



# 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



## Read

Overture Inside front cover and f.1r

The first page of the manuscript contains the beginning of the overture or 'Sinfony'. 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



# MUSIC RESOURCES



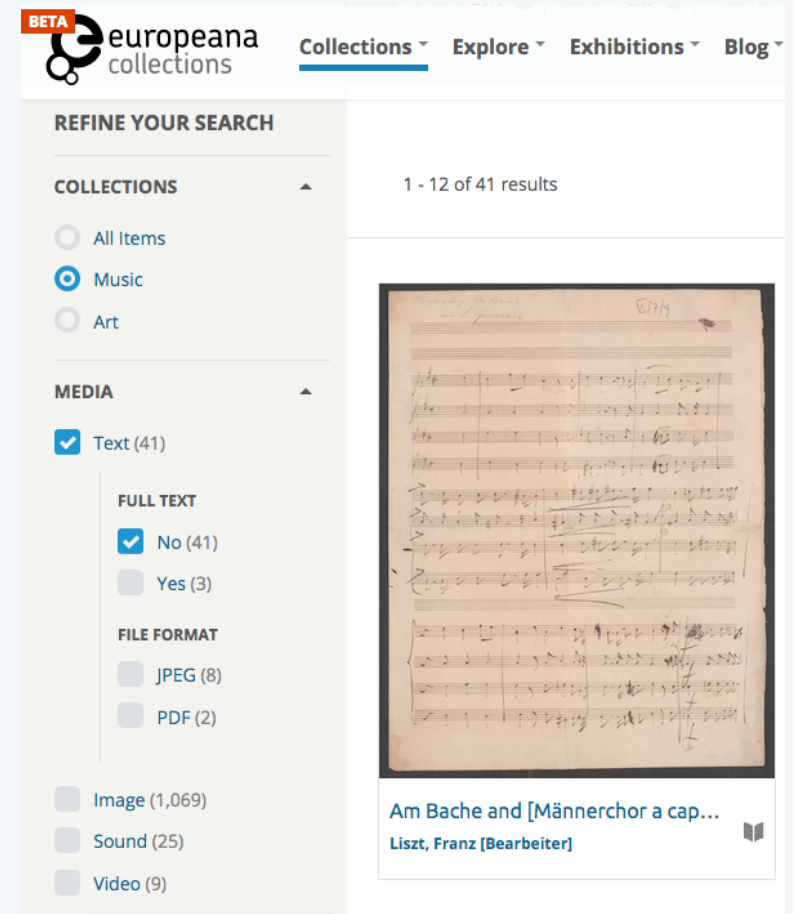
# (Big) musical data

- 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



The screenshot shows the Europeana Collections search interface. At the top, there is a navigation bar with the Europeana logo, the word "collections", and menu items for "Collections", "Explore", "Exhibitions", and "Blog". Below the navigation bar is a "REFINE YOUR SEARCH" section. Under "COLLECTIONS", there are radio buttons for "All Items", "Music" (which is selected), and "Art". Under "MEDIA", there is a checked checkbox for "Text (41)". Below this, there are two sections: "FULL TEXT" with a checked checkbox for "No (41)" and an unchecked checkbox for "Yes (3)", and "FILE FORMAT" with unchecked checkboxes for "JPEG (8)" and "PDF (2)". At the bottom of the filters, there are three more options: "Image (1,069)", "Sound (25)", and "Video (9)". To the right of the filters, it says "1 - 12 of 41 results". Below this is a preview of a musical score manuscript. The manuscript is titled "Am Bache and [Männerchor a cap...]" and is by "Liszt, Franz [Bearbeiter]".

