

# Automatic Scoring-up Tool for Mensural Music

Martha E. Thomae

**SIMSSA Workshop XII**  
CIRMMT, McGill University  
Montreal, August 7<sup>th</sup>, 2017

**T**ertium  
psie  
clerfon  
Existe  
clerfon  
K. psie  
clerfon



**B**ass  
psie  
clerfon  
Existe  
clerfon  
K. psie  
clerfon

*Asterium caput descendit tonorem  
pudicissimam et sic p totam missam*



**S**ont  
psie  
clerfon  
Existe  
psie  
clerfon



**T**en  
psie  
clerfon  
Existe  
clerfon  
psie  
clerfon



# Motivation

- The purpose of this project is to take all the notes from each of the parts (i.e., voices) of a mensural piece and line them up automatically, in order to present the piece in score format, a process that we refer to as “scoring up”
- To facilitate counterpoint studies (this is, the study of the relation between the voices)

# Scoring-up tool

- The process of scoring up involves the correct alignment of the notes from the different voices
- But, in order to line up the notes, we need to know the duration of each of the notes
- This is particularly challenging when dealing with mensural notation

The duration of the individual note symbols in mensural notation is not absolute, but rather context-dependent

# Mensural Notation

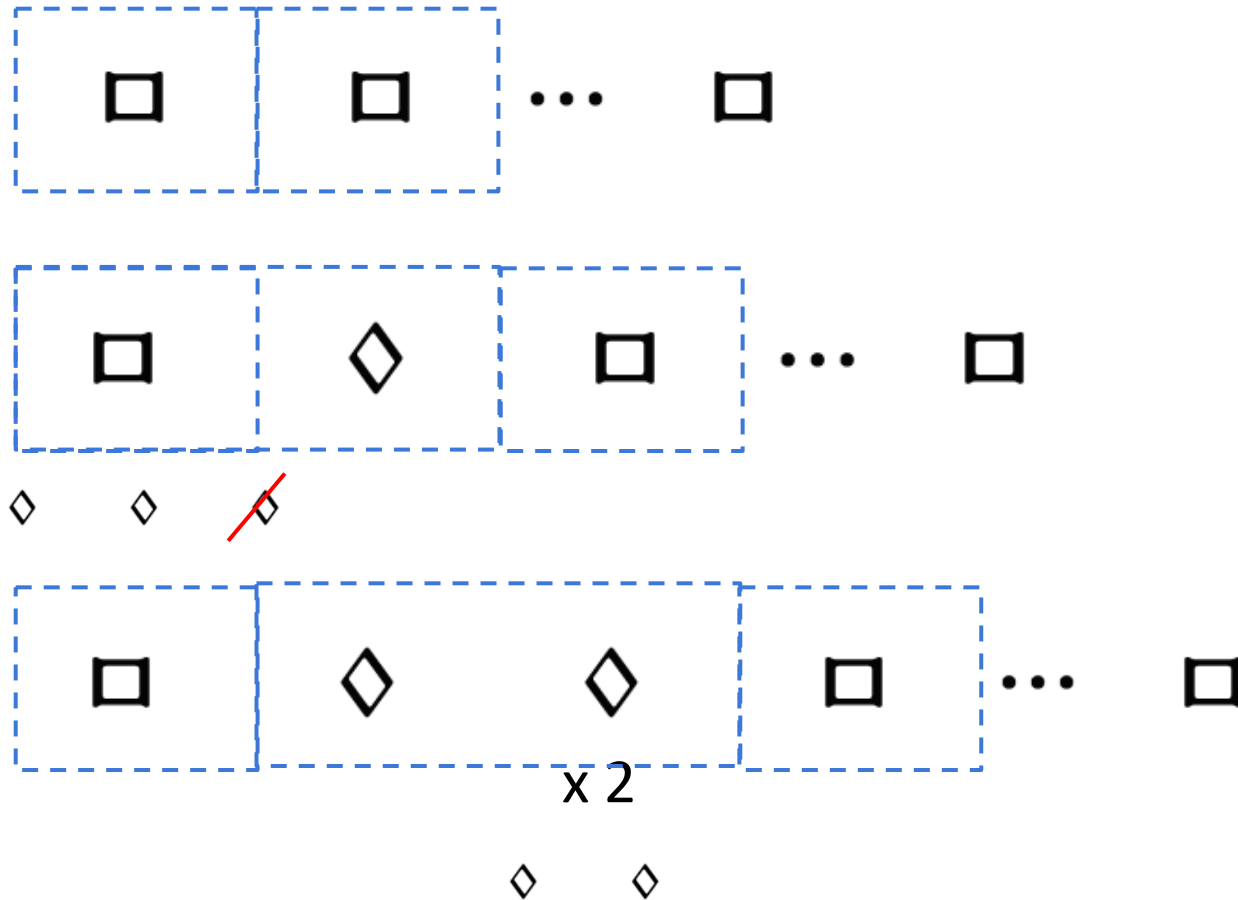
- There is a clear hierarchy in the note duration
- But, the actual value of these notes is ambiguous
- It can either be triple (i.e., “perfect”) or duple (i.e., “imperfect”)
- The value is determined by two factors:
  - Mensuration
  - Context



