Encoding and Decoding Relations in a Conglomerate of Libretto and Reference Texts and Musical Sources in *Freischütz Digital*

Introduction

Inspired by Wiering's multidimensional Model,[1] the approach of Freischütz Digital[2] is a genuine digital edition of the opera *Der Freischütz* by Carl Maria von Weber for both music and libretto, considering all current theoretical and technical possibilities for a digital edition process. The principal part of this edition is the encoding of music and text in standardized XML formats (namely TEI and MEI) and synchronizing musical texts and libretto texts with other digital resources (e.g. digitized source images) and acoustic elements. The project aims for including diplomatic transcriptions of the source material and the editorial findings, as well as defining methods and concepts, developing appropriate tools and visualizations and documentation of the project's progress and results.

Shaping the Data: modelling, encoding and referencing

Critical editions usually have one edited text based on a primary source with references to secondary sources; however, both libretto and music editions of *Freischütz Digital* contain diplomatic transcriptions of all sources considered authentic and/or authorized.[3] All sources are provided with rich metadata and source descriptions. Music sources are encoded according to the MEI Guidelines[4] and textual material according to the TEI Guidelines with special consideration of the modules for performance texts and manuscript descriptions – where applicable. Textual aspects of the witnesses are fully reflected as well as their distinct structural complexity (e.g. several layers of text within one source, numerous alterations or substitutions and entries by different identified or unidentified scribal hands inherited in the manuscripts). The data model for the relationships between the sources is a stand-off markup stored in a so-called *CORE-files*,[5] one for the music sources and one for the libretti. For the purpose of annotating the libretto sources the project developed a tool (the *CoreBuilder*) facilitating the generation of associations.[6] The *CORE-file* includes all content-related differences that exist when comparing the libretto sources. For the musical sources there are several transformation scripts that aim to assist scholars to establish a *CORE-file* containing the relationships of the scores.

Evaluation and enrichment of encoding as a first decoding procedure

The edition provides all primary sources and other sources[7] that are related to the *Freischuetz* libretto either by topics, characters or motives. Furthermore, the edition enhances the reading experience by adding a common taxonomy that allows not only to find, but also to visualize the relations across all included textual sources.

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[1] Frans Wiering: *Digital Critical Editions of Music: A multidimensional Model*. In: Gibson Crawford: *Modern Methods for Musicology*, (2009), pp. 23–45.

[2] See the project's website at http://www.freischuetz-digital.de (last accessed: May 20, 2014).

[3] In the case of the musical sources not every number of the opera will be encoded in every source because of an enormous effort needed for this task.

[4] See http://music-encoding.org (last accessed: May 20, 2014)

[5] CORE as an acronym for "Comparison Results"

[6] Raffaele Viglianti, Benjamin W. Bohl, Solveig Schreiter: *A stand-off critical apparatus for the libretto of Der Freischütz* (Conference-paper, TEI Conference and members meeting), Rom, October 5, 2013.

[7] Kathrin Wulfhorst: *Intertextuelle Bezüge in den Freischütz-Texten von Johann August Apel und Friedrich Kind*. Weberiana, 19 (2009), pp. 101–124.

To achieve an intertextual and comprehensive network of relations between libretto texts and their reference sources, the data model of Topic Map (.xtm) is used. Selected terms and names as well as their variants that appear in a particular scene or tableau in the primary texts are all marked up throughout all TEI transcriptions so that they can be tracked and displayed across all sources. This evaluation and enrichment of the encoded texts could be seen as a first process of *decoding*.
By using the *@key* attribute and an identifier associated to a term or name that are predefined in a Topic Map file, the edition models the cross-referencing between all considered texts and establish a thematic-motivic contextualization of them. The Topic Map file is kept separate from the encoded sources, listing terms and names as topic entries. It also allows adding comments. The Topic Map file defines their diverse relationships among themselves and will be again decoded in visualization.

Visualization of relationships

The *Edirom Online*[8] publication platform is used to visualize – and thus decode – the encoding of the individual sources and the music and libretto edition. On top of renderings of texts and music notation the project develops visualizations of the relationships encoded in the *CORE-files*, the annotations and in the Topic Map. These visualizations give an overview of the global relations as well as detailed insights into the development of motives and characters, into the scribal habits of copyists and show other variants that can be found across all texts.
An important aspect of the project's edition is the synchronization of graphical, semantic and acoustic material: all visualizations potentially include facsimile, rendering, audio and the encoding itself at the same time.

[8] See https://github.com/Edirom/Edirom-Online (last accessed: May 20, 2014)