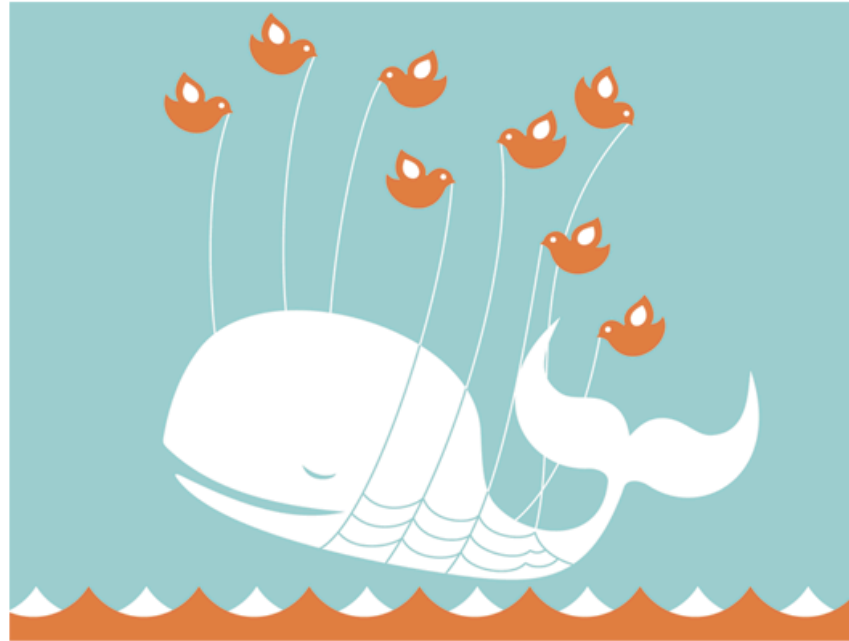


twitter

Home Public Timeline Help

**Twitter is over capacity.**

Too many tweets! Please wait a moment and try again.

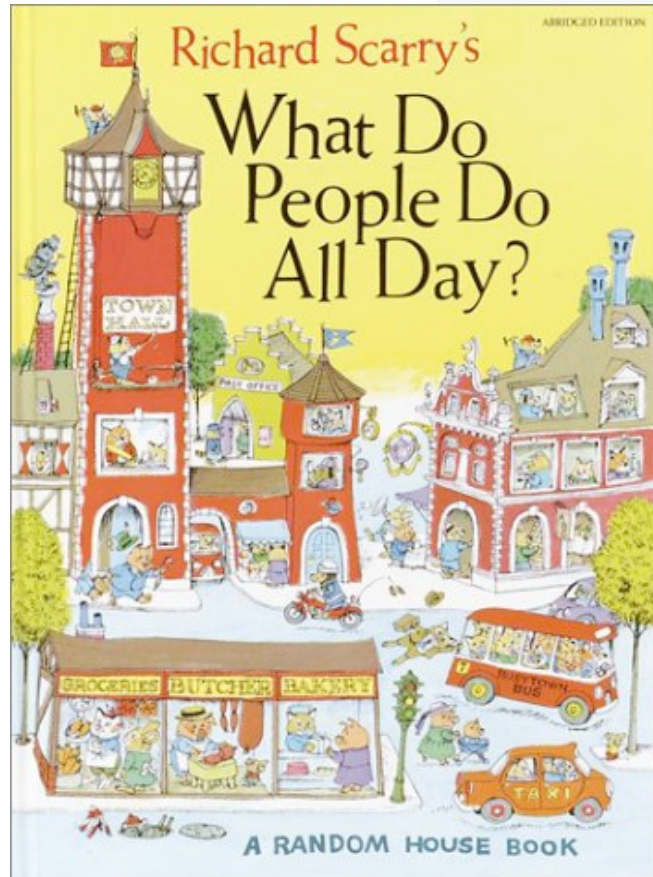


# HUMANISATION



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# What Do Musicologists Do All Day?



