Informing *Iniuria* (Insult):
A Proposal for a Database of Roman Law

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Introduction

This paper proposes the creation of a substantive database or knowledge organization system of ancient Roman legal texts (specifically the Digest, part of the *Corpus Iuris Civilis*), discusses its conceptual schema and possible organization, displays the indexing and creation of an index language for a sample, Book 47.10 of the Digest, and discusses interface design. The first sections (1.1-1.2) introduce the Digest, and discusses previous means of access to the Digest and the information needs of scholars. The next sections (2.1-2.2) discuss a general conceptual schema for indexing Digest passages (database documents) and the file structure. The next section (2.3) analyzes the concept of *iniuria* or insult in Digest 47.10, a concept covering assault, defamation, and dishonor. The subsequent sections (2.4-2.7) discuss the creation of an index language and thesaurus, the degree of precombination vs. postcombination, and exhaustivity and specificity. The following section (2.8) discusses linguistic processing as an aid to indexing. The last sections (3.1-3.2) discuss the database interface, including searching, navigation, and document display using HTML, hyperlinks and possibly XML. The aim of a database of the Digest is not just to facilitate the study of ancient Roman law as a subset of the discipline of law, a somewhat arcane aim, but to facilitate the study and searching of the Digest for Roman historians, classicists, and students, and also to make these texts and their ancillary scholarship accessible from the World Wide Web.

1. Information Needs of Users

1.1 Previous Work on the Digest

The Corpus Iuris Civilis consists of the Codex Justinianus, the Digest, and the Novellae, and was compiled by the early Byzantine Emperor Justinian's legal advisers in the 530s A.D. from the extant Roman legal corpus. The Codex and Novellae, which this paper will not deal with, consists of imperial legislation mainly from the third century A.D. through Justinian's period. The Digest was compiled from the writings of the classical Roman jurists (lawyers or legal scholars) from the first through the third centuries AD. There are 50 books of the Digest; it covers the entirety of Roman private law. To give a sense of the scope, each volume of the (unpaged) two-volume English translation by Alan Watson has about 1,000 pages; each page, about fifty lines. Watson is slightly wordier than the Latin text, but in both documents, the excerpts form dense blocks and the total is not human-readable. Linguistic processing (Section 2.8) will be used to extract entities and speed indexing, which will require many experts.

Each chapter of the Digest concerns a discrete legal topic (e.g., D. 5.3, The Claim for an Inheritance; D. 41.1 Acquisition of Ownership of Things) but within each chapter, the excerpts are organized by author. The clauses within these excerpts are numbered, but as this paper will argue, this sub-hierarchy (though it will provide a file framework) is not based on strict inheritance. Furthermore, because concepts in Roman law were intricately related, an excerpt may involve more concepts than the chapter rubric suggests, as well as individuals or categories of people (e.g., slave owner and slave; matron, a married woman of elite status; proconsul, a

Roman governor). Some degree of subject indexing is necessary for modern scholars of Roman law and classical historians who want to use the Digest and the Corpus as historical sources.

Author indexing of the Digest was performed by modern scholars attempting to reconstruct the works of the jurists (most of which do not survive elsewhere, an exception being Gaius's textbook *Institutes*), collating the excerpts by author and title, a task known as palingenesis. Concordances to the Digest and dictionaries of Roman legal concepts were compiled.[1] The problem is that most of these ancillary works, long out of print, are inaccessible to scholars or students unless they have access to a major academic or law library with a substantial Roman law collection. CD-ROM presentations of the Corpus Iuris Civilis with indexing and thesauri have been in preparation but have stalled, possibly because the platforms (PC operating systems) are changing too rapidly.[2] On-line presentation seems to be preferable, partly because it is more accessible, partly because HTML is less easily obsoleted, especially if the pages do not display complex scripts or video.

At present the entire text of the Corpus is posted online at several sites, but the text is not indexed or hyperlinked.[3] Free-text searching for a passage number, an author, or a term or string of words is possible, using a web browser find option, but such searches, especially if the term is at all common, lack both discrimination and full recall: many passages will be retrieved that are irrelevant, and some passages may be missed because their references are anaphoric.[4] One site, Droit Romain, at the Université de Liège, presents a limited number of texts as an instructional aid.[5] The Ius Romanum website, a hypermedia indexing of the Digest, slightly resembling Perseus in its presentation of text, is underway at the University of Saarbrücken in Germany.[6] But its main interest is legal historiography, relating Roman legal texts to medieval and early modern European law. In any case, the Ius Romanum project is not very advanced yet. All of these database projects are produced by Continental Roman law experts; though some of these databases offer English translation, there is no Anglo-American project designed for English as well as Latin.

1.2 Information Needs

The creation of a database of Roman legal sources should help scholars reconstruct the legal authors, examine certain types of legal sources, and collect passages dealing with legal

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[1] A bibliographic survey of these dictionaries, indexes, and concordances is provided by Schiller (1978) , 90-104. In this paper footnote and citation style are those usually used in Classical Studies.

[2] Bibliotheca Iuris Romani, produced by Centro Interuniversitario per l'Informatica Romanistica and distributed by Libreria Editrice Torre, Italy, described at http://www.lex.unict.it/cir/cdrom/bia2/bia2_en.htm; Biblioteca Informatica Tascabile Romanistica, described at http://www.lex.unict.it/cir/cdrom/bitrom/bitrom.htm.

[3] The Roman Law Library (texts in Latin) is recommended, at http://webu2.upmf-grenoble.fr/Haiti/Cours/Ak/index.html. A less satisfactory text of the Corpus Iuris Civilis is also available at the Latin Library, http://www.thelatinlibrary.com/justinian.html. A palingenesis of the jurists is available at http://iuscivile.com/materials/honore/rescripta/, based on Anthony Honoré's *Emperors and Lawyers* (2nd ed., Oxford, 1994). Word and PDF files are available at http://www.umt.edu/law/original-understanding/roman.htm.

[4] On recall, discrimination, etc. Soergel (1985), 120-1; (1994), 589-99.

[5] Droit Romain, edd. H. Born et R. Vigneron, l'Université de Liège, http://vinitor.egss.ulg.ac.be/index.html.

