TOWARD A POST-SERIALITY MAP OF TV SERIES
Visualizing the New TV Seriality System with Protovis

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Abstract: The aim of this work is to visualize some information resulted from an analysis on 60 series from the top rated ones in the 2001-2010 decade. Arc-Diagram is presented as an overview of the TV series co-actor network. Airing networks and ratings are highlighted in the circular graph. Major insights are discussed.

1 INTRODUCTION

The visualization based study of TV series data is interesting for several reasons:

The first one is that most people know about them and can relate them to movies and actors, so, when it is presented with a visualization of serials data, they will try to find their favorite series and actors, identify series of potential interest or explore the complex co-actor relationships among actors.

The second one is that the built dataset has some rich information on each TV series allowing for a wide variety of data, it is sufficiently clean and easy to update so further analysis can be done without using semantic matching techniques.

The third one is that with this work we hope to communicate the power of the visualization, and more generally of the computer based approach to a traditional field of humanities research, the sociology of culture.

In this, as in other fields of humanities research, visualizations can be more than eye candy, rather it can be used as an analysis tool through which quickly obtain new insights.

For some years now several authors and scholars (Manovich, 2007, 2010) have begun to show a serious interest in the use of interactive visualization as a tool for humanistic research: in 2007 at the campus of University of California, San Diego (UCSD) was established Software Studies Initiative led by Lev Manovich; one year later NEH (National Endowment for Humanities) announced a new "Humanities High-Performance Computing" (HHPC) initiative that WAS based on similar insights. Manovich called this approach "Cultural Analytics", a methodology through which "cultural data" could be analyzed with the instruments of quantitative research, of statistics and computational information visualization. Quantitative analysis is not new to humanistic research, as sociology from its beginnings employed quantitative methodologies. What's new is the huge amount of "cultural traces" (Manovich, 2010) which are stored in digital archives and, for this reason, IT may be subjected to computational analysis for showing overall trends and models. If computational quantitative analysis and visualization is quite normal in the hard science and in the new media communities, more traditional humanistic disciplines as theory of culture or semiotics are not familiar with this kind of instruments.

An important exception (and a fundamental inspiration for our work) is Franco Moretti's approach to literary history (Moretti, 2005): his "Graphs, maps and trees" is an impressive demonstration of the power of quantitative visualization in the analysis of qualitative subjects (as the history of literature). Moretti claims that these instruments could give to humanistic research what he calls a "distant reading", an opportunity for an overall view of very complex cultural process (e.g. the rise of novel in Europe across three centuries). Other similar approaches are beginning to emerge, as well as visualization tools and computer-based experiments in the humanities began to be developed. Some notable examples are: in literary field Literature Fingerprints (Keim, Oelke, 2007), TextArc (Paley, 2002) and BibleViz (Harrison, 2008) in sociology worthy of note is the work based

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on some theories of (Latour, 2005), Cartography of Controversies (Venturini, 2008) in which the visualization is used as a tool for sociological analysis. In the context of the actual spreading of information over the web and on digital archives, humanistic researchers have the opportunity to manage large sets of data for cultural analysis and for the interpretation of large cultural trends in what Jurij Lotman called the "Semiosphere" (Lotman, 2001). Now we can gain a "distant reading" with the help of computational analysis of data and interactive visualization.

