



Opening the ARK: Uncovering the socio-technical evolution of an archaeological database

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Problematising Archaeological Databases

The 'Technical Code'

Within the field of sociology of science and technology (SST) studies, it is now well-established that **the technical design and social values of the creators (and users) of technologies are interrelated**. Technical solutions to archaeological data management are not only 'epistemologically significant' but the variety of database systems also acknowledges the implicit **complexity of the interaction between the 'technical capabilities' and the motivations and interests of the individuals and organisations** that have driven their development [1].

The 'Blackbox'

"When an instrument....assumes the status of an accepted means of producing valid phenomena, then it can be said to have become a 'black box'...[T]his is not simply a matter of [hardware configuration], but also involves the creation of a consensus of how the hardware should be understood." (Golinski 1998) - <http://bit.ly/golinski1998>



Some Questions

- To what extent have archaeological databases been blackboxed? Are we overlooking the influence of software developers on the creation of archaeological representations?
- What might a 'technical code' approach reveal about the socio-technical development and evolution of archaeological database software? What are the consequences of this critical engagement for archaeological practice?

Proposing a Case Study



- Using the Archaeological Recording Kit (ARK) to track the evolution of an archaeological database system
- With the aims of understanding the social and technical constraints which have influenced its development

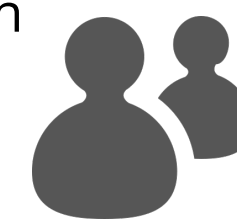
Background to the ARK

ARK has been under continuous development by L - P : Archaeology since c. 2004. Eve and Hunt (2007) provides a detailed account of the motivating factors for the development of the ARK project recording system. A summary of this is provided below, for further info see: <http://bit.ly/evehunt07>.

Post-Processual Theory

Reflexivity

- Archaeological process as co-production
- Emphasis on 'data' as interpretation, foregrounds issues in assuming objectivity



Multi-vocality

- Recognition of multiple narratives in interpretation

Early Aims

Flexibility
'Open'
Web-based
Spatial
User-friendly

The aims of ARK, from the outset, recognised the existing issues with the recreation of bespoke solutions to data management, but also sought to better integrate multiple types of archaeological **representations** (seen as 'media') into a single package.

Hypertextuality

Docuverse/Transclusion

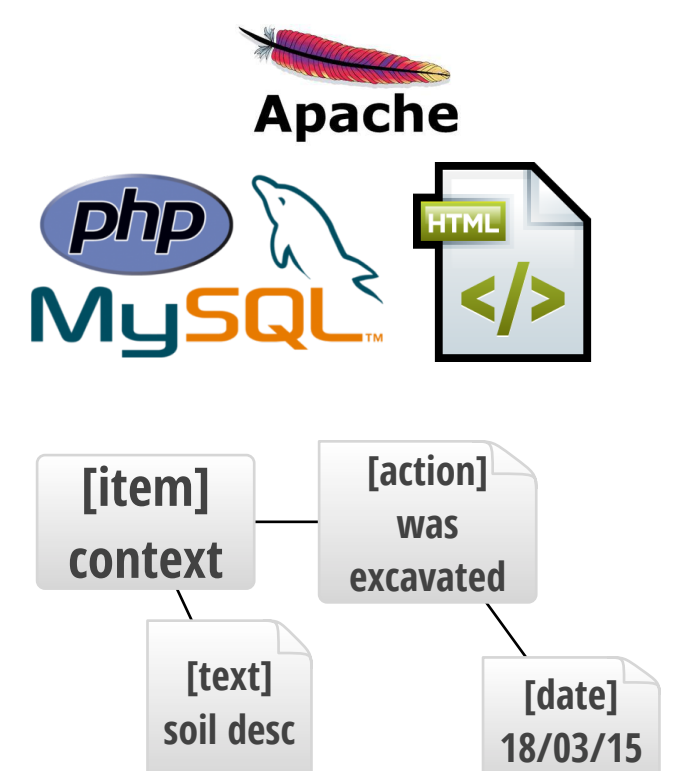
- Nelson's idea that data should never be held twice, simply transposed elsewhere. Importance of provenance.