[6] http://archiv.jura.uni-saarland.de/Rechtsgeschichte/Ius.Romanum/deutsch.html.

concepts and facets of the law, including the legal status of persons, or aspects of legal actions (when documents concern cases). Database entries ideally will also list related documents in the Digest and Corpus about a particular issue. The indexing will be complex because the Romans of the late Republic and early Empire had several modes of legal process and many sources of law; case law and precedent were not prominent as in Anglo-American law. Jurists' writings excerpted in the Digest included textbooks such as Gaius' *Institutes*; commentaries, often on the Praetor's Edict (the head legal magistrate); handbooks and monographs on individual legal institutions; *responsa* or advice on cases, the closest thing to case law; discussion of each other's work; and *quaestiones* or discussions of hypothetical cases used in teaching.[7]

In creating a database, the major choice is between entity-oriented and request-oriented indexing. Entity-oriented indexing usually flags only the most obvious terms (author, title); request-oriented indexing is based upon a thorough analysis of user requirements, taking into account need for knowledge above and beyond the obvious bibliographic features of the document.[8] Ideally, the designers of the database would solicit the views of Roman law experts and administrative, social, and economic historians of ancient Rome, as well as classicists expert in Latin prose translation. It would seek their views of the database projects mentioned above. Classical Studies undergraduates and graduate students could represent less experienced users. The questions would include:

• their opinion of the Digest and ancillary materials, including:

> • their opinion of the general usability of print editions
> • their views on the on-line texts
> • their experience with researching Roman law in academic and law libraries
> • the availability of the standard secondary materials

• their opinion of Roman law database projects that have already appeared
• what they would like to see in a Roman law database
• whether they would be willing to contribute to the project, either directly or in the form of a wiki that will also make the work accessible as it progresses.

The questions below represent a request-oriented indexing of sorts because the author of this paper has worked with the Digest (both Watson and Latin editions and ancillary materials) when writing her doctoral dissertation in Roman history, *The Marriage of Roman Soldiers (13 B.C. - A.D. 235): Law and Family in the Imperial Army* (Leiden: Brill, 2001). It was particularly hard to do a subject search, especially for status groups, with mere free-text searching. The Latin-English edition, Watson (published also as English only) is unhelpful as a finding aid, being printed in massive blocks without clear divisions. Reading through the Latin in a first pass is exhausting and not useful for large-scale searches.

The following questions represent possible queries of users of a Roman law database and will help formulate relationships between entities.

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[7] Schiller (1978), 276-302, 385-92; Robinson (1998), 42-48; Johnston (1999), 5-8.
[8] Soergel (1985), 227-36; (1994), 590; emphasis on needs of users, 44-45, 384-385; Soergel Lecture 8.2b, p. 329.

Basic Bibliographic Information
- Who wrote this document?
- What text did it originally belong to?
- What kind of text was the original?
- When was the original text written?

Legal Concepts
- What is the general legal concept?
- What are the specific legal concepts?
- If the document is a definition, where does the definition belong in the general schema of Roman law? What are its broader and narrower terms?

Persons
- If the document describes or debates a case, who were the parties involved?
- What were the legal statuses of the parties?
- What were the genders of the parties?
- What were their legal roles (plaintiff or defendant)?
- Did they act on their own behalf?

Legal Processes
- What legal process was employed?
- Who or what was the arbitrating entity (the praetor or legal magistrate, his Edict, laws and decrees of the Senate, the emperor, a provincial governor, a jurist advising a case?)
- What was the resolution?

Bibliographic Notes
- What documents are related?
- What are the prominent linguistic features (idioms, etc.)?
- What is the most important bibliography on the topic?
- Has the text been interpolated (revised or added to) post-classically?

Such questions move us towards formulating a conceptual schema that enumerates the entities and relationships that feature in the database.

The users of the Roman law database will include both experts in Roman law and Roman social history, who need to find concepts, terms, and passages in a manner more fine-tuned than brute-force free-text searching, and students of Roman law and society, who need a guide to the Digest and more accessible sources, especially since most colleges and universities do not have specialized Roman law collections. For this reason the database will also feature a Latin dictionary and encyclopedia of legal concepts.

2. Structuring an ISAR

Structuring the database requires the creation of a conceptual schema on which to base file structure, and the creation of a controlled vocabulary of concepts used to fill the

file slots in a consistent and structured manner. The most important structure is provided by the controlled vocabulary or index language, since a computerized database query application such SQL or as MySQL does not itself *know what words mean*; it retrieves entity values from slots or fields in files. File structures that do not repeat information are also necessary; as Section 2.2 shows, it may be necessary to create separate small files for the clauses of an excerpt and for the parties in cases.

2.1 Conceptual Schema

The conceptual schema defines entities (which are abstract, permanent concepts) and the binary relationships between them, and specifies filling rules for determining the specific attributes or values of the entities.[9]

Roman Law Database Fig. 1: Conceptual Schema

Entity Types	**Filling Rules**
E1 Identifier	Digest passage number (e.g., D. 47.10.1.2)
E2 Document	Digest passage
E3 Text	Actual text, as opposed to abstract document
E4 Author	Name of jurist
E5 Title	Title of excerpted work
E6 Date	If known; may be approximate, e.g., mid-2nd century A.D.[10]
E7 Rubric	Title of chapter of the Digest
E8 Type	Type of excerpted work, e.g., textbook, *responsa*, *quaestiones*
E9 Concept	Legal concept (Not all Latin terms are legal concepts)
E10 Subject	Subject (flexible)
E11 Party	Party in case
E12 Name	Name of party in case
E13 Gender	Gender of party in case (male or female)
E14 Status	Legal status of party in case
E15 Role	Role of party in case (plaintiff or defendant)
E16 Agency	Agency of party in case (on own behalf or for another)
E17 Process	Legal process if present, e.g., formulary, *cognitio*
E18 Arbitrator	Arbitrator if present, e.g., jurist, governor, emperor
E19 Resolution	The legal decision (if present)
E20 Notes	Notes or commentary
E21 Idioms	Unusual or important expressions in the text
E22 Bibliography	Modern bibliographic notes, including notes on the text
E23 Interpolations	Interpolations if any (non-classical additions or deletions)

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[9] Soergel Lectures 2.1-2.2, pp. 31-60.

[10] The biographies of the jurists are often vague, dating their lives within part of a century, Schiller (1978), 311-365.

Relationship Types
R1 Document <has> Identifier
R2 Document <authored by> Author
R3 Document<has>Title
R4 Document<has>Date
R5 Document<has>Text
R6 Document< has>Rubric
R7 Document<is>Type
R8 Document<deals with>Concept
R9 Document<deals with>Subject
R10 Concept<relates to>Concept
R11Concept<displayed by>Document
R12 Concept<has>Bibliography
R13 Concept<deals with>Subject
R14 Subject<relates to>Subject
R15 Document<involves>Party
R16 Party<has>Name
R17 Party<has>Status
R18 Party<has>Role
R19 Party<has>Agency
R20 Document<involves>Process
R21 Process<has>Arbitrator
R22 Process<has>Resolution
R23 Document<supported by> Document
R24 Document <has>Idiom
R25 Document<has>Bibliography
R26 Document<has>Interpolation
R27 Document<has>Notes

This conceptual schema is intended to be flexible, rather like MARC fields which are applied or omitted as necessary. As with 650 subject headings in MARC, some entities (especially Concept, Subject, and those pertaining to Parties) will be repeated as necessary to cover the different legal concepts and the status and roles of parties in the case. Repeated entity types that could be confusing to the file structure will be assigned to child files (Section 2.2). Some Digest documents are definitions and will not contain detail about cases, actors (plaintiff and defendant), or legal process.

