Next Steps for Measuring Polyphony: A Prototype Editor for Encoding Mensural Music

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The thirteenth and fourteenth centuries saw an unprecedented increase in the production of manuscripts transmitting music repertoires with a new diversity of styles, genres, and subject matter, copied in both music-only anthologies, and in miscellaneous collections that interweave song, text, and illuminations. At the same time, techniques for specifically notating rhythmic duration emerged, a notation called "mensural" or "measurable." Almost all polyphonic music (music composed for two or more parts) from 1300-1600 is notated in mensural notation, the rules of which changed little from c. 1350. Yet modern print editions distance today's readers from the original experience of this music: first, by translating the original notation into modern notation; and second, by sorting and classifying this repertoire according to conventions associated with the printed book (that is, presenting it in volumes or series ordered by composer, genre, or country).

This poster will present an NEH-funded project to develop a prototype editor for encoding mensural notation. The prototype is under development in 2019-2020, and a workshop will take place directly before the 2020 Music Encoding Conference that will evaluate the prototype in terms of its interface and design, accessibility, and interoperability, and to advise on a plan for the project's full implementation. This planned poster presentation for the 2020 MEC will include a description of the prototype and a summary of the workshop's recommendations for next steps.

An online mensural music editor will allow a variety of modern readers (students and experts, musicologists, music theorists, those interested in the history of music notation, the history of counterpoint, medieval palaeography or manuscript studies in general) to both access and contribute transcriptions of polyphonic music directly linked to digital images of the medieval manuscripts. The GUI prototype will allow users with no expertise in music encoding to encode large amounts of music data in mensural notation directly linked to digital images of the medieval manuscripts, thereby rapidly increasing medieval music repertoires available for study.

Currently there is no editor, either commercially available or available as an open-source web application, that allows users to notate music in its mensural form. This is a significant problem in general for scholars of early music. In order to produce music examples in mensural notation to include in publications, for example, images must be generated within graphics software such as Adobe Illustrator, a time-consuming and non-intuitive process. Graphics software cannot capture any data

about the music's sounding aspects, that is, what the graphemes mean in terms of their pitch and duration. This project would address this need through the development of an open-source web-based editor designed to capture the shapes *and the meaning* of the mensural notation, following the encoding standards developed by the Music Encoding Initiative.

Another proposed eventual outcome is the development of pedagogical modules in which students could learn about medieval notations: perhaps eventually providing a collective space to work on collaborative editions directly from, and linked to, the manuscript images. One pressing research question is whether the MEI data that captures the graphic information on the note shapes should be formally separated from the data necessary for score alignment and audio rendering. In some cases, the interpretation of the mensural shapes has only one correct answer, and follows specific rules established for mensural notation. But in other cases, the interpretation may be dependent on notational dialects used in a particular geographic location, or on a particular scribal practice, or the interpretation may be unclear. Methods by which these "flavors" of notation might be abstracted in our data model and captured via the editor will be discussed in the pre-MEC workshop.

The major music editing projects of the twentieth century divorced the musical text from its parchment and ink origins, segregating them into composer- and genre-ordered print collections, converting their notation to modern equivalents, and secreting away detailed philological considerations into cryptic appendices. Since the late 1990s, the availability of high-resolution images of most manuscript sources of medieval polyphony, in particular through the groundbreaking open-access DIAMM initiative (Digital Image Archive of Medieval Music, www.diamm.ac.uk) and through library-based repositories such as Gallica (gallica.bnf.fr), has prompted new investigations of medieval music within its original material contexts, as is also the case within medieval studies in general (the "new" philology). It is envisioned that the final implementation of this project will allow experts and non-experts to move seamlessly between manuscript image and hear audio realizations of the compositions found there (for projects that do similar things, but which are focused on text rather than music, see the projects French Renaissance Paleography, https://paleography.library.utoronto.ca/ and Digipal, http://www.digipal.eu/). Users will learn how to directly contribute transcriptions of the hundreds of as yet unedited (or poorly edited) pieces, facilitating new corpus studies of musical style. In addition, since the mensural notation will be digitally encoded, this project will inform new understandings of regional and scribal notational practices, and how changes in notation and representation engender changes in musical style.