

An Interactive Multimedia Companion to Wagner's Lohengrin

Encoding and visualising a motivic study

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Motivation

Musicological argument has traditionally been communicated in writings that are textual and linear, and occasionally illustrated with figures. Yet they are almost always concerned with diverse subjects and pieces of evidence, each potentially exemplified by different media, and each potentially a springing point for digression and exploration of the author's argument.

While the activities required to explore the referenced materials may not be linear, this is neither embodied in nor enabled by any traditional medium of communication.

Prof. Laurence Dreyfus has written an article exploring the sophisticated way in which Richard Wagner treats recurring themes (**motif iterations**) in his operas. Taking *Lohengrin* (1848), the story of a Grail knight coming to the aid of a damsel in distress, he shows how one motive is transformed, reflecting its role in the drama.

We have built the **Lohengrin TimeMachine**, a tablet-based interactive web app which acts as a companion to the article, making it easier to explore the development of musical and dramatic ideas. We also include a video introduction written and presented by Prof. Dreyfus.

Interactive essay

deutlich eingepreßt hat]. The passage in question refers to the iteration of the theme in Act II, sc. iv, signaled by **FRAGEVERBOT 9** on the TimeMachine. In his letter, Wagner wants to ensure that the curtain not fall too soon at the end of Act II. Instead, **FRAGEVERBOT 9** must coincide with that moment (according to the stage direction) when Elsa sees that Ortrud 'has raised her arm as if she were sure of victory'. Wagner's letter in fact specifies the unspoken verbal content of Ortrud's gesture. It says: 'Just go in, you shall flout the prohibition.'

Yet this iteration of the theme in **FRAGEVERBOT 9** doesn't so much repeat Lohengrin's prohibition as issue a threat about the ban. To notice this shift is to pay attention to the x-segment. Instead of the FRAGEVERBOT 9, Wagner has added an anticipatory upbeat that evokes a fanfare (da-dá). This little addition of Lohengrin's opening words – Nie sollst du mit mir sein – with a strong accent on the word Nie (Never) recede into the background, and the theme acts as a fanfare of doom. It is as if a potent instrumental choir were to issue a warning about the promise she made. It is also significant

A navigable timeline shows all occurrences of a motive, providing a visual summary and a base for navigation.

A sidebar in the essay links to the inspector view

Users can click orange play buttons in all views to hear recordings

Iteration inspector

Frageverbot 1 – A Flat Minor (x-x-y) Change motif iteration

Poem Vocal Score Orchestration

Nie sollst du mich befragen, noch Wissens Sorge tragen, woher ich kam der Fahrt, noch wie mein Nam' und Art!

Lohengrin
Nie sollst du mich befragen,
noch Wissens Sorge tragen,
woher ich kam der Fahrt,
noch wie mein Nam' und Art!

Lohengrin
Never shall you ask me
nor trouble yourself to know
whence I came, my name or my kind!

From the inspector, a second iteration can be chosen for comparison.

An iteration can be inspected through score, commentary text and a recording.

Iteration navigator

Time Machine

Frageverbot 2 – A Minor (x-x-y)

Poem Vocal Score Orchestration

Nie sollst du mich befragen, noch Wissens Sorge tragen, woher ich kam der Fahrt, noch wie mein Nam' und Art!

Lohengrin
Nie sollst du mich befragen,
noch Wissens Sorge tragen,
woher ich kam der Fahrt,
noch wie mein Nam' und Art!

Users can flick through all iterations, viewed as libretto, vocal score or orchestration summary.

All iterations in the opera can be browsed as score, text or orchestration.

Iterations are selected using the navigator

Iteration comparison

Frageverbot 6 Change motif iteration

Poem Vocal Score Orchestration

2 Flutes
2 Cor anglais
2 A Clarinets
A Bass Clarinet
2 Bassoons
Bassoon
Horn in D
Elsa
Ortrud
Violin
Violin
Viola
Cello

Cor anglais and bass clarinet, x1 p, x2, più p, y-segment cor anglais pp.

Frageverbot 9 Change motif iteration

Poem Vocal Score Orchestration

3 Flutes
2 Oboes
Cor anglais
2 B♭ Clarinets
Bass Clarinet
3 Bassoons
Horn in F
Horn in F
2 Horns
3 F Trumpets
3 Trombones
E♭ Bass tuba
Timpani
Organ
Violin
Viola
Cello
Contrabass

Accented 3 trumpets and timpani roll and tutti strings

Each instrument playing is shown as a ribbon coloured by the instrument's section of the orchestra

