

Exploring cultural itineraries using social networks and geographic analysis: a Via Francigena usecase of histogram

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Cultural routes are itineraries defined by routes of historical importance that geographically represent cultural concepts, figures or phenomena which are of transnational importance due to their relationship to the understanding and respect of European Values (Council of Europe, 2000). These cultural routes are interesting to researchers since they embody complex social values and represent places with significant cultural heritage and meaning for both the people who journey on the route and the everyday lives of the inhabitants of the places for which the routes passes through. Whilst the heritage of many of the routes in Europe such as the Via Francigena and the Camino de Santiago are strongly connected with the Christian religion, recent studies reveal far reaching motivations for people choosing to follow all or part of the route. These motivations include cultural, touristic, wellness, environment or spiritual ones (and not always Catholic or religious) in fact according to a recent survey carried out by Tuscany Region about Via Francigena walkers, only 28% are moved by religious causes (D'Agliano, 2015).

To date, research into uses of cultural routes have yet to be investigated thoroughly and would benefit from a cultural research lens. We explore new digital methods of visualisation and analysis, derived from humanities and geohumanities practices, focusing on the relations of places along a cultural route in order to explore types of themes mentioned and to understand which places people are discussing. The purpose of which is to unravel and visualise the social complexity of cultural routes and their itineraries. We develop methods in which an existing tool developed for social graph analysis of documents (histograph) can be extended to view spatial and topological analysis of cultural routes. To do this we consider how digital tools and methods commonplace in the humanities combined with disparate social and cultural datasets can be integrated to provide new visual forms and representations of complex data of whilst simultaneously providing a new framework for investigating social meaning in

cultural routes. The goal is to gain understanding into the symbolic heritage that underpins European cultural routes through the development of new forms of representation of the cultural and social values of cultural itineraries.

We adopt a case study approach to combine social network analysis with topological and geographical analysis, integrating social data from Instagram with the pictures and captions embedded in the official communication of the biannual revue Via Francigena, to develop new generalised representations of the cultural values related to this cultural itinerary.

The research described in this research is one output of larger project led by Dr Marta Savero, "*Les espaces du patrimoine culturel numérique: topologies et topographies des itinéraires culturels*" (www.itinerairesculturels.fr). The aim of which is to explore digital methods to investigate concepts of topography and topology in mapping cultural heritage objects through digital data. Topological networks are much akin to social graphs which afford a powerful means to represent and explore relations and co-occurrence between different types of entities. In historical network analysis the entities are symbolic of people, themes, places... and are proving to have significant potential for research in the field of humanities and cultural heritage (During et al, 2015). Likewise topological network analysis is a commonplace method for exploring patterns in real world systems due to the advantage provided by the representation of the relative (and not absolute) position of spatial and geographical whilst being scale-free. Topological networks ensure geographical properties such as connectivity and adjacency are retained even if a dataset is transformed (Longley, 2005). Therefore using a combination of approach it will be possible to model the flow of cultural value and meaning associated with places and routes.

To make sense of the types of themes and cultural representations that are significant to walkers of the Via Francigena we started with an extract of all Instagram pictures that were returned when searching for variations of the term "Francigena". The result was a dataset listing all images (about 8000) taken since 2011 with their tags, the geolocation of the images (longitude and latitude), caption text and comments as well as the number of likes and shares. This dataset was then processed in two different ways. Firstly, the data were reverse geocoded using Google API to return a corresponding address for the geo-coordinates of the image ie turning the abstract location into a place (City, town village etc). Secondly, the HashTags were processed using a tagservice to transform user ids' into people and hashtags into themes. Following this processing, the data were imported into histograph (see During et al, 2015 and www.histograph.cvce.eu), an open source historical network analysis tool developed to identify co-occurrences between people and entities within historical and contemporary documents. In this context, histograph was used to integrate the pictures, people, places and themes processed from the initial steps in order to build a social graph of the Via Francigena (figure 1). Histograph was used to further clean and structure the textual information contained within (comments, captions and tags) and the data were then enriched and annotated using the entity extraction tool Text Razor, which returned places mentioned (not to be confused with the place where the picture was taken) and topics of the tags.

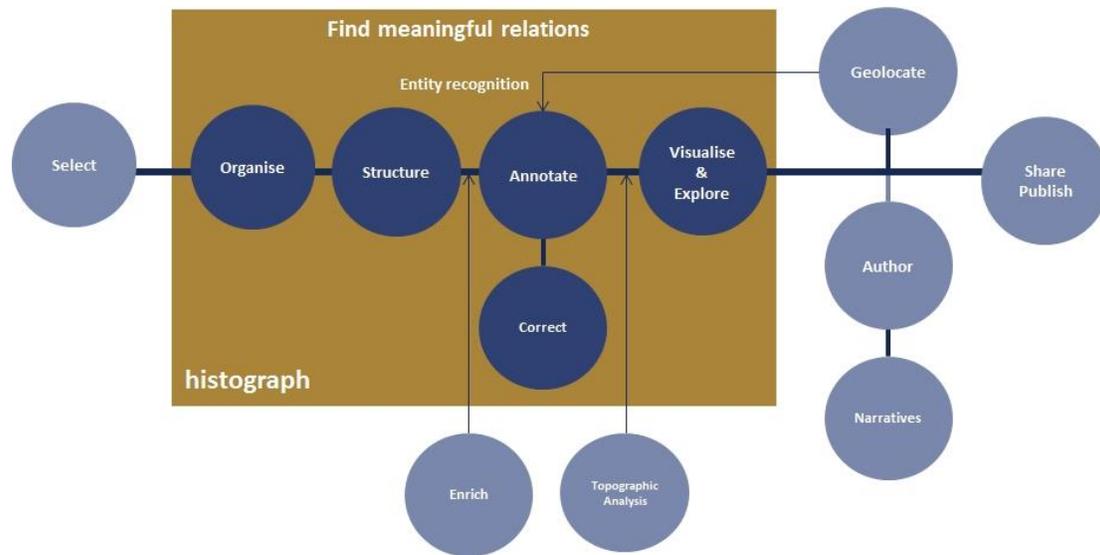


Figure 1: Exploratory workflow for social networks and geographic, topologic analysis.

The results of this initial phase were integrated into an online web mapping system (Carto DB) , in order to explore the initial spatial relationships with the dataset and to determine if this was a sensible approach. After initial exploration the tags and themes that represent the cultural value of the routes were aggregated by places, in order to highlight concentrations of different cultural perceptions. The purpose of which is to explore where on the route do certain themes or tags concentrate. For example is there a difference in where tags associated with religion are most present, are there different parts of the route that are more significant than others in terms? How do they compare with culturally significant points along the route? With this cultural network it is then be possible to understand if people find the same cultural value at the same place? The next step was to extend the histoGraph tool by integrating the CartoDB API and the multimedia associated with the formal revue magazines. In doing so we were able to provide more extensive search capabilities combining formal and informal views on the route.

In conclusion, the combined a network visualisation approach to organise and annotate resources which describe experiences of the Via Francigena cultural route together with a geographical approach to highlight the spatial relationship between places provides significant potential to evaluate uses of cultural routes and the values placed on them. The final results a geospatial extension to histogram that provides an enriched framework for exploring complex social data. The hope is this should provide a cultural lens that enables scalable reading into the significant cultural themes most relevant within and between these places on the route.

References

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