A LAST.FM AND YOUTUBE MASH-UP FOR MUSIC BROWSING AND PLAYLIST EDITION

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In this Late-breaking/Demo submission, we present a completely revamped version of the RAMA interactive artist network visualization prototype. This version keeps most features from previous versions, and additionally to an improved graphical design[1] and an improved compatibility with diverse Operating Systems and web browsers, it adds a number of features aiming at a better music discovery experience, among which the inclusion of a music player, a playlist editor and the possibility to query by Last.fm user profile. The prototype is available online at http://rama.inescporto.pt. A demo will be presented at the conference, showing all functionalities detailed below. The only requirement to the demo is an internet connection.

1. MUSIC BROWSING IN LAST.FM OR YOUTUBE

Last.fm[2] is an internet radio and online social music community platform. A cornerstone of Last.fm is its recommendation engine based on a powerful artist similarity metrics. However, information about artist similarities is presented in the form of *simple lists* of similar artists, which, although useful, have several limitations.

One of the main limitations of such lists is the inability to provide easy access to information regarding the similarity of artists that are not directly connected, i.e. N-order similarity information. Moreover, lists do not provide an easy way to convey additional useful information related to similarity (such as justification, or “transparency” [1], for the such existence of similarity) or, inversely, related to the main differences between related artists.

Another limitation stands in the requirement to pay a fee for access to music on Last.fm (with the exception of some 30s excerpts). While this is (arguably) an acceptable practice for music *listening*, it is less in the case of music *browsing* and *discovery*. Indeed, a integral part of browsing (music or any content in fact) is to stumble upon some content that is of little interest to the user.

On the other hand, YouTube,[3] because of the enormous amount of content it hosts and because it is free, has recently become a *de facto* hub for music browsing. However, it does not come without its own problems, namely, among others, the lack of musically relevant information about music content (tags, artist similarities, etc.) and relatively poor recommendation functionalities.

2. A MASH-UP

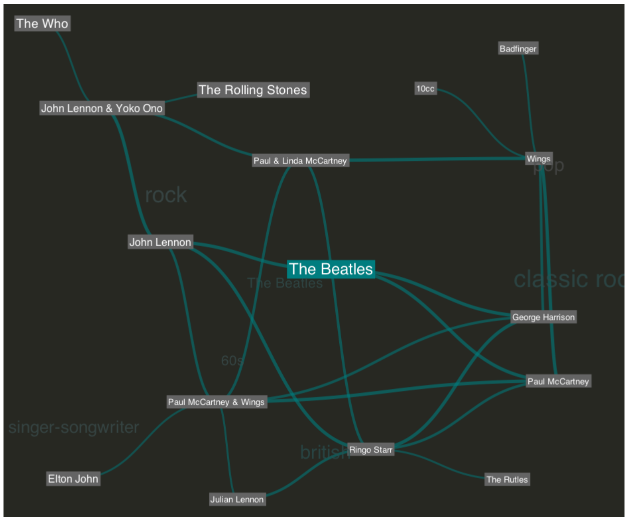

Figure 1. Example of music artists connected graph (here the query was “The Beatles”).

In order to bridge this gap between powerful recommendation metrics, suitable interactions for browsing, and availability of content, we extended the RAMA web-based artist network visualization prototype [2].

RAMA operates on data collected from Last.fm covering roughly 600.000 artists, their similarities, popularity and as-

[1] Thanks to Joana Gomes (Universidad Católica Portuguesa, Porto).

[2] http://www.last.fm

[3] http://www.youtube.com/

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sociated user-generated tags (around three million). Artists are presented in a connected graph, edge length is an indicator of the similarity between two artists while node sizes (and font sizes) represent artist popularity.

Starting from a specific user query (e.g. “The Beatles”, as in figure 1) —or alternatively from the latest heard artists of a Last.fm username provided as initial query—, the application will construct the graph by recursively finding the most similar artists to every other artist.