How concepts relate to concepts and how concepts are displayed by documents will be made clearer in the sections of this paper discussing index language and navigation.

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2.2 File Structure

Because the Digest already has a hierarchical structure, the database will take the form of hierarchical frames, termed *object-oriented* files.[11] To index each passage separately (e.g., D. 47.10.7.pr, 47.10.7.1, 47.10.7.2) would require a great deal of repeated information, as is shown for D. 47.10.7.pr and 1, the repeated information shown in bold face. Linguistic features, supporting documents and bibliographic notes are not included in these examples.

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[11] Soergel Lecture 5.1 p. 95.

Roman Law Database Fig. 2a: Flat Files

Identifier: 47.10.7.pr
Author: Ulpian
Title: Edict 57
Date: early 3rd c.
Rubric: Iniuria
Type: Commentary
Concept: Action for iniuria
Subject: Process
Arbitrator: Magistrate

Identifier: 47.10.7.1
Author: Ulpian
Title: Edict 57
Date: early 3rd c.
Rubric: Iniuria
Type: Commentary
Concept: Action for iniuria
Subject: Violence as insult
Party: Owner of murdered slave
Status: Freeborn
Role: Plaintiff
Agency: On own behalf
Party: Murderer of slave
Role: Defendant
Agency: On own behalf
Process: Action for iniuria
Arbitrator: Magistrate
Resolution: Action granted

The second file also repeats entity types for the two parties involved (as will be explained, the owner of a slave or head of a household regards an insult to his dependent as an insult to himself). This could be confusing to a database management program.

The object-oriented database model is preferable, organizing the files hierarchically, so that the files for individual clauses in each excerpt with the same heading store only non-repeated information, as follows; child files are also created for the two parties in D. 47.10.7.1.

Roman Law Database Fig. 2b: Object-Oriented Files

Parent file

Identifier: D. 47.10.7*
Author: Ulpian
Title: Edict 57
Date: Early 3rd c.
Rubric: Iniuria
Type: Commentary
Concept: Action for iniuria
Arbitrator: Magistrate

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The following child files inherit the slots of the parent:

Child file

Identifier: D. 47.10.7.pr.
Subject: Process

Child file

Identifier: D. 47.10.7.1
Subject: Violence as insult
Process: Action for iniuria
Resolution: Action granted

Grandchild files (child files of D. 47.10.7.1)

Party: Owner of murdered slave
Status: Freeborn
Role: Plaintiff
Agency: On own behalf

Party: Murderer of slave
Status: Freeborn
Role: Defendant
Agency: On own behalf

The sub-files inherit the general concept and type of document (here a commentary on the Praetor's Edict, a major source of civil law) from their parents, but also feature legal cases, concepts and details not present in the parents. With an object-oriented database, a database management application like SQL can perform the desired functions of examination (in which all data pertinent to a document is examined) and lookup (in which all documents or a subset of documents is queried for a certain descriptor).[12]

2.3. Analysis of the Concept of *Iniuria* (Insult)

In order to perform request-oriented indexing of D. 47.10 and create an index language or taxonomy of legal concepts, it is necessary to analyze the concept of *iniuria* in this chapter. Such analysis facilitates both indexing, and ultimately searching.[13] What will be carried out here is not so much *semantic factoring* as the identification of *discrete legal concepts* within these cases.

Insult, an intentional offence to a person's body and personality, was defined as a delict rather than a crime. In delict, the injured party applied to the legal magistrate for an *actio* (action, legal proceeding) against the offender. If the case was tried and the offender lost, the offender

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[12] Soergel (1985), 182, 195.
[13] Soergel (1994), 591.

paid a fine that was regarded as a punishment rather than as compensation to the victim.[14] A concept map of the process appears in the Appendix.

> Gaius' *Institutes* 3.220-225 divides *iniuria* into
> (1) forms of physical assault (e.g., striking, hitting, etc., where the principal motive is to offend);[15]
> (2) offensive speech (spoken or written);[16]
> (3) acts that offended the victim's social reputation.

These forms are variegated and the common concept becomes apparent only upon analysis. Insulting speech might take the form of a charivari in which the offender(s) shouted derogatory chants, termed *convicium* in the jurists, or of the publication of derogatory epigrams or other writings (both practices are attested elsewhere, as in the epigrams mocking emperors such as Caligula and Nero). It might be *iniuria* to violate someone's personal space, such as his or her home (the offender breaks and enters with the intention of insult rather than theft or murder).[17] It might also be *iniuria* to deny someone the public space he or she was entitled to, e.g., to prevent someone from sitting in the theater or using the public baths.[18] The jurists debate whether the owner of a beachfront residence committed *iniuria* if he prevented another from fishing the ocean in front of his house.[19]

Some forms of *iniuria* depended on Roman social mores. A man committed *iniuria* if he accosted or followed a young or married woman of respectable status (freeborn and not a prostitute), because such behavior cast aspersions upon her sexual character and the character of her father or husband.[20] Modesty was expected of young girls and married women; to be seen in the company of strange men impugned their chastity. Adolescent boys might also be accosted and followed; homosexual behavior was widespread in the early Empire, but not respectable.

A person could become liable for *iniuria* if he appeared in public wearing dirty and torn clothes and let his hair and beard grow (or if female, let her hair down).[21] Displayed by mourners, these behaviors were also employed by suppliants, including plaintiffs: such behavior could be directed against an enemy implying his wrongdoing. A person could be liable for *iniuria* if he claimed the property of another, asserting that the other owed him unpaid debts (shameful behavior). A person committed *iniuria* towards the heir of a deceased person if he mistreated the corpse.[22] These are all definitions embedded in concepts of public honor and shame and in the public, open-air nature of many Roman business and legal transactions, including contracts and the legal cases that were tried outdoors in the Forum. A Roman

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[14] Berger (1953), 502; Jolowicz and Nicholas (1972), 272-274; Frier (1989), 177-200 (discussing each conceptual type).
[15] Cf. Paul, *Inst.* 5.4.6-8.
[16] D. 47.10.15.2-3, 5-6, 8, 12 (Ulpian).
[17] D. 47.10.23 (Paul).
[18] D. 47.10.13.7 (Ulpian).
[19] D. 47.10.13.7 (Ulpian).
[20] D. 47.10.15, 20-22 (Ulpian).
[21] D. 47.10.18.27, 31-32 (Ulpian).
[22] D. 47.10.1.4 (Ulpian).

magistrate might also offer insult or be insulted; it might be *iniuria* to jeer at him or to deny someone public honors.[23]

The common concept appears to be reputation or personal identity, with the subcategories of physical body, personal space, verbal or written representations, sexual reputation, legal reputation, financial reputation, and religious reputation (it was impious to mistreat corpses). A head of household also gained or lost reputation secondarily, from the behavior and reputation of his dependents; it was possible to insult him by offending them (Gaius, *Inst.* 3.221-2). Indexing of the Digest passages on *iniuria* will represent the facet of personal identity and other facets and also make note of the concrete behaviors involved; the law on *iniuria* would be relevant to a history of social conduct or a history of gesture and rhetoric, as well as to a history of sexuality.

