Can musicology-centred design help to humanise databases?

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Perspective of the talk

- doing music research using technology

- scenario
  - research topic from musicology
  - use digital resources
  - apply computational methods
  - outcomes relevant to musicological discourse

- radical perspective on humanising
  - not meant as disrespectful
Overture inside front cover and f.1r

The first page of the manuscript contains the beginning of the overture or ‘Sinfonia’. No instrumentation is specified, but stringed instruments, oboes and harpsichord would be the usual combination. The movement is in E minor and its simplicity and seriousness establish the tone of the movements to follow, which describe the plight of mankind and the promise of a Saviour. At the foot of the first page of music, Handel wrote the date he began composition, 22 August 1741. The title is written at the top of the page: ‘Messiah, an Oratorio’. The oratorio, a large-scale sacred drama for orchestra and voices, without scenery, costumes or action, was new to England, and the English oratorio was to be Handel’s own innovation. A
(Big) musical data

- J.S. Bach probably the best covered classical composer
- fragmented and heterogeneous
- created by variety of stakeholders
  - music industry, libraries, archives, musicologists, musicians, citizen scientists, music lovers
- few resources are really big
- no comprehensive overview
Mass digitisation

- generally, executed by libraries and archives
  - national programmes
  - standardised workflows
  - wide range of materials
  - supply-side selection criteria

- music often treated as images
  - standard access functionality
  - little attention to music as content

- other kinds of (accessible) musical data are scarce by comparison
Twitter is over capacity.
Too many tweets! Please wait a moment and try again.

HUMANISATION
What Do Musicologists Do All Day?

Joint work with Charles Inskip, 
University College London

worldwide survey, over 600 respondents
- qualitative, mostly open questions
- experiences with technology
- attitudes towards technology
Motivation: The Gap

• mismatch between
  – creation of resources and tools
  – uptake in mainstream music research

• understand why this gap exists
  – professional values and technology
  – fit of technology with work practices

• technophobia is not the explanation
  – historically, substantial technological undercurrent in music research

Béla Bartók
Benefits of using technology

<table>
<thead>
<tr>
<th>benefit</th>
<th>occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to primary and secondary sources</td>
<td>232</td>
</tr>
<tr>
<td>Speed, save time</td>
<td>116</td>
</tr>
<tr>
<td>Communication</td>
<td>109</td>
</tr>
<tr>
<td>Searchability, findability, discoverability</td>
<td>59</td>
</tr>
<tr>
<td>Large datasets can be analysed</td>
<td>51</td>
</tr>
</tbody>
</table>
Risks and limitations

- research
  - uniformity
  - superficiality
  - sustainability

- resources
  - selective digitization
  - quality issues
  - materiality difficult to assess

- software
  - technical limitations
  - search functionality insufficient
  - learning curve

technology puzzles as much as it empowers
The Paradox of Technology

Technology offers the potential to make life easier and more enjoyable; each technology provides increased benefits. At the same time, added complexities increase our difficulty and frustration with technology...

Why this paradox?

- ‘designer-as-user problem’ (Warwick 2012)
- ‘much of the design is done by engineers who are experts in technology but limited in their understanding of people’ (Norman 2013)

- solution: human-centred design
  - first human needs, capabilities and ways of behaving
  - then design appropriate technology
- well-studied area (outside humanities)

→ develop musicology-centred design
CASE STUDY
• [www.liederenbank.nl](http://www.liederenbank.nl)
• repertory of sources of Dutch folk and popular song
• c. 170,000 entries

• founded by Louis Grijp (1954-2016)
• hosted by Meertens Institute, Amsterdam
Under the Green Linden

- subcollection with musical content
- 7000+ field recordings
- collected between 1950-1994

- pre-web crowdsourcing
  - field recordings
  - radio programmes
  - postcards

- many ‘versions’ of ‘same’ song
Het was op een Zaterdagavend / Stond ik voor mijn zoe-te-liefs deur.
**song:**

**first line:** Het was op ein Zoterdagoavend / Stond ik voor mien zoetelief deur

**text norm:** Ik heb de groene straat Zo dikmaals ten einde gegaan

**music:** with musical notation

**recording:** audio
**available:** transcription (music)

**melody**

**tune indication:**

**name:** [geen wijsaanduiding]

**record ID:** 72701

**source:**

**siglum:** OPN OGL ([1950-1980 ca.])
**title:** Onder de Groene Linde: opnamebestand
**song** 21726

**number:**

**copy used:** Amsterdam MI: OPN OGL
**transcription** Nederlands Volkslied-Archief 31358

**singer:** Boltjes, Grietje [voorn. Havinga-Boltjes]
**recording:** Bellingwolde 31-01-1962

**standard name of this melody:**
In Frankrijk buiten de poorten (2)

**all songs sung to this melody:** (76 songs)

**all songs with this text:** (121 songs & extra informatie)

**find similar melodies**
**find similar first phrases**
Tune family

- group of melodies with a presumed common historical origin (after Bayard 1950)
- historical process is hard to reconstruct
  - tune family membership inferred from similarities
Modelling folk song melodies

• Witchcraft project (2006-2010)
  – create ‘tune family aware’ melody search engine

• tune family ascription generally holistic, intuitive decision by experts
  – very difficult for them to explain their intuitions

• how to create a computational model of tune family membership?
Workplace anthropology

- put folk song researchers’ expertise at the centre
  - computer scientists observe, interrogate and learn

- process went through number of phases
  - identify important musical dimensions
  - scoring mechanism
  - create annotations using tool
  - test consistency between experts

dimensions
- rhythm
- contour
- motifs
- mode
- form
- text
(Volk et al. 2008)
Outcomes

- commitment of researchers
- input for computational model
  - sequence alignment approach
  - cost function based on annotations
  - PhD thesis Peter van Kranenburg (2010)
Het was op een Zottegaard'avend / Stond ik voor mien zoetelief deur

Ik heb de groene straat Zo dikmaals t' geverd / Want ik dacht aan's mien zoetelief deur

With musical notation

Er waren twee koningskinderen / In Frankrijk daar staat er een herberg

Het was krommer en elenende / In Frankrijk daar staat er een herberg

Hop, hop, hop! Paardje in galop!
EVALUATION
Evaluation dimensions

• bureaucratic
  – cost, value for money, requirements, documentation, standards, generality, innovation, usage statistics...

• technological
  – functionality, performance, stability, sustainability...

• content
  – content representation, quality, quantity, coverage...

• interface
  – accessibility, usability, experience, aesthetics...

• acceptability
  – tool criticism
Workshop on Tool Criticism in the Digital Humanities

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Abstract
This document reports on the discussions and results of the Workshop on Tool Criticism in the Digital Humanities, that took place on May 22, 2015 in Pand 020, Amsterdam. The workshop was co-organized by Centrum Wiskunde & Informatica, the eHumanities group of KNAW and the Amsterdam Data Science Center.

Keywords
Digital Humanities, Tool Criticism, #toolcrit

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http://oai.cwi.nl/oai/asset/23500/23500D.pdf

• purpose of tool criticism
  – evaluation of the suitability of a tool for a specific task
  – understand the impact of any limitation of the tool on the specific task

• fundamentally, all tools are biased
Tool criticism

- important criteria include
  - transparency
  - technical limitations
  - provenance and bias
  - required skill level
  - trust
  - explanatory value
CONCLUSION
Summing up

• if humanising databases is your goal, then apply human-centred (musicology-centred) design
• demand-driven approach to resource and tool creation
  – design with, not just for, music researchers
• evaluate always and everywhere

• tool criticism approach to make computational results acceptable to musicological discourse

Thank you!