2 VISUALIZATION IN HUMANITIES RESEARCH: TOOL AND PURPOSE FOR A "DISTANT READING". PROJECT DETAILS

2.1 TV Series as a Major Cultural Process in the Contemporary Semiosphere

In this study we try to apply the paradigm of cultural analytics and of "distant reading" to an important part of the contemporary culture industry: the American TV series system. Many sociologist and critics recognized the importance of TV series in the contemporary media system. In Italy sociologist as Alberto Abbruzzese (2001) and Sergio Brancato (2007) analyzed deeply this evolution. They claim that TV is a formidable device that characterized daily life and the social construction of the "reality principle" for the entire second half of the twentieth century. Today it appears in a state of profound transformation of its original statutes and it seems involved in the dynamics of "demassification" that involves contemporary society as a whole. TV traditional genres - typical of the general strategy of a mass medium facing the domestic space and the system of relations existing between his subjects - make it increasingly difficult to withstand the impact of cultural changes initiated “by” the advent of the Web. Among the traditional television formats only fiction can still operate on the level of relationship with the public, renewing that particular narrative function which is strong from its origins and that give reasons for the success in the context of consumption of aesthetic forms. The narratives of the television drama evolve within a media framework governed by the logic of scheduling, as to say from a grid that orders the time of TV flow in relation to the personal needs of the audience as well as the strategies of the advertising market. Even more evidently, the deep meaning of TV consumption is built not so much on the originality of the texts, but on their ability to attract the public through the choreography of repetition, the ritual return to the already known. In This sense TV series represent the real incarnation of the deep sense of the contemporary televisual consumption and production. Especially in the USA - with great frequency and intensity - the TV-series or sit-coms are the real laboratory in which the redefinition of the writing work processes and the audiovisual declination of digital technologies take shape.

How to map this broad cultural system - a system in which different kinds of actors interrelate and conflict (e.g. TV Networks, audience, advertising, writers, actors, genres, etc.)?

2.2 Mapping the System of Seriality in TV

2.2.1 Data Sources

The purpose of this project is to make a visualization about some aspects of the new television series system that Brancato (2007) calls post-serial system.

The data set used in this study is related to 60 TV series and is about ranking, rating, longevity, cast members and some information about the production (network, crew, etc.).

Data have been obtained both from the databases of companies specialized in the measurement of rating and audience as The Nielsen Company (http://www.nielsen.com/) and from UGC based sites as Wikipedia (http:// en.wikipedia.org) and TV.com (http://www.tv.com/).

2.2.2 Details of Data

The 60 TV series analyzed have been selected according to the ranking from the list of the “100 most appreciated TV series in the 2001 - 2010 decade” drawn up by TV.com users. In choosing the 60 more meaningful series we have used the ranking index rather than rating in order to include in our analysis some series, diffused through pay TV channels and that have been watched by a smaller number of persons, due to economic concerns; the audience rating we have used in our analysis is the average rating of all seasons of airing; in the matter of the series started before 2001 the longevity data was calculated by the airing of the first season

premiere.

2.2.3 Visualizations Explanation

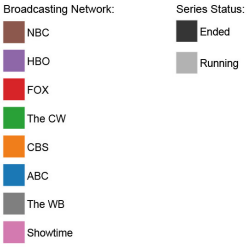

Figure 1: Legend.

Legend: the legend at the center of poster refers to the visualizations A1, A2, A3 and A4.

Visualization A: the information is displayed on two levels:

- the internal level consists of a donut-chart graph that represents the distribution of the audience aggregated according to the airing network of all the series. The colored sectors represent the distribution of audience related to television networks under investigation. Each color represents a TV network (see legend);

- the outer layer consists of a sunburst graph in which the height of each blocks represents the longevity (or else the number of seasons of each series), and the width of these indicates the average number of viewers for each series. Always referring to the blocks, the dark gray indicates an ended series while the light gray indicates a *still on air* series.

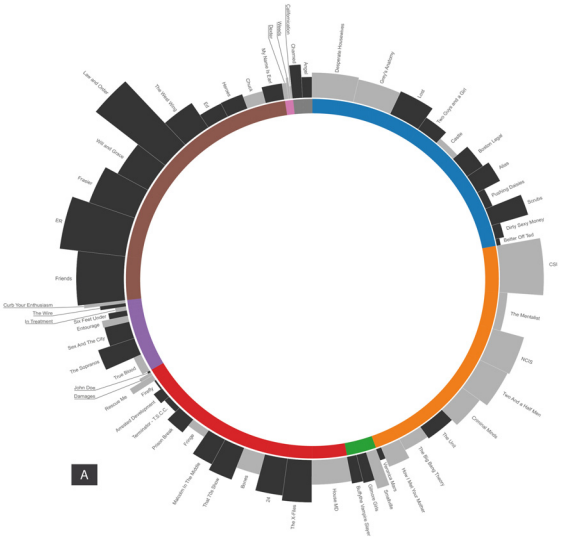

Figure 2: Visualization A.

Visualization B. This visualization consists of a node-arc diagram, a layout already developed by other authors (Harrison, 2008; Wattemberg, 2002). The nodes, arranged on the horizontal line, represent the TV series, size and color of each node indicate, respectively, the rating (average level of audience) and the broadcasting network (see legend). The arcs (links between nodes) indicate human relationships among series (cast sharing or crew sharing), the stroke of the arcs changes in proportion to the number of relationships existing between the two linked knots.

