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Tonalities presentation

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9th Polifonia meeting

Tonalities presentation

Bologna, 22 April 2024



1) Pilot description

What?

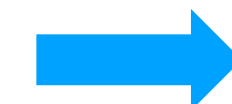
TONALITIES leverages web technologies

- a) to grasp how distinct theoretical viewpoints bring to light different, sometimes conflicting musical properties;
- b) to confront different interpretations;
- c) to provide documented and authored analyses of musical pieces.

How?

To this end, TONALITIES

- a) makes use of theoretical models, which
- b) can be associated manually and/or by means of artificial Intelligence with arbitrary selections on the score and
- c) lead to critical analyses through collaborative approaches.



Where?

The focal point of TONALITIES is an [Online collaborative annotation interface for music analysis](#) that addresses the following challenges:

- Select different models, corresponding to different theoretical and analytical viewpoints;
- Select any item on the score (roots, groups of notes, etc.) at any level of granularity;
- Associate concepts derived from the models with these analytical elements (create nested selections, edit a selection or add/remove elements, including other selections);
- Comment on the analytical annotations;
- Compare the annotations made on the same score either by different users or on the basis of different models.

2) Achievements

- Through pilot-specific validation protocol

Validation method	Expected goals	Achievements
<i>a. Input validation</i>		
1) Quantitative validation of input data	5 theoretical models	✓ 5 theoretical models + 4 annotation models
	1.000 MEI scores	✓ 1.168 MEI scores
2) Validation of input data quality by experts	100% compliance with Tonalities Score Quality Validation Protocol	✓ Global check of metadata and music values in MEI scores
<i>b. Validation of tools/means/software</i>		
1) Validation of interface by users/experts	At least score of 3 in the satisfaction questionnaire	✓ Score of 1.58 in the last iteration of the satisfaction questionnaire
2) Validation of performance, requests/information passed between front and back end	SPARQL Query for analytical annotations	✓ Global check of the musical annotations
	Shortcuts between each annotation and the score	✓ Successfully applied
<i>c. Output/goal validation</i>		
1) Validation of results by ground truth	Modal Classification Reasoner	✓ See SANDRA (precision: up to 0.73, recall: up to 0.77)

- Through Polifonia Ecosystem components

Typology	Component(s)
Application	Tonalities Interface
Corpus	Tonalities corpora of MEI scores
Dataset	Tonalities realised analytical annotations
Mockup	Mockup for Tonalities Interface
Ontology	Tonalities annotation models
	Tonalities theoretical models
	Music Meta (contribution)
	PON (contribution)
Script	MeiHead Parser
	Alignment (import/export)
Story	Conflicting theoretical interpretations
	Conflicting analytical annotations

3) Lessons learnt

- Feedback from potential users (satisfaction questionnaire) → for improving Tonalities' interface
- Guided analytical scenarios accompanied by video-tutorials in the satisfaction questionnaire → valuable method for presenting Tonalities' interface features to the potential users
- Personalized analytical scenario → important stress test for evaluating the adaptability of Tonalities' interface
- Involving stakeholders and adopters → for measuring the scientific community's interest towards Tonalities' objectives and tools
- Reasoner applied to Tonalities' interface analytical results → ability to combine manual and machine annotation in a coherent environment

4) Sustainability/exploitation actions planned

Follow-up action plan (after the end of *Polifonia*)

- Interface for managing scores and analytical projects (in the process of being implemented, scheduled for June 2024);
- Enable users to launch, directly from the interface, automated inference of concepts by machine learning and/or rigorous formalisation (scheduled for June 2024);
- Autonomous design and import of annotation models by users (Summer 2024);
- Adaptive and selective display of annotations and labels on the score: filters, search options, hierarchies, free comments, etc. (starting in Autumn 2024);
- Autonomous import of annotation sets (starting in Autumn 2024);
- Score synchronisation with audio sources (starting in Autumn 2024).

Identified sources for funding:

- Sorbonne université (Programme de prématuration 2024)
- CNRS (OPEN)

5) Issues to be addressed during the meeting and before the review

- Need: help for a check-up of Tonalities components in GitHub/Ecosystem (Enrico Daga / Marco Ratta?)

Polifonia
Thanks