Hyperlinks + Eternal Revision

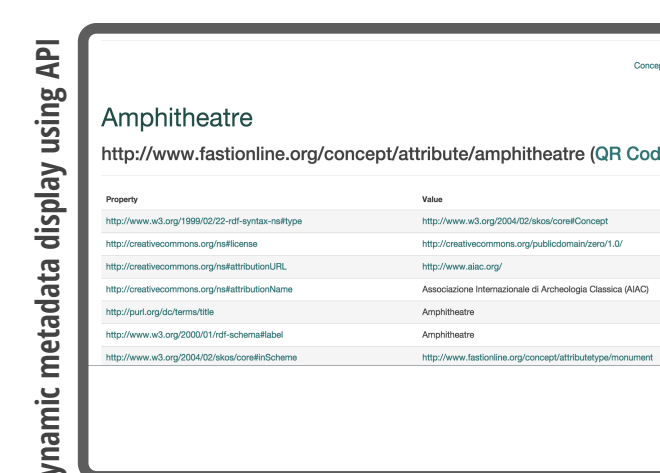
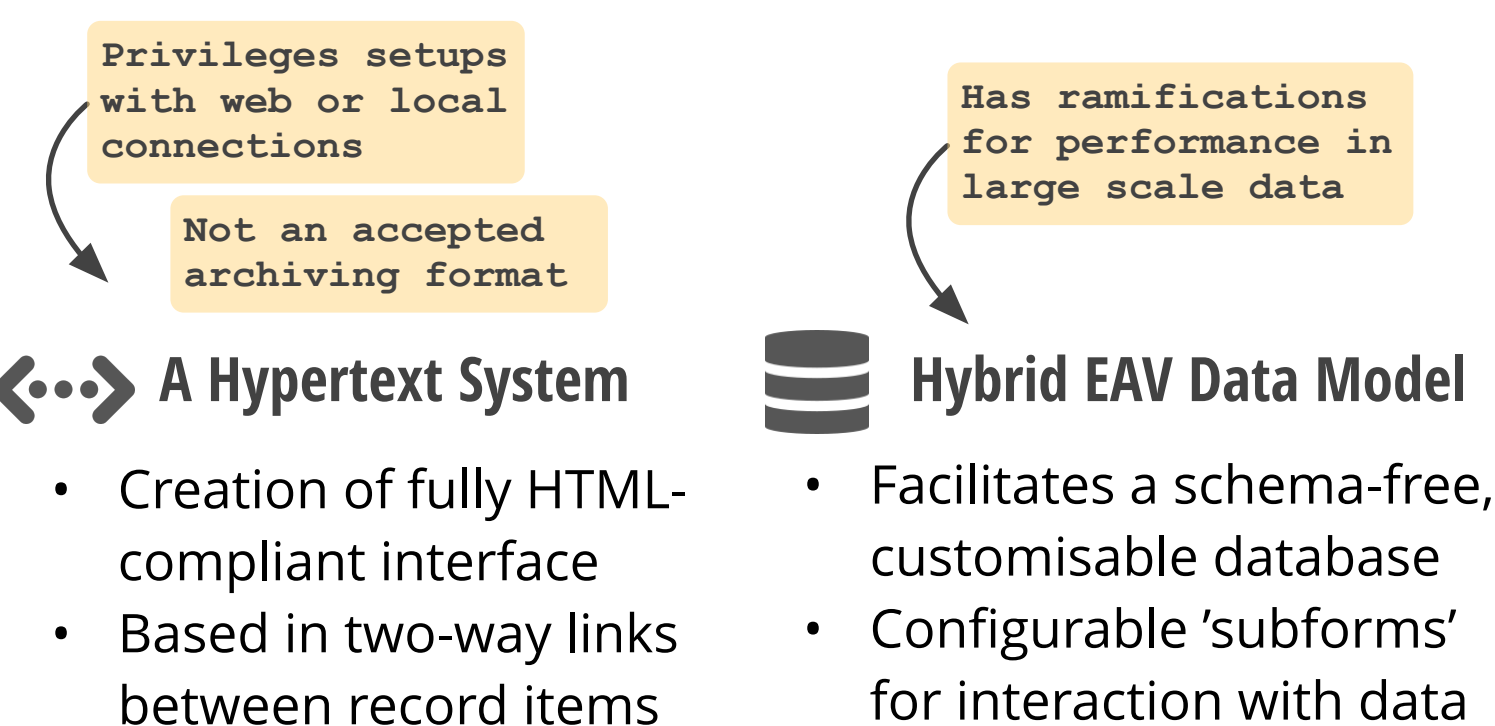
- Non-linear navigation with bi-directional linking through the information space
- All data iterations logged, transparent revisions

What Is It?

