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Using and Evaluating e-Science Design Methods and Technologies to Improve Access to Musicology's Heterogeneous Data Sources.

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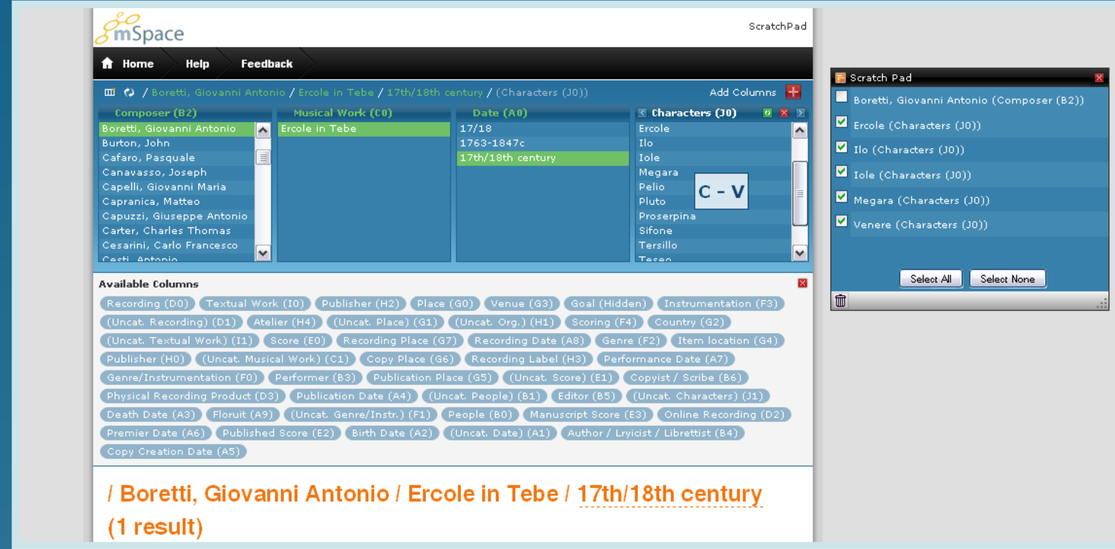
1. Objectives

- To integrate access to musicology's heterogeneous data sources so that they can be explored effectively and efficiently via one interface service.
- To deliver an optimally interactive approach to support this exploration.
- To develop a better understanding of how musicologists use the musicSpace interface, so that it can be optimised to support the process of discovery and aid the attainment of new knowledge.



2. Heterogeneous Data

Musicologists have to consult an extraordinarily heterogeneous body of primary and secondary sources, even when conducting the most basic exploratory research.

Although these sources are increasingly available online, data is nevertheless routinely catalogued or stored in numerous discrete databases, often according to media type (text, image, audio, video), date of publication, and/or historical period. Yet most musicological research cuts across these artificial divisions.

For example, initial research for a project about Monteverdi's madrigals could involve executing essentially the same searches several times, as there are several relevant data sources (RISM, Grove, Naxos, RILM, BL Integrated Catalogue, BL Sound Archive).

Combining data sources using a single well-designed user interface will enable researchers to use their time more efficiently, and will also encourage additional whimsical (but potentially productive) searches.

3. Database Integration

The diversity of the information held by the databases we wished to integrate posed a significant challenge. Each database contains numerous fields. Some of these are unique to a particular database, others are common to all, yet the majority are similar *but not identical* to those used in other databases.

Mapping these similar-but-not-identical fields onto the same integrated field would have lost details present in the original records. So instead, musicSpace uses a system of subfields and superfields in which: (1) each unique field from an original database is mapped onto a unique subfield; and (2) similar-but-not-identical subfields are included in the same superfield. This enables users to vary the level of detail as desired.

4. User Interface

The vast increase in on-hand data that comes with database integration both demands and allows for the development of far more sophisticated, intelligent and interactive user interfaces. Accordingly, musicSpace:

- facilitates browsing by displaying results and parameters using multiple panes, allowing for instantaneous paradigmatic shifts in the way that datasets are sliced and orientated;
- enables the semi-automatic construction of complex searches by making available a detailed subject glossary.

In the screenshot (left) musicSpace is being used to generate a character list for Giovanni Antonio Boretti's opera 'Ercole in Tebe'.

5. Evaluation

In the coming months a team of musicologists working in three diverse areas (Monteverdi recordings, C19th Italian opera buffa, and C20th electroacoustic music) will use musicSpace during their everyday research. While they do this, we will assess musicSpace's efficacy as a research tool.

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