The strategy used for graph-drawing was originally inspired by the spring physic model [3]: artists have “charges” proportional to their popularity, and springs connecting artists have a natural rest distance inversely proportional to the similarity between those artists. The drawing procedure is run on the front-end iteratively, providing the user with real time animation until the graph reaches equilibrium. Artists can also be grabbed via the mouse and moved around.

Artist tags are shown as a second layer of information overlaying the artist graph. Tags are positioned at the centroid of their respective artists. Tag positions hence provide visual hints to possible clusters of artists (e.g. artists similar to “The Beatles” but tagged e.g. “90’s”). Tag size is a function of the number artists with that tag.

3. INTERACTIONS

3.1 Browsing tags

Differing from existing artist network visualization tools, RAMA provides some explanatory information about artist similarities: when hovering the mouse over an artist in the graph, this artist’s tags are highlighted in bright red, while other tags overlaying the graph are not changed. Complementarily, when hovering the mouse over a tag, the artists in the graph that share that particular tag are highlighted in bright blue, while other artists are not changed.

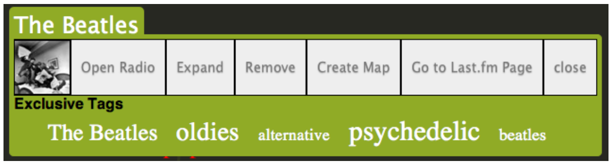


Figure 2. Pop-up panel appearing when clicking on an artist.

Further, as shown on figure 2, when clicking with the mouse on a particular artist, further tags are shown that are relative to this artist and to no other artist of the graph (i.e. “exclusive” tags). Associated to the common tags overlaid on top of the graph, this feature permits to visualize both commonalities as well as *main differences* between artists in the graph, an interesting, and original feature for music browsing.

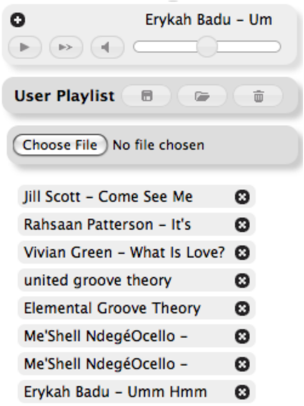
3.2 Editing the graph

The user can control a general graph “complexity” factor, having the effect of displaying more or less artists. As shown on figure 2, when clicking with the mouse on an artist, the user can also edit the graph manually by expanding the neighborhood of that particular artist with further similar artists, removing that artist, or creating a new map with that artist as seed.

3.3 Music player and playlist editor

When selecting the “Open Radio” option, the user can listen to some of the music of the selected artist. This feature makes use of the YouTube API, and of a number of content filters (in order to make sure, as much as possible, that the content provided is indeed music). As the intended use of RAMA is music browsing, and in order to keep the interface as simple as possible, the choice was made to *not* propose to the user several songs to choose from. Instead, a random selection of the particular artist’s songs was implemented, associated to a “fast forward” button (see figure 3), for switching from one song to the next.

The user can then add some of the songs proposed in a playlist which is editable (e.g. it is possible to change the ordering of songs, to remove a song, etc.), and can be saved in a simple text file. The information contained in the resulting text file is a simple list of YouTube video URLs, which can easily be used in other applications (e.g. web browsers).



Jill Scott – Come See Me
Rahsaan Patterson – It's
Vivian Green – What Is Love?
united groove theory
Elemental Groove Theory
Me'Shell NdegéOcello –
Me'Shell NdegéOcello –
Erykah Badu – Umm Hmm

Figure 3. Music player and playlist editor.

4. REFERENCES

[1] P. Lamere, F. Maillet. Creating Transparent, Steerable Recommendations. Late-break/demo at ISMIR 2008.

[2] Costa D., Sarmento L., Gouyon F. RAMA: An Interactive Artist Network Visualization Tool. Late-break/demo at ISMIR 2009.

[3] Tamassia, R. Handbook of Graph Drawing and Visualization (Discrete Mathematics and Its Applications), chapter Force-Directed Drawing Algorithms. Chapman & Hall/CRC, 2007.