- ARK is built on open, industry web standards
- Data is held in a 'hybrid' **Entity-Attribute-Value** model, constructed using **items and fragments**



Mapping Aims to Functionality



Critical Engagement

- Reflects a shift in development focus, from ARK as a 'media container' towards the development of tools which allow wider (machine-readable) interaction with the system
- Continues to highlight questions surrounding sustainability and preservation of data reliant on dynamic technologies

Looking Forward



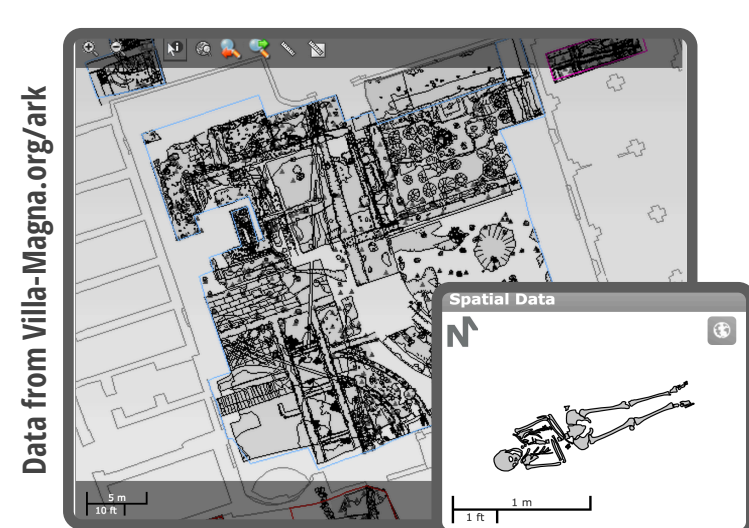
Import/Export

- Uploads and downloads in non-proprietary formats

Free and Open Source

- Published under GNU licence

No consistent streams of funding for development.



WMS/WFS Integration

- Open Layers integration for spatial data in both individual records and search results



Wordpress

- Plugin for shortcodes and data transclusion into WP website



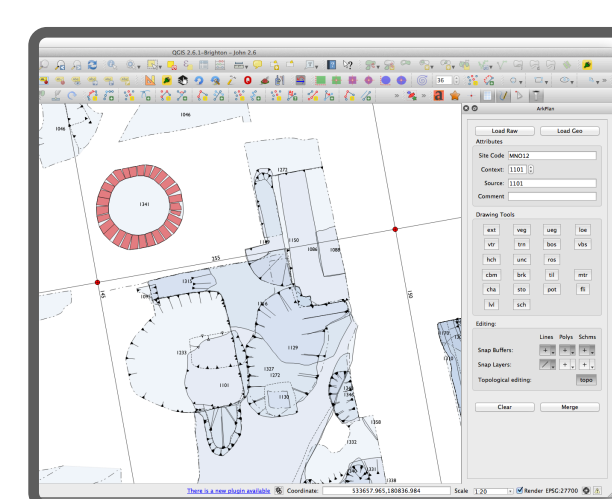
QGIS

- Suite of **plugins** for integrating ARK data



ARK API

- Development of the ARK application program interface



More info at 100minories.lparchaeology.com

Hybrid Interfaces

- Continued development of tools which allow the creation of multiple interfaces and data integration possibilities for ARK data

Tyranny of the Table

- Potential for adapting the SQL database to the Graph to increase performance and integration potential

Credits:

All icons were supplied by the Noun Project: *Ethernet* by Márcio Duarte, *Share* (1) by Anand Nair, *Share* (2) by P. J. Onori, *Share* (3) by Justin Alexander, *Chest* by Victor N. Escorsin da Silva and *Document* by Fil.

References:

[1] Flanagan, A.J., Farinola, W.J.M. & Metzger, M.J., 2000. The Technical Code of the Internet/World Wide Web. *Critical Studies in Media Communication*, 17(4), pp.409-428.