

The Geography of Posthumanity

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Abstract

We live in an age of information overload. Is it possible to give information an intuitive form better suited to human cognition, one that will enable understanding and memory? This article documents the process of extracting and visualizing data within a corpus of text documents revolving around the theme of Post-Humanism and the development of software to allow a global visual metaphoric representation of information.

Context

Humanity is now confronted with information overload. How can we comprehend it, filter it, and extract the useful, necessary, and essential pieces of information given our perceptive faculties which are adapted to understand general forms and structures but struggle with sequential and cumulative data?

Is an electronic archive a memory?

For the past few years, the technical aspect of information representation and visualization has been the subject of active research which is gaining more and more attention (Card *et al.*, 1999; Chen, 1999 ; Don *et al.*, 2007; Geroimenko and Chen, 2005; Perer and Shneiderman, 2006; Spence, 2007). Despite the richness of the work that has been done, there is still a glaring lack of projects related to textual analyses, specifically of literary or theoretical texts, which have successfully integrated advances in the field of information visualization.

Overall objectives

We aim to fill gaps in text-analysis visualizations by developing a prototype information-visualization software based on the automated analysis of a large corpus of texts on Post-Humanism.

Implementation interface

There are two basic interfaces for the project: Google Earth (GE) and a Flash-Papervision3D website.¹ Google Earth provides a foundation interface on which we implemented custom interaction controls. It was chosen because GE's interface is naturally intuitive, provides a viable baseline of already-implemented interactivity (roll, zoom, skew, select, etc...), and has a large user-base.

In our modified version of GE, knowledge is mapped to terrain, and users choose the density of information they desire by changing their altitude. GE allows the user to "dive" into the planet's geographical, political, and social layers, or to stay on higher, more general levels. In its normal version, GE shows us the world the way science describes it and political maps draw it; in our modified version, it is possible to spatially explore intellectual discourse on Post-Humanism.

This task presented three primary challenges: the first was to computationally analyze a large corpus of texts in a way that would produce relevant results. The second was to find an area to represent Post-Humanism and give this area a visual form. The third was to integrate, in an intuitive way, the results of the automated text analysis with the visual map.

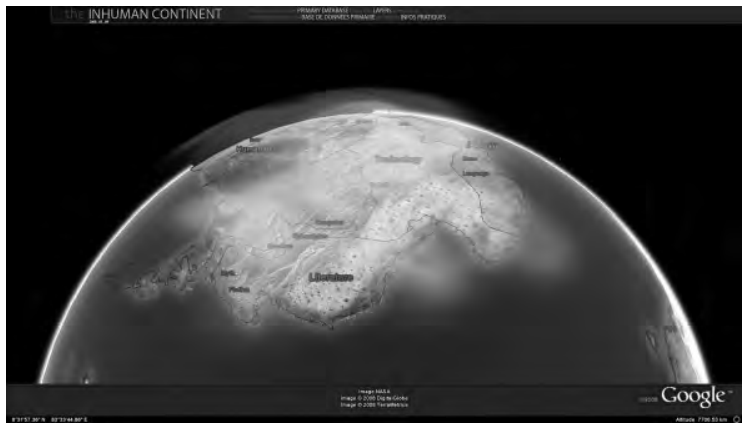
Methodology of text-corpus analysis

In order to successfully create this thematic map, we first compiled a significant number of texts about Post-Humanism. The methodology used to treat the corpus was inspired by previous work in the field of text mining by one of our team members (Forest, 2006) and others (Ibekwe-Sanjuan, 2007; Weiss *et al.*, 2005). The goal of the analysis is to facilitate the extraction and organization of thematic groups. Non-supervised clustering techniques are used in order to produce a synthetic view of the thematic area of the subject being treated.

Visualising the results: epistemological cartography

It is possible to burrow physically downward into subject-regions with greater and greater accuracy; or to rest at an altitude above the subject and consider the overall 'terrain'. At any level, each region is associated with a cluster of documents which correspond to the thematic of that region; text excerpts are provided, and it is possible to consult the full documents associated with that region through hyperlinks.

Four basic theme-*countries* emerged: biology, humanities, technology and literature. Each country



is further subdivided at two levels of resolution into regions and sub-regions that are each associated with thematic keywords discovered during the automated text analysis.

When the user zooms in on a region, the application shows the next level in the hierarchy of data visualization. Within one theme (as shown below) several sub-themes appear. A greater number of excerpts is available for the same area at increased levels of resolution.

Icons indicating the availability of texts may be clicked on at any time, allowing the user to read the excerpt in a small pop-up window, which includes a link to the whole article. This pop-up window can serve to show pertinent images or other hyperlinks.

Conclusion

We see the visualization of data, textual or otherwise, as part of a fundamental challenge that has captivated humanity since antiquity. The challenge is how to transform information into memorable knowledge and understanding. It is apparent that the significant amount of data produced by contemporary research in both science and the humanities is often much too great for any one individual. This overload of information sometimes leads to social disinvestment as data avalanches cancel each other out. We think that giving data from humanities' domains an intuitive form and leveraging computational advances in widely-distributed 3D interfaces to provide visually-navigated *realms* of knowledge, make the meaning of knowledge more understandable and enable its absorption into the collective consciousness.

¹ The web-version is in development and will basically emulate a reduced set of features of the GE version, so we will constrain our discussion to the GE version.