Citation for published version


DOI

Link to record in KAR

http://kar.kent.ac.uk/42386/

Document Version

UNSPECIFIED

Copyright & reuse
Content in the Kent Academic Repository is made available for research purposes. Unless otherwise stated all content is protected by copyright and in the absence of an open licence (eg Creative Commons), permissions for further reuse of content should be sought from the publisher, author or other copyright holder.

Versions of research
The version in the Kent Academic Repository may differ from the final published version. Users are advised to check http://kar.kent.ac.uk for the status of the paper. Users should always cite the published version of record.

Enquiries
For any further enquiries regarding the licence status of this document, please contact: researchsupport@kent.ac.uk

If you believe this document infringes copyright then please contact the KAR admin team with the take-down information provided at http://kar.kent.ac.uk/contact.html
Gnome on the Range: Finding the Hypertextual Narratives in Ancient Wisdom Texts

K. Faith Lawrence  
Department of Digital Humanities  
King’s College London  
26-29 Drury Lane, London, UK  
faith.lawrence@kcl.ac.uk

Anna Jordanous  
Centre for e-Research  
King’s College London  
26-29 Drury Lane, London, UK  
anna.jordanous@kcl.ac.uk

ABSTRACT
In this paper we present the Sharing Ancient WisdomS (SAWS) project. Working with wisdom texts, or gnomologia, the project aims to produce an enhanced digital scholarly edition of the collected manuscripts which both makes the Greek, Arabic and Spanish texts available and demonstrates the hypertextual nature of these texts. By positioning the texts as collections of sayings, of which a given manuscript only shows one narrative path, we demonstrate how a hypertextual approach allows us to explore alternate narrative paths within and across the texts and support researchers as they study the context, significance and transmission of the wisdoms within these works.

Categories and Subject Descriptors
H.5 [HCI]: Hypertext/Hypermedia; J.5 [Arts and Humanities]: Classics

Keywords
Hypertext, Narrative, Linked Data, Digital Humanities, RDF, TEI XML, Manuscripts, Multilingual, Gnomologia

1. INTRODUCTION
This paper will present the work being done within the Sharing Ancient Wisdoms (SAWS) project to publish a selection of Gnomologia, or wisdom texts, and expose and visualise the relationships that exist within and between them. We argue that documents of this type represent collections of largely independent sections which exist as conceptual constructs outside the framework of any given edition. By regarding these textual nodes as separate entities which can be linked by the configuration of a published manuscript but also to each other across manuscripts through a variety of other relationships we can begin to discover the hypertextual network behind the works and gain new ways of looking at these textual elements and the narrative paths that can be drawn between them.

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, to republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee.

NHT’13, May 1, 2013, Paris, France.  
Copyright 2013 ACM 978-1-4503-2005-4/13/05... $15.00

This paper presents the technological, structural and presentational framework developed by the project and shows how this supports the hypertextual readings of the texts being used within the project.

1.1 Parallel Corpora and Hypertextual Links
The presentation of texts in multiple displays has a long history. Mimicking the common academic practice of having multiple books open at once it provides a familiar way of displaying a variety of manuscripts and other material on one screen. As a presentation tool for digital humanists it has enjoyed a popularity among researchers dealing with texts with multiple versions, either diachronic or synchronic variations or translations, or for the display of commentary and text together. For example, parallel text displays have been an especially useful technique within Bible studies(4) with tools such as the Bible Web App freely available online1 for Biblical scholars, both inside and outside academia.

Outside Bible studies, frameworks such as the Versioning Machine(7) provide ways to visualise the multiple versions of a text in parallel, complete with critical commentary. In the case of multilingual texts, parallel corpora are commonly used to display translated texts2. The Translation Array: Version Variation Visualization3 is using parallel displays to present multiple translations of Othello.

The question of alignment(12), that is matching up related areas of text at paragraph, line or word level when the documents are displayed in parallel, was one of the big challenges in the presentation of parallel corpora. The use of computer processing in this area means that while owing much to translation studies, today a significant amount of research in parallel corpora is driven by linguistic processing and is related to computation-driven applications such as machine/computer–aided translation and machine–aided learning(11). Within the SAWS project the decision was taken for the alignment to be driven by the manual annotation of relationships by our researchers due to both the expert knowledge required and the time needed to prepare the texts for computational analysis. As a result these annotations are seen within the project as scholarly claims within their own right, and with associated citation. Following the

1http://biblivewebapp.com/v2/app/index.html
2Texts maybe directly or indirectly translated. Indirect translations occur when the texts are linked via another text or texts
3http://www.delightedbeauty.org/vvvclosed/
model laid down in the SAWS ontology (see below) the an-
notated relationships lay down the groundwork for not only
the alignment between given manuscripts but the hypertex-
tual network and narratives paths within that network.

