saxon Charters series (Campbell et al.); and archival descriptions.

The abstract in a scholarly calendar represents the same charter as the full edition, in the same way that metadata created by the archives does. However, all of them reflect different properties and interests in the charter. For example, the calendar and archival abstracts refer to the legal fact or to historical facts; critical editions represent an abstract text which is a reconstruction based on the relationship of the textual witnesses or analysis of external features and archival conservation work with the artefacts.

The question therefore arises, around whether the relationship between abstract *work* and any forms of expression and embodiment, as suggested by the FRBR model, should really be applied to the relationship between legal fact and written artefact. On the contrary, it seems appropriate to conceptualise the *charter* as an abstract concept on the FRBR work level. This concept refers to an activity of people in the past through which they tried to establish a specific personal relationship with strong bindings, or *legal fact*. The abstract concept of a charter would then be defined by the possibility to find an expression and a physical embodiment of this legal fact. Indeed, many charters are only known by reference in other documents or historiographical reports, a concept which the German diplomatic scholarship calls *deperditum*. Consequently, this would suggest that the concept of *charters* should be defined as a *possibility* rather than an actual *work* according to FRBR. Following the FRBR model, the major form of *expression* is the text of the charter, although it should be taken into account that documents usually carry physical or visual features, such as graphical signs, signatures or seals, which express an important part of the legal fact, of which the linguistic text is not a sufficient *expression*.

3 The digital world

Transferring all these different perspectives on the concept of *charters* into the digital world creates another layer of versions: Certainly, there are the digital transformations of older forms, usually as XML data as they are considered structured text and the use of digital photography has added a visual surrogate to the descriptions and transcriptions.

Beyond the core study of diplomatics, another form of digital representation emerges, which is based on the legal fact documented by the charter, namely that the content of the documents is transformed into databases relating to various research interests. For example, prosopographical databases allow the study of personal networks and careers. Geographical information from the place of issue, the recipient or the location of property allows itineraries to be reconstructed, leading to a definition of a region as *königsnah* or *königsfern*—the concept developed by Theodore Mayer has since been frequently used to interpret regional power constellations—and insights to

be gathered around the distribution of demesne. Since such a database uses a set of information from the charter, every charter entry in the databases can be considered a separate version and calendars are reduced to the facts of interest in the database. The charter itself gains the ontological status of a *source* of information.

The ability of digital media to be easily modified makes this even more complicated. Gunter Vasold describes how the scholarly practice of the division of labour, of revision, and of re-contextualisation could be converted into the digital world, all involving modification. The working group around Ray Siemens calls a part of this practice *social edition*, namely: that a community of practice uses the modern online tools for collaboration on a scholarly edition. This can be done by involving volunteers to help with transcription, by publishing user comments, or by using collaborative bibliographic and text creation tools, for example (Siemens et al.). All of them demonstrate that the digital representation of a charter is not stable. Any model of versions of charters therefore has to take into account the multiple possibilities created by digital versions. As these versions are part of scholarly practice, they can be considered as interpretations or as translations into current discourse, allowing them to remain meaningful or for further meaning to be attributed to them.

4 Formalisation of the model

Figure 1 attempts to visualise the theoretical result of the considerations above. The *charter* frame in figure 1 describes the area in which the relationships between all the concepts considered a *charter* converge. Many of them point to each other, but it is not clear which one is *the charter*. Lots of them could be considered to be instantiations of the written artefact (*draft*, *engrossment: original*, *notita*, *copy*), and a set of these could be used in court (*imbreviatura*, *engrossement: charta*, *authentic copies*). The *charter* frame is easier to identify by the conceptualisations pointing from the inside of the frame to the outside, such as the historical fact documented by the *charter*, or by those pointing form the outside into the frame, such as the digital representations of the *charter*. However, in practice, many of the outside concepts refer to only single concepts in the core of the *charter* area.