As an attribute of a person, reputation or social identity is a facet of Roman law. Another facet of the cases on *iniuria* (as is already apparent from the examples above) is the legal status of the parties involved in the cases. Legal status (in contrast with more general personal identity) was one of the explicit major facets of Roman law, stated by Gaius in the *Institutes*: *All our law is about persons or things or actions. . . All persons are either free or slaves; among the free, some are free-born, while others are freedpersons.* (Gaius, *Inst.* 1.8-9). The law of persons, distinguishing different aspects of legal status, included citizenship (Roman or alien), which does not apply in our sample but which would appear in the overall hierarchy. It also includes legal capacity: some people were *sui iuris* or had independent legal capacity, while others (freeborn, not slaves) were *alieni iuris*, lacking full legal capacity. The latter included married women and children. It was a peculiarity of Roman law that as long as the father remained alive, his children and grandchildren (including adult sons and grandsons) remained formally dependent, *in paternal power* (*patria potestas*) and unable to formally own property. To represent the cases in D. 47.10 with clarity, the indexing should show the legal statuses of both plaintiffs and defendants and whether the plaintiffs themselves or their dependents sufered *iniuria*.

It becomes apparent from the passages in D. 47.10 that intention is another facet of the law of *iniuria*: the offender needs to have the intention to insult, whereas the victim needs to be conscious of the insult and be emotionally outraged.[24] Certain kinds of people had special legal statuses, mentioned in D. 47.10: the insane (*furiosus*, a so-called maniac) and pimps and prostitutes (probably intended by *improbus*, so-called disgraceful person). *Furiosi* were denied many legal privileges and were required to have guardians; pimps and prostitutes could not initiate certain legal processes. They are included in D. 47.10 on *iniuria* because the insane person lacks the intention to insult; respectable people should ignore pimps and prostitutes, the jurists seem to imply.

2.4 Enumeration

We are moving towards a faceted classification of *iniuria* and of the general aspects of Roman law that interacted with it, including the legal statuses of the parties, their legal roles and the legal process involved, the intentions of the parties, and the resolution of the case. It is probably impossible to display graphically all these facets in a readable manner. The three main facets (type of insult, status of plaintiff, and status of defendant), without depicting process,

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[23] D. 47.10.13.3-4 (Ulpian).
[24] D. 47.10.3.pr-3 (Ulpian); D. 47.10.11.1 (Ulpian).

intention or the outcome, are tabulated below in an enumeration of possible combinations. Ideally, this would be a three-dimensional table with one combination per volume.

Roman Law Database Fig. 3
Combination of facets A (Personal identity), B (Status of plaintiff) and C (Status of defendant) in D. 47.10. Intentions and dependents of principal actors are not shown.
Read e.g., A2B1C2 as *Personal space of freeborn person violated by freedperson.*

Forms of insult to personal identity, including body, personal space, and social personality

Plaintiff (victim) B	Physical body A1	Personal space A2	Sexual reputation A3	Financial reputation A4	Legal reputation A5	Religious reputation A6	Represent ation A7	Defendant (offender) C
Freeborn person B1	A1B1C1 A1B1C2 A1B1C3	A2B1C1 A2B1C2 A2B1C3	A3B1C1 A3B1C2 A3B1C3	A4B1C1 A4B1C2 A4B1C3	A5B1C1 A5B1C2 A5B1C3	A6B1C1 A6B1C2 A6B1C3	A7B1C1 A7B1C2 A7B1C3	Freeborn person C1
Freed person B2	A1B2C1 A1B2C2 A1B2C3	A2B2C1 A2B2C2 A2B2C3	A3B2C1 A3B2C2 A3B2C3	A4B2C1 A4B2C2 A4B2C3	A5B2C1 A5B2C2 A5B2C3	A6B2C1 A6B2C2 A6B2C3	A7B2C1 A7B2C2 A7B2C3	Freed person C2
Slave B3	A1B3C1 A1B3C2 A1B3C3	A2B3C1 A2B3C2 A2B3C3	A3B3C1 A3B3C2 A3B3C3	A4B3C1 A4B3C2 A4B3C3	A5B3C1 A5B3C2 A5B3C3	A6B3C1 A6B3C2 A6B3C3	A7B3C1 A7B3C2 A7B3C3	Slave C3

In practice, only some of these combinations had actual warrant, including literary warrant, i.e., passages in the Digest displaying them, and legal and social warrant, their likelihood to be recognized in law. The jurists' writings concerned (in their words) things that are common and that usually happen. (Unreal cases are shaded in the grid above.) For instance, only attacks on the physical bodies of slaves were actionable, as insults directed against their owners. The physical attacks had to be serious assaults, not mere hitting or slapping, attesting the abuse (petty physical and verbal abuse, sexual harassment, denial of personal space) slaves probably received in Roman society, against which the slaves had no legal recourse. The jurists debated when freedpersons were justified in suing for *iniuria*, as a freedperson (former slave) was supposed to defer to his or her patron (former owner) and to the freeborn in general. The personalities of freeborn persons, especially of elite status, were much better defended by law. So it is not necessary to enumerate all combinations.

2.5. Index Language and Lead-In Vocabulary

Analysis of subject terms for our Roman law database (for our sample D. 47.10) seeks to establish terminological control and create an *index language* or set of subject descriptors in which synonyms are relegated to lead-in terms, homonyms are disambiguated, and the hierarchical relationships of descriptors are made clear.[25] This is also a *taxonomy* of Roman legal

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[25] Soergel (1985), 60, 246-7.

concepts. The index language together with the lead-in vocabulary is called a *thesaurus*. A hierarchic thesaurus orients the users in the conceptual framework and enables the users to formulate queries and search more efficiently.[26] Users increase recall if they carry out inclusive searches using broad descriptors, and increase discrimination if they carry out searches with narrow descriptors.[27]

2.6. Postcombination and Precombination

The question in this system is whether to subject index the database with elemental descriptors (simple legal concepts) or to use more highly precombined descriptors.[28] Examples of the subject indexing of the Digest passages on *iniuria* with elemental descriptors would be as follows (for clarity, both cases are the invention of the author of this paper)

Roman Law Database Fig. 4: Postcombined Subject Headings

This case concerns a freeborn male suing another freeborn male for insulting his legal reputation; the defendant adopted a disheveled appearance, going unshaven and wearing dirty clothes, to imply that the plaintiff had wronged him.