SAWS builds on and shares many of the methodologies of
parallel corpora, comprising of a collection of related texts
and translations. However the project differs in its focus
on the use of linked data to model and expose the network
of relationships that exist within and across the corpora,
allowing us to see a saying, the building blocks of our texts,
in not only its manuscript contexts but in the context of
other related sayings from other manuscripts.

2. SHARING ANCIENT WISDOMS

The SAWS project was funded under the 2009 HERA Cul-
tural Dynamics: Inheritance and Identity call to promote
the study and understanding of Greek and Arabic wisdom
texts. Bringing together experts from the University of Vi-
enna, University of Stockholm and King’s College London,
SAWS works with Arabic(2), Greek(5; 6), and Spanish texts,
some previously unpublished, along with modern English
translations. The initial texts were selected by the experts
at the partner institutions who would be leading the docu-
ment markup and preparation (see below). As well as mak-
ing the texts more accessible to scholars and researchers, the
SAWS project aims to expose the links and connections that
exist between the sections of the documents beyond the im-
mediate textual structure, allowing the hypertextual links
and narratives of the works to be navigated and explored.

At the current time the SAWS corpus includes selections
from Codex Bodleianus Digby, Codex Parisinus Graecus,
Codex Vaticanus Graecus, Codex Vindobonensis, Graecus
Theologicus, Proclus’s The Elements of Theology (ed. Dodds),
Haci Mahmud Efendi, Bocados de Oro, Muhtar al-hikam wa
mahasin al-kalim, Miscellany Ayasofya, and excerpts from
Ali ibn Rabban al-Tabari’s Firdaws al-hikma. It is hoped
that the corpus will be expanded in the future, either di-
rectly or through partnerships with similar projects.

2.1 Gnomologia

Gnomologia or wisdom texts, historical collections of gnomes
or aphorisms, proverbs and good advice, are of significant
interest to classicists, byzantinists, medieval historians and
philosophers as they formed a crucial route by which con-
cepts fundamental to philosophy and ideas of behaviour and
conduct were disseminated across the classical and Byzan-
tine world and beyond. One key point of interest is the over-
lap between the texts, with some sayings appearing in
some form in multiple texts showing transmission and trans-
lation across the manuscripts. The terms aphorism and say-
ing are used interchangeably in this paper to refer to the
distinct subsection of text that makes up that textual node.
The history of the proverbs collected within our sources con-
tains many unknowns, with pivotal parts of the literary cor-
pus lost. While there is evidence that the extant source
documents contain aphorisms which were themselves taken
from earlier works, in some cases undergoing translation in
the process, there is little direct evidence of the transmission
chain beyond the similarities in text. In many cases the evi-
dence points not to a direct connection but to a hypothesised
intermediary manuscript.

Even where the texts themselves exist the bibliographic meta-
data related to them may be missing or in doubt. Details
such as the author, location and time of creation may be
unknown. Additionally the text as a conceptual work may
have been pieced together from multiple, incomplete and/or
damaged examples. Since these works had to be copied by
hand, different versions of the same manuscripts often con-
tain errors, editorial amendments and areas of illegibility
which the scholar must evaluate to divine what they believe
to be the intended output.

2.3 Narrative Paths

If we regard the source texts not as a selection of manuscripts
but as a collection of aphorisms which may be structurally
located in one or more places across the body of material,
then we see they not only have a narrative path dictated
by their physical structure, as decided by the collector of
a given selection, but can legitimately be understood and
studied though alternative narrative paths. We argue that
the chain of links between the text nodes as created by the
aphorisms represent a narrative pathway which can be ex-
plored to tell the story of the saying over and through differ-
ent facets and relationships. Example paths of interest for
the scholars within the SAWS project include the linking of
sayings, linearly and in parallel, with and across collec-
tions by topic, conceptual reference, collection author, as-
cribed author or speaker of the aphorism and variations of
an aphorism.

The order in which individual sayings or themed groups of
sayings appear in different manuscripts holds particular
value for some researchers. Continuing our projection
of these manuscripts as representing selected paths through
the collection of aphorisms, we can regard this as an exam-
ple narrative and treat it in the same way as an instance of
a reader’s interaction with a work of hypertext which may be
recorded, replayed and viewed.