Joint work with Charles Inskip,  
University College London

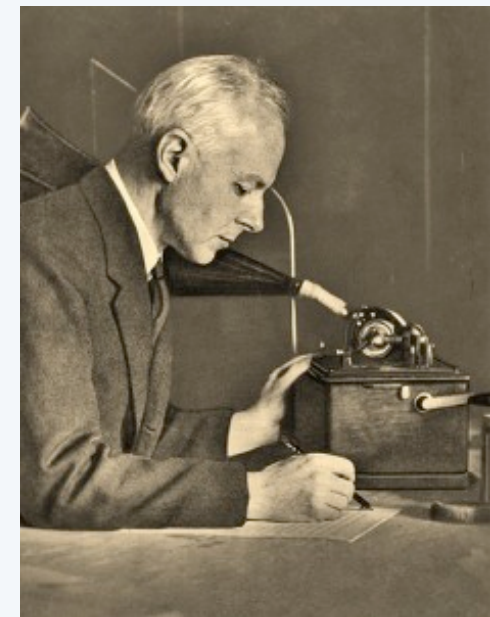
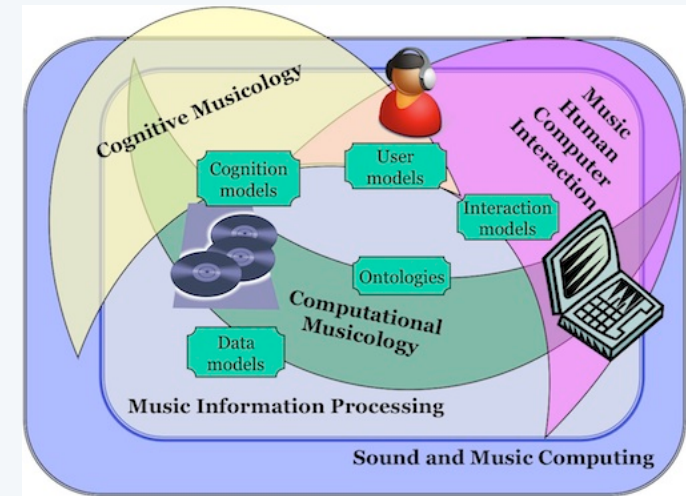
worldwide survey, over 600 respondents

- 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

benefit	occurence
Access to primary and secondary sources	232
Speed, save time	116
Communication	109
Searchability, findability, discoverability	59
Large datasets can be analysed	51



14



19



32



# Risks and limitations

- research
  - uniformity
  - superficiality
  - sustainability
- resources
  - selective digitization
  - quality issues
  - materiality difficult to assess
- software
  - technical limitations
  - search functionality insufficient
  - learning curve

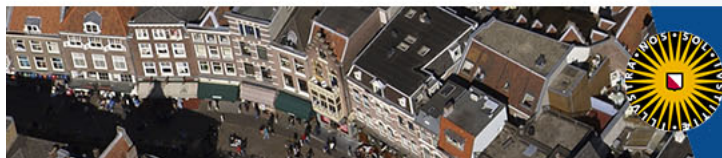
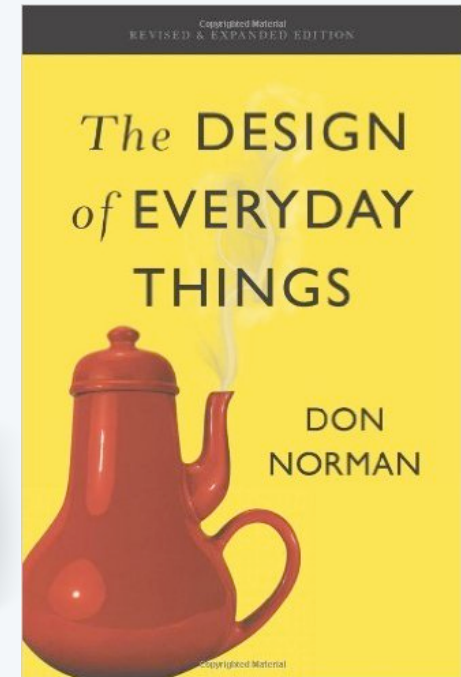
*technology  
puzzles as much  
as it empowers*