4.1 Serialising the model

Developing a consistent model for the versioning of charters has high relevance in the development of a charter portal such as monasterium.net, the world's largest portal for medieval and early modern charters. The source for this material is usually archival data, but it also contains 5,348 transcriptions from the DEEDS dataset,[12]

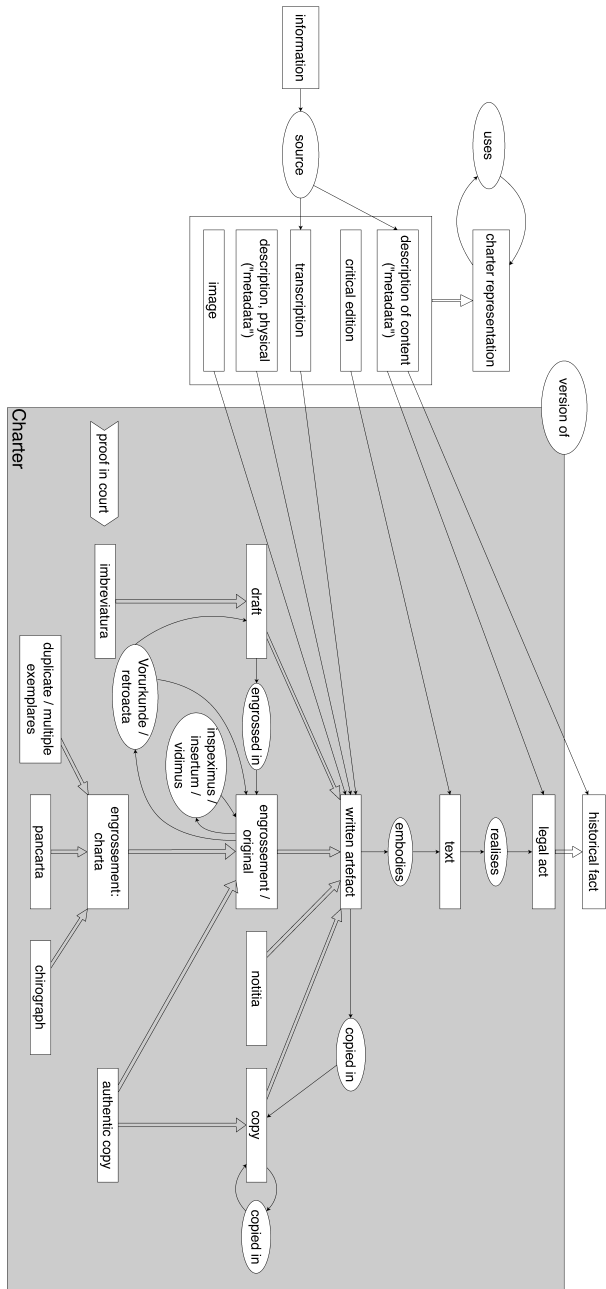[12] monasterium.net/mom/DEEDS/collection.

Figure 1: Graphic of concepts which could be considered versions of charters (and some related concepts).

and more than 40,000 charters extracted automatically from Google OCR.[13] Several archives only provide links to the image hosted on their own servers (for example, the Florence State Archives[14]). Others provide images, but almost no metadata, like many charters from the archives of the bishopric of Passau.[15] Currently, monasterium.net is ingesting data from the Regesta Imperii Calendar (Rübsamen; Regesta imperii V,1,1[16]). Furthermore, projects use it as a platform to publish research collections, such as the *Illuminated charters* project (Roland et al.), which studies charters bearing images or rich decoration from all over Europe.

This variety shows that it should be vital to have a consistent concept of versioning in the resource. The least problematic case is the versioning of the single entries—each charter is represented by an XML file and every change of this file made public can be stored with the versioning functionality built into the native XML-database in the backend (eXist-db). Some of the relationships developed above are part of the data model of each single charter.

The XML schema used is based on the Charters Encoding Initiative (CEI)[17] and is available on GitHub.[18] This schema has sections for the description of the content (`cei:chDesc` with `cei:abstract`, `cei:issued`, `cei:issuer`, and `cei:recipient`) and additional keywords can be marked up as `cei:persName`, `cei:placeName`, `cei:geogName`, `cei:organisation`, or `cei:index`. The description of the artefact (`cei:physicalDesc`) is part of references to several artefacts confirming the existence of charter (`cei:witness`). Here, with the XML element `cei:traditioForm`, the database can describe in a very detailed way the status the version has in relationship to the engrossment. For example, *orig.* would denote that the version in question is the legally binding original. Notes like *cop.* and *ins.* denote the status of the copies. However, as classification lies with the data provider, the descriptions are highly heterogeneous and very often only determined by efficiency in the ingest process. Introducing the model developed above to control the data created and published in monasterium.net more strictly could be a path to better data quality. Additionally, the current version does not realise the description of the sequential relationship of antegraph and apograph.