Two iterations can be compared side by side

Implementation

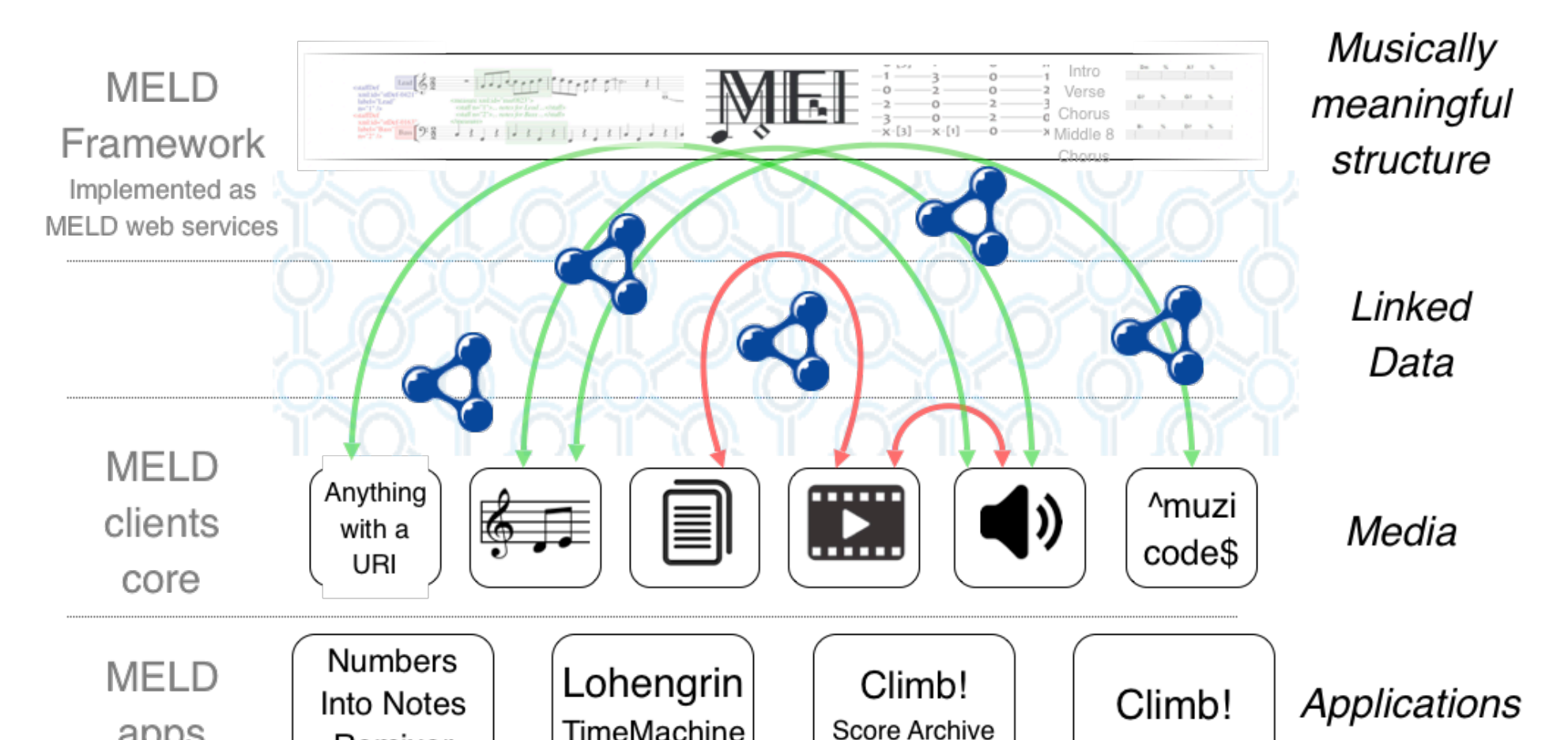
From the viewpoint of music informatics, we encode the musicologist's analysis of the opera, along with its relationships to the multimedia materials, using **Linked Data** as an independent, repurposable Research Object, or **Digital Music Object**.

Interactive views in the app are generated directly and dynamically in the browser from this knowledge graph using novel visualisations, which enable the user to navigate all possible paths through the evidential multimodal materials.

<https://um.web.ox.ac.uk/lohengrin>

The application is built with a new version of the **MELD** (Music Encoding and Linked Data) [1,2] framework. MELD traverses Linked Data graphs to select and filter information, with components to create and retrieve annotations, and display and interact with music, text, graphics and audio and video.

MELD is written in Javascript and Python, with resources using standards including MEI [3], TEI, the Music Ontology and Web Annotations [4]. By building on Web standards and providing modular libraries, we provide capability for supporting a wide range of applications.



- [1] D.M. Weigl and K.R. Page. A framework for distributed semantic annotation of musical score: "Take it to the bridge!". In Proc. ISMIR 2017, Suzhou, China, October 2017.
- [2] D. Lewis, D.M. Weigl, J. Bullivant & K.R. Page. Publishing musicology using multimedia digital libraries: creating interactive articles through a framework for linked data and MEI. In Proc DLfM 2018. ACM, New York 2018.
- [3] T. Crawford and R. Lewis. Review: Music encoding initiative. *Journal of the American Musicological Society*, 69(1):273–285, Spring 2016.
- [4] M.E. Barnes, N. Ledchumykanthan, K. Pham, and K. Stapelfeldt. Annotation-based enrichment of digital objects using open-source frameworks. *Code4Lib Journal*, (37), 2017.