# 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...

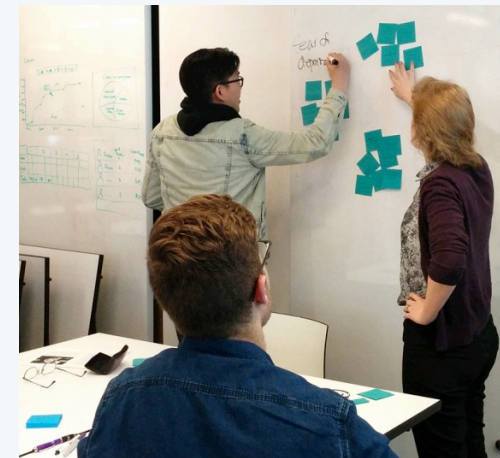
Donald Norman, *The Design of Everyday Things* (rev. ed. 2013)



# 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



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# Dutch Song Database

- stanza search
- melody search by keyboard

AND



all words (songs)



sort by

year



- [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



Louis Grijp

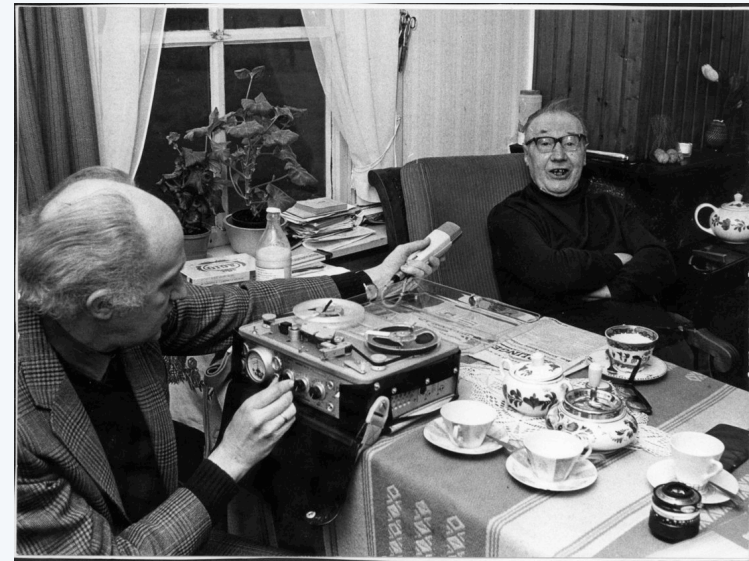


## *Under the Green Linden*

- subcollection with musical content
- 7000+ field recordings
- collected between 1950-1994
- pre-web crowdsourcing
  - field recordings
  - radio programmes
  - postcards
- many 'versions' of 'same' song



Ate Doornbosch doing fieldwork



**song:**

first line: Het was op ain Zotterdagoavend / Stond ik voor mien zoetelief deur

text norm: Ik heb de groene straat Zo dikmaals

music: with musical notation



recording: audio

available: transcription (music)

melody tune indication:

name: [geen wijsaanduiding]

Het was op een zoaterdagavond

*d.* - 72

Het was op een

1. Het was op een zoa-ter -dag - ao - vend

Stond ik veur men zoe-te-liefs deur,

all songs with this text

(121 songs & extra informatie)

find similar melodies

find similar first phrases

sung to this melody (songs)

record ID: 72701

**source:**

siglum: OPN OGL ([1950-1980 ca.])

title: Onder de Groene Linde: opnamebestand

song number: 21726

number:

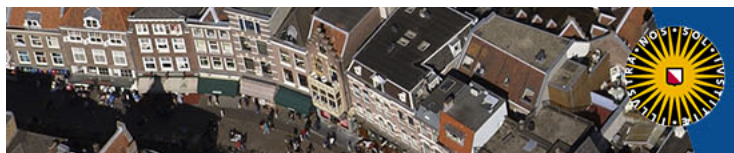
copy used: Amsterdam MI: OPN OGL

transcription Nederlands Volkslied-Archief 31358

number:

singer: Boltjes, Grietje [voorm. Havinga-Boltjes]

recording: Bellingwolde 31-01-1962





**song:**

first line: Het was op ain Zotterdagoavend / Stond ik voor mien zoetelief deur

*all songs with this text*

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

*(121 songs & extra informatie)*

music: with musical notation



*find similar melodies  
find similar first phrases*

recording: **audio**

available: **transcription (music)**

melody name: *tune indication:*  
[geen wijsaanduiding]