Monasterium.net is different from other charter databases in that it gives the registered user the possibility to suggest changes to existing data and to create their own digital charter representations. The functionalities of monasterium.net in this respect are currently still under development, but a web-based editor (called *Edit-*

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[13] monasterium.net/mom/collections/by-category#Retrodigitalisierte%20Urkundeneditionen.
[14] http://monasterium.net/mom/IT-ASFi/archive.
[15] monasterium.net/mom/DE-ABP/Urkunden/fond.
[16] www.monasterium.net/mom/RIViI/collection.
[17] www.cei.lmu.de/.
[18] github.com/icaruseu/mom-ca/blob/master/my/XRX/src/mom/app/cei/xsd/cei.xsd.

MOM3[19]) hides the syntax from the user and provides an interface which is reasonably easy to understand. A feature under development would allow the possibility to re-contextualise a charter description by linking it into a user-created collection. The user can add their own interpretations of an existing charter, re-using the image references from the original database entry. The relationship between the source and the user generated interpretation is encoded as `atom:link`. This occurs often in the Illuminated charter collection where there are extensive descriptions of the artistic decoration, usually something not provided by archives.

In the example of monasterium.net/mom/IlluminierteUrkunden/1331-05-25_Wien/charter the archives did not offer an abstract. A similar case of internal linkage is provided by RI V,1,1 n. 1730[20] which has a copy of the data in monasterium.net.[21] This copy links via the `atom:link` to the archival description[22] and additionally to the digital version of the Württembergisches Urkundenbuch (Königliches Staatsarchiv in Stuttgart 1849-1913[23]). In monasterium.net, the use of `atom:link` mark-up follows IETF-RFC4287 and allows a `type` to link to be added with the `@rel−attribute`. The IETF recommends that a controlled vocabulary is used for link relation types[24] for the values in the `@rel`-attribute, however in a charter database, it makes more sense to establish a dedicated taxonomy fitting to the model described above. Simple links such as the one to the WUB receive some semantics from the CEI-Markup. `cei:bibl` shows that it is a bibliographic reference, but it does not tell the user whether the WUB was used as antegraph, as a different description of the same charter, or if the content was partially reused.

4.2 Generalising the model

The question arises: can a general method can be found to formalise the data model in a way such that digital resources could be made aware of the versions that a charter can have and which could refer to versions of the same charter documented in several places? Some formalisations have been introduced in the description above, for example: URIs for concepts from the VID, entities and relationships from the FRBR model, XML elements from the Charters Encoding Initiative and from the Atom standard. Working with the legacy data,like that in monasterium.net, a possible solution would be to introduce controlled vocabularies for the description of links between single charter representations (`atom:link/@rel`, `cei:traditioForm`).

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[19] github.com/icaruseu/mom-ca/wiki/How-to-Use-EditMOM3-Environment.
[20] www.regesta-imperii.de/id/1228-06-00_1_0_5_1_1_2499_1730.
[21] www.monasterium.net/mom/RIViI/1228-06-00_1_0_5_1_1_2499_1730/charter.
[22] www.monasterium.net/mom/AT-StiAStP/BlUKVariaEcclesiastica/BU_430/charter.
[23] www.wubonline.de/?wub=1129.
[24] www.iana.org/assignments/link-relations/link-relations.xhtml.

The use of persistent identifiers for single charters—for examples as URIs—lays the path to a semantic web organisation of their various relationships. In this way projects could identify the same charter when it is available in other databases and could publish lists of concordances with semantic web technologies using the owl:sameAs property to link between two URIs:

```
ri:1226—12—00_4_0_5_1_1_2433_1690
owl:sameAs
mom:AT—StiAStP/BlUKVariaEcclesiastica/BU_429
```

This could be extended if the projects used a common ontology of properties indicating the relationship between the charters, so a statement like the following would be possible:

```
mom:AT—StiASch/SchlierbachOCist/1411_IV_15/copy—1
dipl:authenticated_copy_of
mom:AT—StiASch/SchlierbachOCist/1411_IV_15/original
```

To support this, the results from this study of diplomatics concepts related to versioning of charters are published on GitHub as a draft in RDF (github.com/GVogeler/versioning_charters).

