Probstücke Digital –
A Critical Digital Edition of Johann Mattheson's 24 Probstücke of the Ober-Classe

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Introduction

In 1731, Johann Mattheson writes in the preface to the *Große Generalbass-Schule*:

> "The complaint, however, which I made in the first edition of this Organisten-Probe about the badly printed notes, is still in its full strength, and patience is the only remedy."[1]

Probstücke Digital is an open and critical digital edition project of the 24 test pieces of the Ober-Classe ("upper class") by Johann Mattheson and as such an example for the use and application of MEI and TEI in an integrated environment.[2] After almost 300 years it also seeks to finally give remedy to Mattheson's complaint by editing his Probstücke[3] and by providing perhaps a little more than merely "prettifying" the original print.

"Incomplete notation"

The musical material that is being edited consists of commented partimenti, unrealized bass lines, that are conceptually open and yet-to-be-finished drafts, skeletons rather than self-contained works, leaving a vast space for creative inventions of the performer.[4]

From a performer's view, space is utterly important in the process of working with the Probstücke – space to sketch and to work out different melodic, counterpuntal or harmonic ideas or realizations of different complexity. Thus, one of the first goals of the present edition is to provide the performer with a virtually unrestricted amount of space for the creative process.

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1 "Die Klage aber, so ich in der ersten Auflage der Organisten-Probe, wegen der schlechten Druck-Noten geführet habe, ist noch in ihren vollen Kräfften, und die Gedult das eintzige Mittel" [1, p. 156].

2 For aspects of combining MEI and TEI see e.g. [2].

3 Already in 1965, Wolfgang Fortner published a modern edition [3] of the Mattheson's Probstücke of the Mittel-Classe – a second volume with the pieces of the Ober-Classe was announced by the publisher but never published since then. Fortner's edition is of great practical use e.g. by providing an additional staves and by embedding all of Mattheson's suggestions into the score. However, many of his simplifications do imply realizations that cannot be deduced from the original text.

4 In reference to [4, p. 68], we call this phenomenon "incomplete notation". Already [5, p. 440] considered the Probstücke as "foundations of independent improvisation". For a more recent study on the Probstücke, in particular on their pedagogical aspects, see [6].
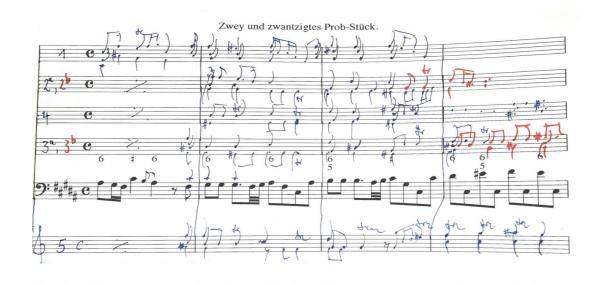
Figure 10: The first four measures of the 22nd *Probstück* as an example for the practical use of empty staves.

This is made possible by the option of adding an arbitrary amount of staves above or below the original bass line.[5]

Readings, editorial regularizations and additions

Although by now there are many digital edition projects on the web to be discovered, surprisingly many of them seem to use MEI only as a basis for an engraving with Verovio.[6] The goal of this project is to provide a full critical edition in pure MEI and TEI[7] with a correct encoding of variants in reading,[8] editorial additions and regularizations, which require heavy manual encoding.

The general approach of *Probstücke Digital* is to provide diplomatic transcriptions of both text and music, and letting the user choose whether or not to modernize the original – regarding accidentals, clefs, orthography etc.
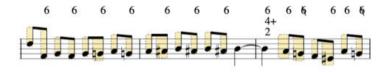

Figure 11: A passage from *Probstück 1,* as displayed with the options to show only original accidentals and to hide accidentals supplied by the editor.
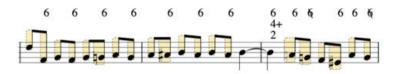

Figure 12: The same passage rendered as a "modern" score, without displaying the originally repeated accidentals and with cautionary accidentals supplied by the editor.