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

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

record ID: 72701

**source:**

siglum: **OPN OGL** ([1950-1980 ca.])

title: Onder de Groene Linde: opnamebestand

song number: 21726

number:

copy used: Amsterdam MI: OPN OGL

transcription Nederlands Volkslied-Archief 31358

number:

singer: **Boltjes, Grietje** [voorm. Havinga-Boltjes]

recording: Bellingwolde 31-01-1962



# 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

028413

30034

029456

028171



# 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)

The screenshot shows a software interface with tabs for 'Songs', 'Comparisons', and 'Motifs'. The 'Songs' tab is active, showing a table with columns for Name, Score ID, and Ogl ID. Below the table are buttons for 'Fetch', 'Remove', and 'Add'. There are also input fields for 'Melody Norm', '(Popup) Song Name', 'WCE Score ID', 'Melody Form', '(Ogl ID)', '(Custom Features)', and 'Comments'.

Name	Score ID	Ogl ID
138566_01	NLB138566_01	
122756_01	NLB122756_01	
016056_01	NLB016056_01	

1 out of 3

Fetch Remove Add

Melody Norm: Een\_ridder\_en\_een\_meisje\_jong

(Popup) Song Name: 138566\_01

WCE Score ID: NLB138566\_01

Melody Form: AAB

(Ogl ID):

(Custom Features): Mac 10.5: features.@count

Comments:



# Outcomes

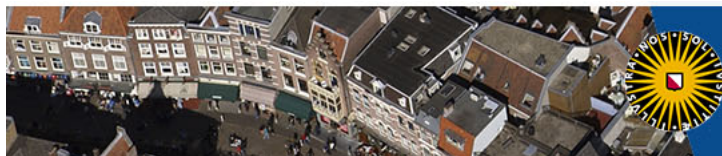
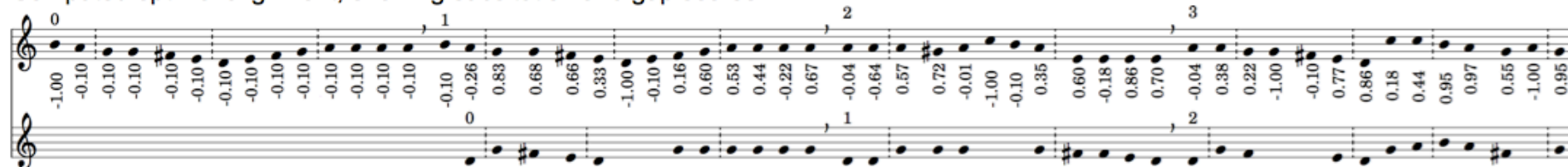
- commitment of researchers
- input for computational model
  - sequence alignment approach
  - cost function based on annotations
  - PhD thesis Peter van Kranenburg (2010)



En daar reed eris een heer, en hij was wellegemoed En daar reed eris een heer, en hij was wellegemoed En hij droeg er d'r rozekrans on er zijn hoed En hij droeg er een ro - zekrans on erre zijn hoed.