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[26] Soergel (1985), 317.
[27] Soergel (1985), 317; (1994), 598.
[28] Soergel (1985), 257, 299; (1994), 591.

Case 1:

Identifier:	D. 47.10.x
Author:	Jurist
Title:	Title
Date:	Date
Rubric:	Iniuria
Type:	Commentary
Concept:	Action
Concept:	Iniuria
Subject:	Identity
Subject:	Reputation
Subject:	Legal
Subject:	Physical appearance
Subject:	Unkempt
Process:	Actio iniuriarum

Child file

Party:	Freeborn
Gender:	Male
Role:	Plaintiff
Agency:	On own behalf

Child file

Party:	Freeborn
Gender:	Male
Role:	Defendant
Intention:	Conscious

The next case concerns a freeborn husband and head of household suing for *iniuria* because another freeborn male accosted his wife in public, thus insulting her sexual reputation and her husband. (To add to the case, the defendant mistook the wife for another woman.)

Case 2:

Identifier:	D. 47.10.y
Author:	Jurist
Title:	Title
Date:	Date
Rubric:	Iniuria
Type:	Commentary
Concept:	Action
Concept:	Iniuria
Subject:	Identity
Subject:	Reputation
Subject	Sexual
Subject:	Accosting matron

Child file

Party:	Freeborn
Gender:	Male
Role:	Plaintiff
Agency:	On behalf of wife

Child file

Party:	Freeborn
Gender:	Male
Role:	Defendant
Intention:	Unintentional

This *postcombination system* is easily adapted to the on-line format. The user need not formulate so complex a Boolean query when an HTML query form could be set up to select the genders, statuses, roles, etc. of parties with radio buttons. However, the user would still have to formulate (for the firs instance) the query *Iniuria AND Identity AND (Legal AND Reputation) AND (Unkempt AND appearance).* A postcombination system requires the creation of more data fields and requires the user of the database to know the descriptors of simple concepts in order to combine them in a Boolean query. There is always the chance of ambiguity, that the elemental descriptors might be combined inappropriately, resulting in false drops.

The alternative would be the use of one or several *precombined* descriptors or compound concepts in indexing. Instances of extremely high precombination (using the same cases above)

would be *Legal reputation of freeborn male violated intentionally by male* or *Sexual reputation of matron violated unintentionally by male.* But this degree of high precombination is probably excessive and inflexible. High precombination is typical of library classification systems in which one slot has to be found for each book on the shelves, and the content of books is fixed. In a legal or medical knowledge organization system, the legal concept or the disease or condition in question is best represented as a precombined descriptor, but other facets of the particular case or diagnosis are going to vary. In the example of Roman *iniuria* the variable descriptors include the statuses of the parties, their legal roles, their degree of agency, the intention to offend, and the outcome of the legal action. In such a system, the elemental descriptors making up the precombined descriptors appear in the thesaurus rather than in the records of the documents.

In a somewhat precombined system, the subject indexing will look like this:

Roman Law Database Fig. 5. Precombined Subject Headings

Case 1:

Identifier:	D. 47.10.x
Author:	Jurist
Title:	Title
Date:	Date
Rubric:	Iniuria
Type:	Commentary
Concept:	Action for Iniuria
Subject:	Insult to legal reputation
Subject:	Unkempt appearance
Process:	Action for iniuria

Child file

Party:	Freeborn
Gender:	Male
Role:	Plaintiff
Agency:	On own behalf

Child file

Party:	Freeborn
Gender:	Male
Role:	Defendant
Intention:	Conscious

Case 2:

Identifier:	D. 47.10.y
Author:	Jurist
Title:	Title
Date:	Date
Rubric:	Iniuria
Type:	Commentary
Concept:	Action for Iniuria
Subject:	Insult to sexual reputation
Subject:	Accosting matron

Child file

Party:	Freeborn
Gender:	Male
Role:	Plaintiff
Agency:	On behalf of wife

Child file

Party:	Freeborn
Gender:	Male
Role:	Defendant
Intention:	Unintentional

2.7. Thesaurus

In the case of D. 47.10, a possible thesaurus is shown below (for clarity, English has been used except for a few terms). *Insult to sexual reputation, Insult to legal reputation*, etc. are moderately precombined descriptors. Indexing is with high importance (concepts essential, not circumstantial or accidental, to individual cases). A concept map of the basic types of *iniuria* is also shown in the Appendix.

Roman Law Database Fig. 6. Thesaurus of Subject Descriptors

These terms are inherited, so that the term *theater* does not cover every reference to theaters in the Digest, only the cases of *iniuria* in which someone inflicted insult by denying someone else entrance to the theater. As lead-in vocabulary, some Latin terms and English terms are given as synonyms (ST), though the finished database could display two functionally equivalent thesauruses in Latin and English. Related concepts, not explained or enumerated here, are given as RT. The broader and narrower terms are *preferred terms.*

***Iniuria* (Insult)** UF *contumelia*, Greek *hubris* (Eng. to outrage, offend, disrespect) RT Delict

NT 1 Insult to personal identity BT *iniuria*

NT 1.1 Insult to physical body ST assault BT 1 Insult to personal identity
NT 1.1.1 Hit BT 1.1 Insult to physical body
NT 1.1.2 Thrash (SN: *aggravated*) ST *verberare* BT 1.1 Insult to physical body

NT 1.2 Insult to personal space ST Encroach BT 1 Insult to personal identity
NT 1.2.1 Trespassing BT 1.2 Insult to personal space
NT 1.2.1.1 Breaking and entering BT 1.2.1 Trespassing RT Theft

NT 1.2.2 Denial of public space BT 1.2 Insult to personal space
NT 1.2.2.1 Theater BT 1.2.2 Denial of public space
NT 1.2.2.2 Baths BT 1.2.2. Denial of public space

NT 1.3 insult to representation ST Slander, libel BT 1 Insult to personal identity
NT 1.3.1 Charivari ST *convicium* BT 1.3 Insult to representation
NT 1.3.2 Scurrilous writings BT 1.3 Insult to representation

NT 1.4 Insult to social reputation ST Embarrass BT 1 Insult to personal identity
(*SN:Eng. embarrass fails to convey the social disgrace that such insults were intended to confer on the victim, except perhaps English euphemisms for white-collar crime, e.g. the financial embarrassment of Bernard Madoff.)*

NT 1.4.1 Insult to sexual reputation ST *pudicitia adtemptare* BT 1.4
Insult to social reputation
(SN: *of women, boys*; for men, SEE *infamia*)

> NT 1.4.1.1 Accost BT 1.4.1 Insult to sexual reputation
> NT 1.4.1.2 Follow BT 1.4.1 Insult to sexual reputation
> NT 1.4.1.3 seduce BT 1.4.1 Insult to sexual reputation RT
> Adultery, *stuprum (SN: Lat. illicit sexual activity with
> unmarried females)*