5   Technically achieved by performing an XSL transformation.

6   Verovio (https://www.verovio.org) is an open-source library for engraving MEI music scores into SVG.

7   The edition uses a slightly adapted TEI customization based on the DTA Base format [7].

8   In particular the different readings of the Exemplarische Organisten-Probe [8] and Große Generalbaß-Schule [1].

Other idiosyncrasies of 18th century prints can be perfectly addressed by a digital edition, e.g. by providing tools to automatically replace typographic peculiarities of 18th-century prints like the long s (ſ) or the umlauts with a superposed e (ů) as well as potentially unfamiliar clefs in the score with their modern equivalents. Where possible, these transformations are achieved using pure CSS, but as soon as more heavy interventions in the musical text are required (such as replacing ancient clefs) XSL transformations are performed on the original encoding.

At the same time, many of Mattheson's comments require an editorial supplement or explanation – may it be only the correction of miscounted bar numbers, pseudonyms that can be identified with contemporaries of Mattheson as well as hints on disputes and arguments of the time that Mattheson is referring to or was involved in, assuming the reader's knowledge of these quarrels.
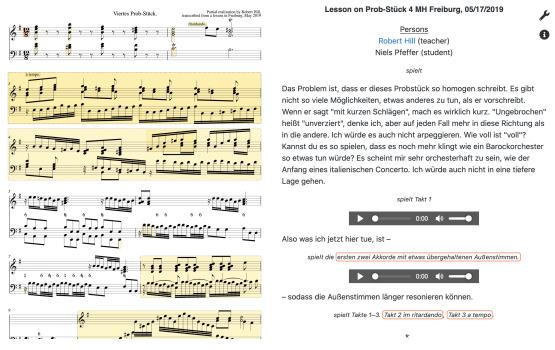
Maximum of visible information

In the common practise, scholarly music editions aim to provide a clean Urtext, that – from a performer's perspective – "bans" a large portion of the actual information on the text into a separate critical apparatus, which is barely looked into by a non-musicologist. Rather than hiding, Probstücke Digital tries to lay open as much information and material as possible at the spot.[9]

Lessons

This includes the linking and presentation of additional material, such as transcriptions of oral lessons, theoretical analyses, realizations and recordings.

Lessons are encoded in TEI as transcriptions of spoken material. The transcription of a lesson given by Robert Hill in Freiburg 2019 shall serve as an example.

Figure 13: A lesson by Robert Hill on Probstück 4.

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9   In that regard, some 19th century "critical" editions like Hans Bischoff's edition of the Well-tempered Clavier ([9] and [10]) may serve as examples of a practise where all the information on sources and different readings are directly integrated into the score itself.

This transcription contains references between the spoken material and the score – as it is present on the score stand during the lessons – may they be explicitly pronounced or only implied. As soon as for the purpose of demonstration the harpsichord comes into play, a transcription of that particular example as well as an corresponding audio fragment is made available.

Realizations

Based on the idea that the Probstücke provide a canvas that can be filled with arbitrarily complex realizations, Probstücke Digital provides examples for such realizations. Since these may alter the original and deviate from it rather much, they are encoded as independent documents.

Just like lessons, realizations can also include a corresponding recorded audio.[10]

Key characteristics

Arno Forchert considered the demonstration of the advantages of the "new" system of major-minor-tonality to be the main purpose of the pieces of the *Große Generalbaß-Schule* – against the proponents of the traditional system based on modality.[11] In that respect, Mattheson's goal is to give two complete cycles of 24 pieces in all possible major and minor keys. Closely related to his thoughts on tonality are the characteristics of keys which he attempted to set down in the *Neu-eröffnete Orchestre* (1713) [12] – next to characteristics of all the meter signatures. Both are made accessible for each Probstück with an overlay on the key signature that displays Mattheson's characterisation of that present key.

Technically, these key and meter characteristics are edited as separate TEI encodings, which are included into the Probstück based on the on key signature and meter signature found in the <scoreDef>-element.