Daar reed er een heer die was wel dideldon die was wel don da don didelon don Daar reed er een heer die was wel dergemoed

Computed optimal alignment, showing substitution and gap scores:



**song:**

first line: Het was op ain Zotterdagoavend / Stond ik voor mien zoetelief deur

all songs with this

text norm: Ik heb de groene straat Zo dikmaals t

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transcription Nederlands Volkslied-Archief 31358

number:

singer: Boltjes, Grietje [voorm. Havinga-Boltj

recording: Bellingwolde 31-01-1962

In Frank - rijk daar staat er een her - berg

Het was op een

In Frank - rijk daar staat er een her - berg

Er wa - ren twee ko - nings - kin - d'ren

Het was kom - mer en el - len - de

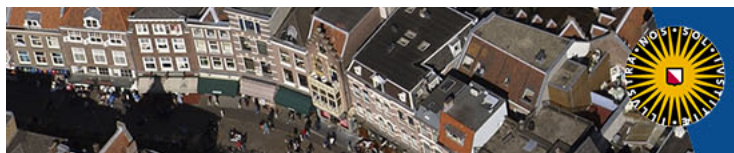
In Frank - rijk daar staat er een her - berg

Hop, hop, hop! Paard - je in ga - lop!

tra

odies

ty





# EVALUATION



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# 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

Myriam C. Traub<sup>1\*</sup>, Jacco van Ossenbruggen<sup>1,2</sup>

## 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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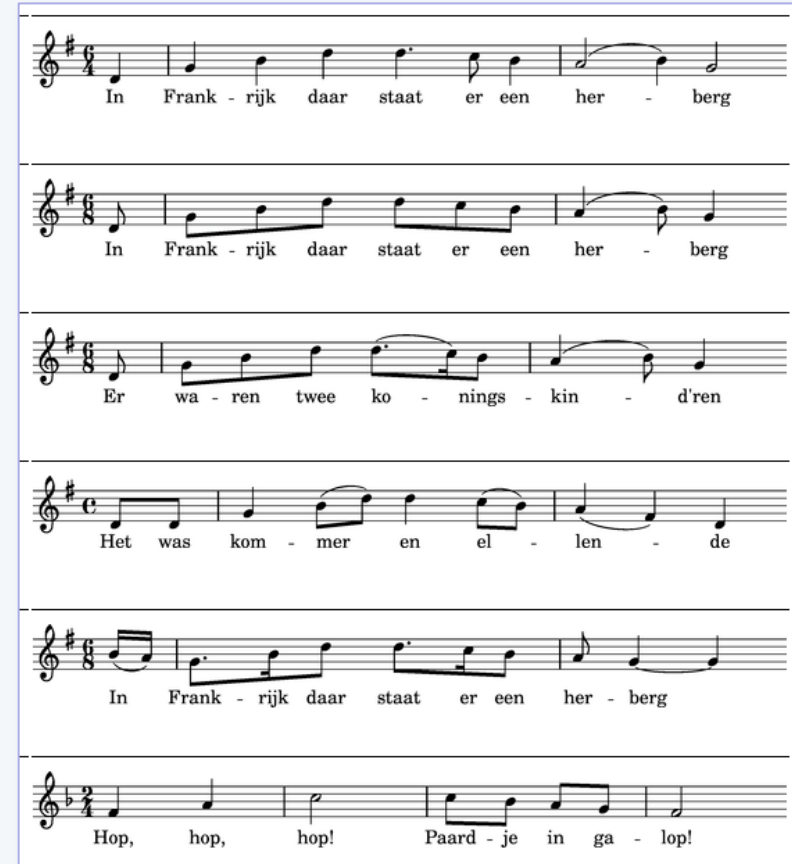
<http://oai.cwi.nl/oai/asset/23500/23500D.pdf>

- 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



The image displays six staves of musical notation for the Dutch song 'De Herberg'. Each staff shows a different melodic line for the same lyrics. The lyrics are: 'In Frank - rijk daar staat er een her - berg', 'Er wa - ren twee ko - nings - kin - d'ren', 'Het was kom - mer en el - len - de', and 'Hop, hop, hop! Paard - je in ga - lop!'. The notation includes treble clefs, a key signature of one sharp (F#), and various time signatures (3/4, 6/8, and 2/4).

*what makes a computational result acceptable for a humanities reviewer?*





# CONCLUSION



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# 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!

