Geographic Search

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Spatial searches often require or benefit from contextualizing temporal and thematic parameters. The research agenda undertaken in this meeting should therefore aim to better theorize the much broader geographic search, and to develop pragmatic formalisms and technologies that integrate space, time and theme. This perspective is of course not new; it has been explicitly framed in Brian Berry’s geographic matrix (1964) and by many others since, notably including May Yuan, who discussed search specifically (1999).

Many scientific inquiries consider spatial characteristics somewhat in isolation, by holding time and one or several themes constant, but an integrative view of the three dimensions is increasingly essential. Several “spatial turn(s)” are now ongoing across the academy, but particularly in the humanities, examinations of space are rarely purely spatial in a geometric or topological sense. Rather, they are about place—spaces as named, constructed, and experienced by people. As such they are inherently geographical, even if there is some reticence to use that word. The potential benefit of place-based, or “placial” indexing of information becomes increasingly apparent in the humanities and social sciences, for exploratory research, for analysis, and for publication of interactive scholarly works (Meeks & Grossner 2012).

The Association of American Geographers (AAG) has recognized this trend for some time, evidenced in recent annual meetings having numerous extended tracks on the topic of gazetteers, and in the recently announced creation of a new journal, GeoHumanities. I was pleased to co-found in 2013 the GeoHumanities SIG, a special interest group within the Association of Digital Humanities Organizations (http://geohumanities.org). One focus of the SIG will be to help make digital humanists now struggling with geographic representation and computing issues aware of relevant work in GIScience. Conversely, GIScience will find many fascinating challenges it can contribute to solving. The first issue taken up by the SIG at this year’s DH2014 conference in Lausanne was historical gazetteers.

There is also currently under way an NEH-funded global collaborative effort to develop a world historical gazetteer. At a formative meeting in September, 2014 I presented some of the following recent work I’ve undertaken on the necessary and often-skirted temporal dimension of historical gazetteers.

Historical time for indices and analysis
Spatial questions in the humanities are very often historical, making the temporal dimension at least co-equal with the spatial in those cases. For historians, existing temporal indexing schemes and computation methods are woefully inadequate. A large proportion of historical time

1 An excellent series of essays by historian Jo Guldi: http://spatial.scholarslab.org/spatial-turn/
references are vague, probabilistic, or otherwise uncertain. I am currently developing with colleague Elijah Meeks a data format, graphical timeline layout, and computing functions for complex and uncertain historical time, called Topotime (http://dh.stanford.edu/topotime). We are actively pursuing its connection with both PeriodO, a promising initiative to build an authoritative time period gazetteer (http://perio.do/), and Pelagios (http://pelagios-project.blogspot.com), an important historical gazetteer integration project well under way.

Place and Period in Settings
Answers to “where?” questions can always include “when” (and often must); and so we can say that all phenomena occur within a setting that is equally spatial and temporal, whether or not both kinds of data are available or of interest in a particular study. I have recently begun work with Krzysztof Janowicz and Carsten Keßler on an ontology design pattern for Setting. Our pattern follows on from the GEM model of Worboys and Hornsby (2004) in some respects. It is motivated in part by the circumstance in historical studies that some entities are equally places and periods. The Iron Age is not one timespan everywhere; there is an Iron Age Britain, Iron Age Levant and so forth.

Our pattern describes a given place or period as being scopedBy a Setting, in turn comprised of a SpatialScope and a TemporalScope, each of which describes an extent in familiar terms of timespans and footprints. The pattern corresponds at least superficially with the Dublin Core coverage. One obvious track for future work will be consideration of whether the ThematicScope for a Setting should be included.

Theme
The thematic dimension of geographic search comes into play in several ways, including humanists’ requirement for multivocality in knowledge representation. Multiple attributed accounts of the same phenomena must co-exist in the same system—the open-world assumption. An essential component of description is classification, and particularly in searches across disparate data sets, methods for both implementing formal semantics and/or mapping between disparate formal or informal vocabularies are central to the “thematic” aspect of geographic search. How can we unify semantic reference systems (Kuhn 2003) with those for space and time?
Works cited