Facsimile linking

Furthermore, *Probstücke Digital* provides linking to and presentation of the digitized sources[12] as either full-page facsimiles embedded with Mirador[13] or as the extracted zone of a particular measure or paragraph.
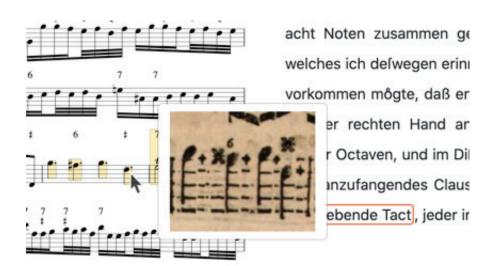

Figure 14: Example of a measure that is associated with the corresponding zone of the original print.

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10 See e.g. the realization of Probstück 10.

11 [11, p. 205f.]

12 Utilizing the International Image Interoperability Framework https://iiif.io with images courtesy by the Bavarian State Library https://www.bsb-muenchen.de/en/

13 Mirador is an open-source, web based, multi-window image viewing platform https://projectmirador.org

These regions are encoded in the source files with the corresponding coordinates using MEI's and TEI's fac-simile and zone elements. When deploying, Probstücke Digital extracts those zones and turns them into IIIF annotation lists that annotate the digital IIIF "canvases" as provided by the Bavarian State Library.

```
{
   „@context": „http://iiif.io/api/presentation/2/context.json",
   „@id": „https://probstuecke-digital.de/iiif/2/annotation/measure-4",
   „@type": „oa:Annotation",
   „motivation": „sc:painting",
   „resource": {
      „@id": „http://probstuecke-digital.de/view/2/mattheson/secondEdition#m-199",
      „@type": „dctypes:Text",
      „format": „text/html"
   },
   „on": „https://api.digitale-sammlungen.de/iiif/presentation/v2/bsb10598495/can-
vas/392#xywh=951,971,927,347"
}
```

Figure 15: Above an example of a generated IIIF annotation linking a region on the facsimile canvas with the corresponding measure on *probstuecke-digital.de*.

Indices

Mattheson often refers to works by other composers or texts from older music theorists. A modernized bibliography and names index based on authority controlled data will help scholars to find and get into those external sources and musicians to find links between Mattheson's musical material and material of composers he regarded as exemplary and refers to rather often – such as Keiser, Telemann, Heinichen, Mossi, or dall'Ab-aco etc.

Technical components[14]

eXist-Db is used as a database for storing the encodings as well as processing XSL transformations and XQueries.	server-side
express.js in a node.js environment as a server and router between client and database.	
CETEIcean and Verovio for rendering the TEI and MEI encodings.	client-side
Mirador for rendering facsimile images.	

Licenses

The complete edition is available under Creative Commons Licenses and all used software is available under free licenses. The complete software package and the edition are available on GitHub.[15] We will examine what parts of our software could be useful to other projects and will release them independently eventually.

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14   https://github.com/TEIC/CETEIcean. For more about CETEIcean see [13].

15   https://github.com/pfefferniels/probstuecke-digital

Works cited

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[2] Viglianti, Raffaele, et al. "Visualizing Fedora-managed TEI and MEI documents within Islandora" Code4Lib 44 (2019). https://journal. code4lib.org/articles/14532

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[5] [5] Arnold, Franck Thomas. *The Art of Accompaniment from a Thorough-bass.* Oxford, 1931.

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[7] [7] Haaf, Susanne, Alexander Geyken, and Frank Wiegand. "The DTA "Base Format": A TEI Subset for the Compilation of a Large Refer-ence Corpus of Printed Text from Multiple Sources" Journal of the Text Encoding Initiative 8 (2014/15). doi:10.4000/jtei.1114. https:// journals.openedition.org/jtei/1114

[8] [8] Mattheson, Johann. *Exemplarische Organisten-Probe Im Artikel Vom General-Bass*. Hamburg. 1719.

[9] [9] Bach, Johann Sebastian. *Das wohltemperirte Clavier. Erster Theil.* ed. Hans Bischoff. Hannover, 1883.

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[12] [12] Mattheson, Johann. *Das neu-eröffnete Orchestre.* Hamburg, 1713.

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