Interaction. The visualization B is originally developed for digital media insofar as it provides the opportunity to interact with the information displayed, highlighting the links starting from a single node selected by mouse-over. B1 reproduce a "snapshot" captured on the interactive version of B in which a node has been activated by an hypothetical user. The interactive version of this visual artifact is available at: http://dsc.unisa.it/disind/proj/SAR_map.html

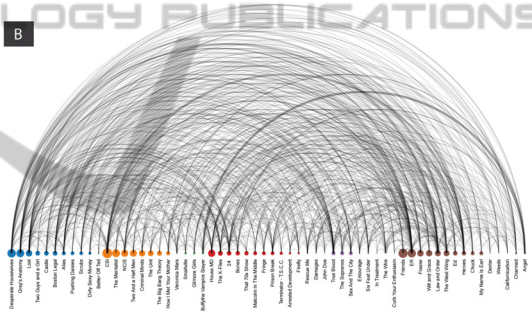

Figure 3: Visualization B.

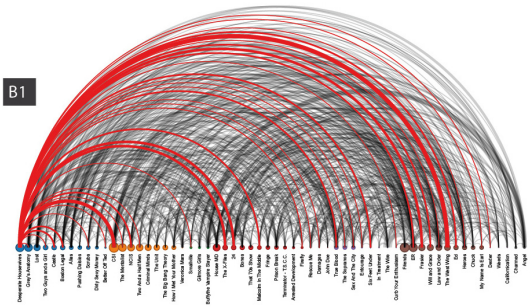

Figure 4: Visualization B1 - Example of interaction.

2.2.4 Design and Production

All the visualizations presented in this work were made with Protovis (http://vis.stanford.edu/protovis/), a visualization toolkit for JavaScript developed by Mike Bostock and Jeff Heer of the Stanford Visualization Group (http://vis.stanford.edu/), with help from Vadim Ogievetsky (Bostock,

Heer, 2009).

We have processed the data following the seven steps stressed by (Ben Fry, 2008) in his work on visualization. This path consists of seven stages: 1.Acquire - 2.Parse - 3.Filter - 4.Mine - 5.Represent - 6. Refine - 7.Interact:

1 - the acquisition phase was carried out manually writing out the data from the sources cited above, in some spreadsheets;

2 - the parsing was made using open source spreadsheet application (*Calc*, included in Openoffice Suite);

3 - the filtering stage involved the exclusion of the negligible samples (in order to this analysis) and some adjustment on the wrongly reported values;

4 - mining is consisted in reporting data gotten in the earlier stages in a JavaScript file

5 - in the representation step two different sketch were generated with Protovis using as data source the JavaScript file created in 4th step;

6 - the refinement was made by acting directly on the Protovis html and JavaScript related files by an open source code editor (*notepad++*);

7 - the interaction phase was in part already developed during the 5st stage and, afterwards completed by uploading the project on the server.

3 CONCLUSIONS

This work is the first step of an ongoing project. Further developments include the application of this kind of analysis and visualization to the actual contents (audio and video) of TV-series and in the correlation of these semantic data to quantitative data types and categories.

This analysis reveals some interesting insights. First we see that the TV series aired on the same network tend to have a similar number of spectators. Notwithstanding the difference in the dataset and the type of analysis, the two visualizations must be viewed in relation: if visualization A shows how the universe of the TV series is *divided* and *segmented* according to market and consumption logic, typical of large television networks, visualization B, contrariwise, shows a dense set of correlations that suggest a deeply interconnected world, so the Tv series universe emerges as *united* and *unified*, regardless of the commercial logic of the single network. For example, visualization B shows a dense network of cooperation between the products aired by different networks.

Another insight revealed by the analysis of audience datas (visualization A) concerns the proportion between the number of viewers and longevity of the series. On large networks *free-to-air* longevity is directly linked to the number of spectators and to its stability over time, instead *pay-TV* networks keep on air for a longer time even niche products (e.g. *Dexter, Weeds, Californication*).

This new prospective model of analysis could be the basis for a new cultural analysis (Manovich, 2007) of the television system as an agency of cultural dissemination.

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