NT 1.4.2 Insult to legal reputation BT 1.4 Insult to social reputation

> NT 1.4.2.1 Adopt disheveled appearance BT 1.4.2 Insult to legal
> reputation RT Plaintiff (Behavior)

NT 1.4.3 Insult to financial reputation BT 1.4 Insult to social reputation
> NT 1.4.3.1 Demand alleged repayment BT 1.4.3 Insult to financial
> reputation RT Debtor; creditor

NT 1.4.4 Insult to religious reputation BT 1.4 Insult to social reputation
> NT 1.4.4.1 Dishonor corpse BT 1.4.4 Insult to religious reputation
> RT Proper disposal of cadavers

Concepts not particular to *iniuria* (representing other facets of law):

Legal status

NT 1 Degree of freedom BT Legal status
> NT 1.1 Free ST *liber* (sc. *homo*, person) BT 1 Degree of freedom
> > NT 1.1.1 Freeborn ST *ingenuus* BT 1.1 Free
> > NT 1.1.2 Freedperson ST *libertus* BT 1.1 Free
> NT 1.2 Slave ST *servus, ancilla* BT 1 Degree of freedom

NT 2 Legal capacity BT Legal status

> NT 2.1 Full capacity ST *sui iuris* BT 2 Legal capacity
> > NT 2.1.1 Head of household ST *paterfamilias* BT 2.1 Full capacity
> > NT 2.1.2 Widow BT 2.1 Full capacity

> NT 2.2 Lacking full capacity ST *alieni iuris* BT 2 Legal capacity
> > NT 2.2.1 Wife ST *uxor, coniunx* BT 2.2 Lacking full capacity
> > NT 2.2.2 Adult Children ST *filius familias*, *liberi* BT 2.2 Lacking full
> > capacity RT *patria potestas*
> > NT 2.2.3 Insane person ST *demens, furiosus*, maniac BT 2.2 Lacking full
> > capacity

NT 2.3 Lacking any capacity BT 2 Legal capacity
NT 2.3.1 Slave BT 2.3 Lacking any capacity
NT 2.3.2 Minor children BT 2.3 Lacking any capacity

NT 3 Citizenship BT Legal status

NT 3.1 Roman BT 3 Citizenship
NT 3.2 Alien ST *peregrinus* BT 3 Citizenship

Public status [not a legal status, but social]

NT 1 Emperor ST *princeps*, *dominus* (Latin *lord, master*) BT Public status
NT 2 Magistrate BT Public status
NT 2.1 Consul BT 2 Magistrate [others not listed here]
NT 3 Senator BT Public status
NT 4 Private citizen BT Public status
NT 5 Soldier BT Public status

Natural relationships

NT 1 Gender BT Natural relationships
NT 1.1 Male BT 1 Gender
NT 1.2 Female BT 1 Gender

NT 2 Head of household ST *paterfamilias* BT Natural relationships
NT 2.1 Dependents RT *alieni iuris* BT 2 Head of household RT *Patria potestas*
NT 2.1.1 Wife BT 2.1 Dependents
NT 2.1.2 Children ST son, daughter; *filius*, *filia*, *liberi* BT 2.1 Dependents

Status of parties in legal case

NT 1 Role BT Status of parties
NT 1.1 Plaintiff ST Aulus Agerius *(SN: Stock name, from Latin agere, to do)* BT 1 Role
NT 1.2 Defendant ST Numerius Negidius *(SN: Stock name, from Latin negere, to deny)* BT 1 Role

NT 2 Agency BT Status of parties *(SN: Agency with respect to role in legal case only, related to legal capacity in that the party had to be sui iuris)*
NT 2.1 On behalf of self BT 2 Agency
NT 2.2 On behalf of another BT 2 Agency

NT 3 Number BT Status of parties

          NT 3.1 Singular BT 3 Number
          NT 3.2 Multiple BT 3 Number

     NT 4 Intention (SN: *of defendant)* BT Status of parties

          NT 4.1 Conscious ST Premeditated, deliberate *(SN: of action)* BT 4 Intention
          NT 4.2 Not conscious BT 4 Intention
               NT 4.2.1 Insane BT 4.2 Not conscious
               NT 4.2.2 Unintentional BT 4.2 Not conscious

Legal process

     NT 1 Action ST Lawsuit, prosecution BT Legal process
               NT 1.1 *actio iniuriarum* (others not shown) BT 1 Actio

     NT 2 Arbitrator ST Judge BT Legal process
          NT 2.1 Magistrate BT 2 Arbitrator
          NT 2.2 Governor BT 2 Arbitrator
          NT 2.3 Emperor BT 2 Arbitrator
          NT 2.4 Jurist BT 2 Arbitrator

     NT 3 Status of action BT Legal process
          NT 3.1 Granted BT 3 Status of action
          NT 3.2 Not granted BT 3 Status of action

2.8 Degree of Exhaustivity and Specificity

     In indexing Digest 47.10, the indexers should adopt viewpoint exhaustivity, representing all of the entities provided in the conceptual schema. The indexers also need to decide whether they should employ high importance or low importance exhaustivity. The index language sketched above focuses on terms of high importance to Roman legal contexts. Low importance exhaustivity would also index terms unrelated to the legal concepts that might be of interest to the database users.[29] The Digest, especially the chapters on property law and contract law and on marriage, divorce, and inheritance, contains a great deal of information relevant to economic and social historians of antiquity. The case (D. 47.10.13.7) in which the jurists debated whether it was *iniuria* to forbid a man to fish with a net in front of one's beachfront property, might be of interest to economic and social historians. In general, higher exhaustivity tends to increase retrieval.[30]

     The success of a query of the Roman law database will depend on how specific it is and on the degree of exhaustivity. A general query of a broad concept, such as *iniuria*, will generate

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[29] Soergel (1994), 591-592.
[30] Soergel (1994), 596.

greater recall if it is inclusive; a specific query of a narrow concept, such as *insult to sexual reputation*, will achieve the recall of only a few results, but greater discrimination.

2.9 Linguistic Processing

Due to the great length of the Digest, the extraction of entities and the indexing will be partly achieved by automated linguistic processing. Linguistic processing can extract the index term entities from Latin text in a first pass, providing estimates of the *aboutness* of a certain document.[31] Human indexers would need to examine the texts more closely, of course; linguistic processing is not a substitute for human translation, but an aid to it.[32] The lowest level of linguistic processing is morphological; the database needs to store or import the morphological forms of Latin nouns and verbs, Latin being a highly inflected language (fig. 7). Such files would enable syntactic processing and the linking of morphological variants with their parent term and concept.