In addition to the relationships between different conceptualisations of a charter the ontology allows it to be stated on which level of the abstraction of a charter the data exposed is allocated, e.g.:

```
mom:AbbayeDeSaintBertin/e9944a8f—2a93—4665—a9e2—eb6c3862bf16
rdf:type
dipl:Charter_text
```

If the database can provide URIs for parts of its description, for example the transcription, the abstract and the archival reference, it could help to address this issue. With XML-data this can be achieved by assigning an ID through adding the xml:id attribute to the appropriate element and referencing it via the XPointer syntax (for example, mom:AT—StiASchl/Urkunden/1404_II_23/#tenor pointing to the transcription of the charter published at www.monasterium.net/mom/AT-StiASchl/Urkunden/1404_II_23/charter#tenor).

5 Conclusion

In her discussion of the possibilities of aligning charter databases according to their content, Rachel Stone concludes that it might be worth having a common data model, but concedes that the effort developing this would probably be unrealistically high. Even the VID does not cover many of the terms necessary for the classification involved in the Charlemagne project. Her argument is supported simply by the amount of possible diplomatic concepts presented in this paper under the perspective of charter versioning.

Attempts to apply the method of versioning to charters in this paper can lead to suggest the expulsion of the term *versioning* from the many core considerations. Editing, transcribing, translating, summarising, describing, transcribing, drafting, engrossing, copying, authenticating, digitising, revisioning, modifying, enhancing, and contextualising are all activities closely connected to the written artefacts documenting legal acts and all create something that can be considered a version of the *charter*. The relationship between the abstract concept of a charter with a rich intension of the term and all of those realisations can serve as the hub between them. The study suggests that it is improbable that a clear-cut definition of *charter* would serve as a starting point in the model. It seems that the conceptualisation of a charter results from a dense network of links between the things which can be easier to identify individually, for example legal acts, written artefacts, linguistic expressions, historical facts recorded by the charter, the digital representations of all of these, and even their aggregation.

This network sorts itself if the sequential feature is placed at the core of the concept of versioning. The creation of a legal fact precedes the drafting of a text, on which one or more engrossments are based. Copies, archival descriptions, and scholarly editions are created later on and can in themselves have versions, particularly in the digital realm, where copying and modifying are made easier and happen all the time. Only the sum of all those activities creates an abstract concept for charters and they all highlight different perspectives on this, including the material, the information conveyed and the linguistics.

This paper has demonstrated some approaches to serialising the data model. It seems that more data structures of the charter database would need to be exposed in a more flexible technology than the usual manner of digital representations of charters. Currently, XML and relational databases—where in both cases the data is usually displayed in HTML format—are the major forms for encoding the data structure of a digital charter representation. RDF, the semantic web data description format, is based on a graph model, which has the advantage of being able to express both data structures.

Currently no complete RDF-based model for the description of charters exists. The concepts of the VID are available as a SKOS-based knowledge base, which offers definitions of the original terminology, but it contains few hierarchical or even generic relationships. The charter projects undertaken at King's College London's department for Digital Humanities (Making of Charlemagne's Europe and People of Medieval Scotland; Broun et al.; Hammond et al.) offer a draft ontology for the legal facts[25] (Bradley and Pasin), which unfortunately contains several inconsistencies and would have to be enriched by many concepts out of the scope of the original

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[25] www.michelepasin.org/ontologies/feudalism/

projects. Therefore, it is essential that a formal ontology for the description of data representing charters is created. Hopefully, diplomatics scholars will take up the challenge. Creating this ontology would contribute another important tool to aid future work on medieval and early modern charters under a digital paradigm.

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    7. www.monasterium.net/mom/CSGVII/collection
    8. www.monasterium.net/mom/CSGVIII/collection
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