For others, the slight variations in aphorisms between ver-
sions are of great scholarly interest. This is especially true
for the texts selected for the SAWS project as they in-
clude source texts from difference languages and cultures but
which contain the same sayings. The diachronic journey of
a given aphorism as it passes between different authors and
cultures represents a narrative path that would have been
very interesting to expose and present. Unfortunately this
was not possible to implement in our particular case due to
the lack of existing information. While approximate dates
for source texts are estimated, there is not enough evidence
for scholars to date when the saying moved across cultures,
such as Greek to Arabic or vice versa, or even, necessar-
ily, the direction of transmission as the extant manuscripts
cannot be conclusively said to represent the first instance
of use, just an instance that has survived through to the
modern day.
The lack of temporal or other definitive hierarchy means that any given group of related sayings can be interrogated from any starting point and with no restrictions on order so long as direct links are followed. One of the main aims of the project is to allow researchers to navigate the textual content in the manner, forefronting the interconnected and often parallel existence of the aphorisms, going beyond what is currently found in standard implementations of digital editions of historical texts.

3. BEYOND DIGITAL EDITIONS

In creating the digital edition of the texts it was seen as important to not only present the text in a traditional scholarly edition but to offer researchers ways to visualise and explore the paths between the text sections and then see the text within those contexts.

The source texts were all XML-encoded by researchers at partner institutions, each taking responsibility for documents in their specific areas, and languages, of expertise. To allow direct reference to any given section such as an aphorism, a script was then run on the XML documents to assign unique identifiers to each tagged area. Initially, structured but otherwise meaningless identifiers were used; however this was seen as a less than ideal solution(3). The project is in the process of moving to the Canonical Text Services protocol, an emerging citation standard within digital humanities, for our identifiers(8).

The project uses the TEI XML standard(9) for text encoding. One aspect was to develop a customised TEI schema to define more specifically how the parts of the texts should be described across the partner institutions. Further, an ontology was developed to lay out the conceptual model of the relationships between the text sections within their related contexts and provide a taxonomy of terms for use by the scholars involved in the markup process.

The SAWS ontology was developed as an extension of FRBR-oo(1) with significant input from the domain experts as to what relationships could be stated to exist with acceptable scholarly rigour and therefore what narratives could be created across the texts. These relationships were also encoded in the XML through the use of the TEI relation entity(10).

Kiln, created by researchers at King’s College London, is a platform for deploying websites driven by XSL transformations of XML encoded source files. In conjunction with Solr, this framework offers the potential to create indexed and browsable scholarly editions. Additionally XSLT was used to extract the relationships as RDF triples which could then be used to power the visualisation and navigation of the generated narrative paths (see Figure 1).

To allow more dynamic views of the textual sections as controlled by the user, the libraries behind the Versioning Machine framework(7) were expanded and repurposed. Using the mechanism for displaying parallel versions we converted the system to take a collection of aphorisms, initially the collections defined by the historical texts, to populate the parallel views. Options were then given to the user to highlight sections which had a link to another section of text, automatically lining up linked sections horizontally across the parallel views. Highlighting was used to emphasise the cross-view path with the different types of relationships being colour-coded. (see Figure 2).

The framework is still under development (see below). As it is extended further and fully integrated within the digital edition, the option to define the collection of sayings which will populate the vertical views will be given to the user. This will allow thematic or non-structurally related groups, or even individual sayings, to make up the vertical axis in addition to collections defined by a given document, further breaking the aphorisms out from their linear textual structure.

4. FUTURE WORK

The framework described above has been used to create a static demonstrator to assist humanities scholars working with the project to gain a better understanding of how such a treatment of the manuscripts would support their needs. Following these discussions a more specific set of visualisation options was agreed upon and those options, as part of the dynamic version of the extended digital edition, are under development. As part of this ongoing development we hope to carry out user interaction testing to improve the usability of the edition for humanities researchers and others with an interest in this area.

We are also in discussion with researchers working with other corpora with similar compositions and complex interconnections with a view to both expanding the manuscripts that are included in our application and exporting our methodology to other projects.

5. CONCLUSIONS

Scholars working with ancient wisdom texts are interested in the interconnections between and transmissions of aphorisms collected within their manuscripts. Through the use of multiple display techniques we are creating ways to allow researchers to interact with this source material as hypertextual narrative. By positioning the texts in this way we can expose the narrative paths that exist within and across the manuscripts and allow scholars to follow and recontextualise the wisdoms as significant objects in themselves, facilitating their study beyond a proscribed pathway as presented in a given manuscript.

In this paper we have laid out the reasons why we have chosen this methodology for the manuscripts used in the SAWS project and how we have implemented this in a way to support scholars in their research through the exposure of the narrative paths, both historic and conceptual, that exist within and between those documents.

6. ACKNOWLEDGMENTS

The SAWS project is funded by HERA (Humanities in the European Research Area) as part of a programme to investigate cultural dynamics in Europe. It is composed of teams at the Department of Digital Humanities and the Centre for e-Research at King’s College London, University of Stockholm and the University of Vienna.

References