For syntactic processing, the next level of linguistic processing, computerized parsing methods for English would have to be adapted to Latin, as syntax in Latin depends on word endings, not on word order and stop words (Latin lacks definite articles). The database would have to disambiguate homonymous declensions (e.g., *servo* as ablative and as dative singular) by context, such as the preceding preposition with many ablative nouns or the presence of a verb requiring a dative. Homonymous conjugations of verbs are rarer but can occur.

Roman Law Database Fig. 7

Concept	Declension
servus (slave)	servus (nom. sing.)
	servi (gen. sing.)
	servo (dat. sing.)
	servum (acc. sing.)
	servo (abl. sing.)
	servi (nom. plural)
	servorum (dat. pl.)
	servis (abl. pl.)
	servos (acc. pl.)
	servis (abl. pl.)

Semantic processing is the next highest level of linguistic processing. Syntactic parsing and semantic processing of Latin could detect words that flag turns in an argument, e.g. verbs of assertion or definition (*dicere*, *constare*) and words that signal doubt (*dubitare*, to doubt) or conclusion (*itaque*, therefore; *haud dubie*, without a doubt). As example, D. 47.10.1.pr (Ulpian *ad edictum* 57) is a definition: *Iniuria ex eo **dicta est**, **quod** non iure fiat* (Insult [*iniuria*] is so

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[31] Soergel Lecture 6.1a pp. 139-41; Feldman, "NLP Meets the Jabberwocky," Soergel Lecture 6.1a Opt. 1.
[32] Soergel Lecture 5.2a, Reading 2.

called because it involves lawless behavior), employing an *it is called…because* formula. The NLP program could search for the stem of *dicere* (*to speak, say*, including *dictus/a/um est, dicitur*) followed by *quod* (*that, because*) within the same sentence. Definitions, as was seen above, require special indexing because they lack the entities found in cases or in legal texts commenting on cases.

       Semantic processing can identify entity values, including parties and their status and role; syntactic processing can also identify the degree of agency of parties, e.g., are women and slaves always parties to whom things are done, appearing in the accusative (direct object) case or dative (indirect object) case, or do they as often appear in the nominative (subject) case? Semantic processing can identify laws, rescripts, and other sources (see Fig. 8 for terms). Not all Digest passages referring to these sources may use their titles, and detection of anaphoric references may be necessary. The highest levels of linguistic processing involve discourse analysis and the application of real-world context. Linguistic processing would also assist in the detection of interpolations, post-classical additions to the juristic writings of the late Republic and early Empire. These have semantic, syntactic, and discourse-level flags that are already well studied, such as post-classical vocabulary, incoherent or incohesive digressions, and obvious glosses.[33]

Roman Law Database Fig. 8

Legal Sources	
Lex (pl. *leges*)	Laws passed by the Senate & People
Senatus consulta	Decrees of the Senate
Imperial *constitutiones*	
Decreta	Judgments by the emperor
Edicta	Imperial edicts
Rescripta	Replies to petitions on legal issues; letters to communities

3. Interface

The interface of an ISAR system with its end users is also a very important aspect of design. Does it help them to meet their needs? Does it assist them to locate the kind of information they need and to formulate queries? Does the system present its output in a fashion that is comprehensible and that promotes learning and further searching?

3.1 Query

       The structure of a query of an ISAR should reflect its conceptual schema and its index language.[34] The entities listed in the conceptual schema will serve as access points in the query

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[33] Schiller (1978), 63-83; Robinson (1998), 105-113; Johnston (1999), 17-22.
[34] Soergel (1985), 241-242.

form, enabling searching by Digest document number, author, title, date, concepts, etc. As the section on precombination and postcombination suggested, the query formulation of the Roman law database will employ both precombined descriptors and the postcombination of elemental descriptors. The dichotomy between precombination and postcombination is theoretical and does not reflect practice in many on-line ISARs. To enable users to use precombined descriptors, the database will make its thesaurus available on its web site. Users can also choose elemental descriptors (such as Plaintiff, Free and Male from a selection of radio buttons describing the parties in cases) to create postcombined descriptors, querying a legal concept and a status group to see how they are related. The interface will also enable free-text searching, which may be most natural to beginners and which would enable advanced scholars to query specific phrases of interest to them that the indexers cannot be expected to plan for.

In effect, the database will need to supply a bilingual lead-in vocabulary, both Latin and English. Users may come to the database searching for lay and legal terms in English for which there is no precise Latin equivalent. Many legal terms in Latin have no precise English equivalent; *iniuria* is one such term. Ideally, the database would offer both Latin and English texts, displaying Latin as hypertext that can be clicked to open a window showing the definition of the word in English and its morphological forms in Latin, as in the hypermedia site Perseus's presentation of Greek text. This is helpful because it may not be possible to offer Alan Watson's English translation of the Digest for reasons of copyright.

Ideally, the Roman law database would detect the nature of users' queries and respond to them in an interactive manner. Queries of a very general nature (suggesting the user's need for introductory material or material of selected relevance) would produce a display of choices:

    (a) an introductory or definitive text (English);
    (b) classes or categories featuring the term;
    (c) an index page to all Digest passages featuring the term;
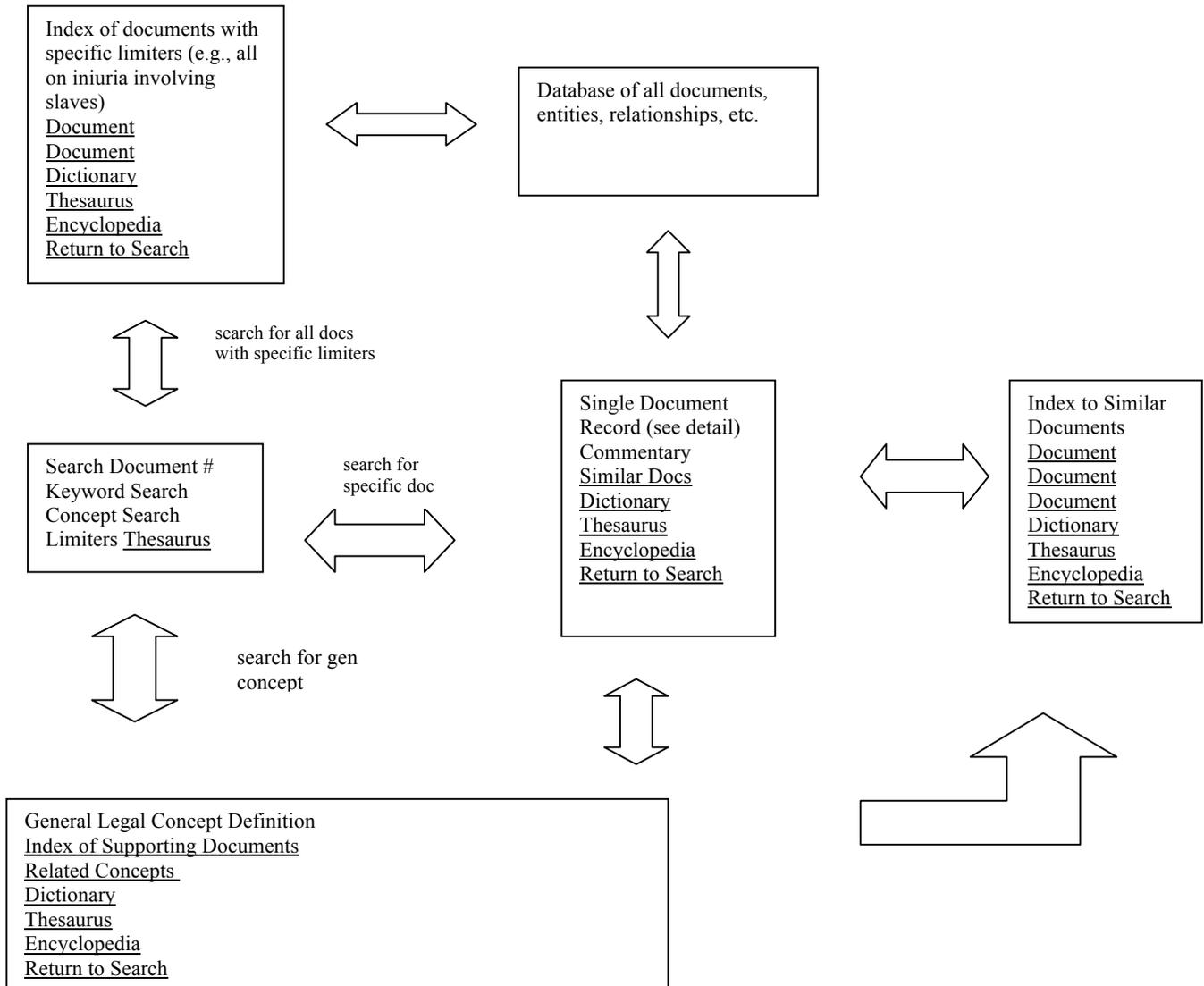   (d) secondary bibliography.

Of course, the program does not actually know that the user needs general information; it recognizes a query term as a core concept in the thesaurus hierarchy. For instance, a query for *slave* (Latin *servus*) would, unless the user selects otherwise, take the user to a definition and brief history of Roman slavery and to classes of documents concerning slaves in the Digest, an index to all passages with slaves, and a brief secondary bibliography on the legal status of slaves. The system could also respond to users' needs for kinds of output by providing limiters on the number of records, the number of lines shown, the language (Latin / English), and the number of supporting citations.

3.2 Output Records and Navigation

The Roman law database will be an on-line database, with text displayed in HTML.[35] It is possible to structure it with links from one level of the database to another (search query form, index of passages, individual document records, thesaurus, individual concept pages) in a manner that is easier to show than describe (next page).

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[35] Soergel Lecture 6.1b pp.179-82.

In this diagram, underlined passages are hyperlinks; dictionary, thesaurus and encyclopedia pages are not shown. Not every word in Latin or English is a legal concept. All Latin words could be linked to the dictionary, but only some words are values of the entities defined in the conceptual schema or terms in the thesaurus.

Index of documents with specific limiters (e.g., all on iniuria involving slaves)
Document
Document
Dictionary
Thesaurus
Encyclopedia
Return to Search

Database of all documents, entities, relationships, etc.

search for all docs with specific limiters

Search Document #
Keyword Search
Concept Search
Limiters Thesaurus

search for specific doc

Single Document Record (see detail)
Commentary
Similar Docs
Dictionary
Thesaurus
Encyclopedia
Return to Search

Index to Similar Documents
Document
Document
Document
Dictionary
Thesaurus
Encyclopedia
Return to Search

search for gen concept

General Legal Concept Definition
Index of Supporting Documents
Related Concepts
Dictionary
Thesaurus
Encyclopedia
Return to Search

Detail: Document Page (Display)

DOCUMENT IDENTIFIER
Author Title Date

TEXT

RECORD ELEMENTS
Type of Document
Concept
Subject
Subject
Parties (Role, Status, Gender, Agency)
Process
Arbitrator
Resolution
Idioms
Interpolations
Bibliography
Notes

NAVIGATION
Digest Rubric
Similar Documents
Broader Concept
Narrower Concept
Dictionary
Thesaurus
Encyclopedia

[NEXT PAGE]

It is possible to link entity-relationship pairs and broader and narrower descriptors with hyperlinks and to link any one term to its definition or to a page with an index of passages that use the same term. Latin words could be hyperlinked to their English translations and to morphological variations of the same word, using a dictionary function as in Perseus. The work to create such hypertext, however, unless it was automated using linguistic processing software, would be very extensive. The thesaurus could hyperlink each concept to its definition and to a page displaying or listing the documents that contain it. It is best to make the structure of the database as transparent as possible to its users.[36]

It is not clear how useful XML (eXtensible Markup Language) would be to this database, being used to encode tags for different data entities and to prescribe schemas for documents with standard entries. XML is often used for documents that must change content constantly while keeping the same format. The XML tags would have to be specific to the Roman law database, because RDF and the Dublin Core metadata schemes are devised mainly for general bibliographic annotation of modern sources and are not specific enough for a complex discipline. Many modern disciplines have their own version of XML. The XML tags for the Roman Law Database could be used to create a document template that would display the Latin text and the indexing information below it, along with any bibliographic notes and commentary.

4. Conclusion: Prospect and Scope

Even with automated linguistic processing, producing a database from the Digest (later the entire Corpus) will be a long-term project requiring the cooperation of classical scholars, experts in Roman law, and information architects and Web designers. Ideally each area of the law would require its own specialist to index subjects and write bibliographic notes, e.g., the Justinianic production of the Digest and history of the jurists (the subject of the Digest's first sections), administration, family and inheritance law, slavery, contract and sale, military law, penal law, etc. After a core classification of the law is produced, based on divisions that the Roman authors perceived, each core class may require a slightly different conceptual schema and of course its own index language.

[BIBLIOGRAPHY AND APPENDIX NEXT PAGES]

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[36] Soergel Lecture 6.2a p. 185.

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Appendix: Concept Maps

grants if justified

Magistrate → actio iniur.

application to
Magistrate for
actio iniuriarum

commits iniuria
against

Defendant → Plaintiff

but if guilty, must pay

insult to dependent transmits

Dependent
of Party 2

Roman Law Database
Concept Map no. 1
Process of Suing for *iniuria*

financial

legal

religious

sexual

Roman Law Database
Concept Map no. 2
Aspects of *Iniuria*

reputation

harms

violates

personal
space

INIURIA
(Insult)

assaults

Body

mocks

representation