Notes		Values				
Name	Shape	Perfect			Imperfect	
Maxima	☐	☐	☐	☐	☐	☐
Long	☐	☐	☐	☐	☐	☐
Breve	☐	◇	◇	◇	◇	◇
Semibreve	◇	↓	↓	↓	↓	↓

# Examples of Context Changing the Note's Value

Mensuration: Breve = 3 → Breves are perfect by default



*Principles of  
Imperfection  
and Alteration*

**Imperfection**  
Perfect → Imperfect

**Alteration**

# Scoring-up tool

- Deals with the context-dependent nature of mensural notation
  - By implementing the “principles of imperfection and alteration”
- Deals with other non-context related features:

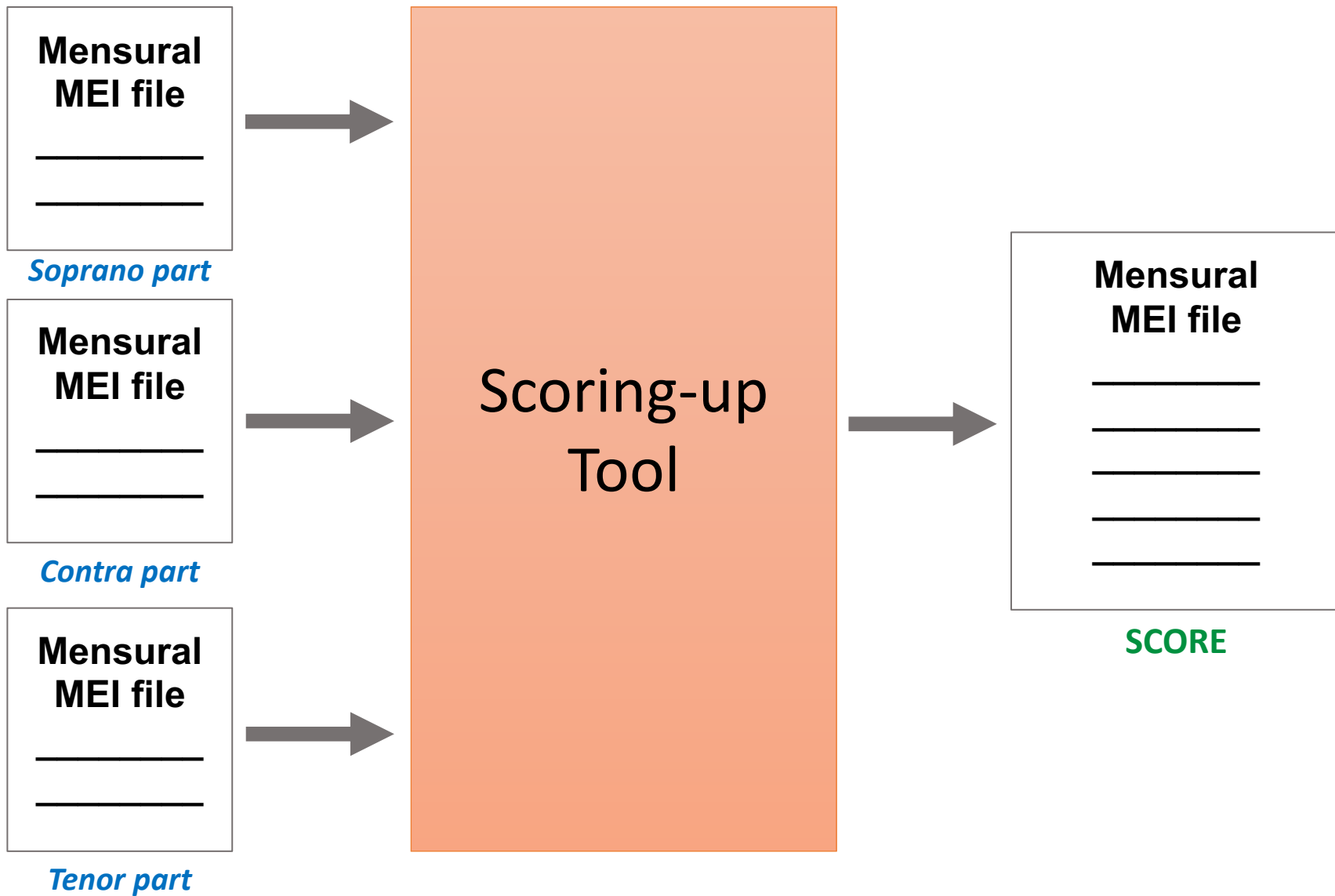
- Dots of Augmentation →

**When?**  
Distinguish between “dots of division”  
and “dots of augmentation”

- Coloration →

**When coloration has an effect on the note value?**





# Example: Parts

Superius



Tenor



Contratenor



# Without using the Scoring-up Tool

The image displays a musical score for three voices: Superius, Tenor, and Contratenor. The score is presented in two systems. The first system shows the beginning of the piece, with the Superius part starting on a treble clef and the Tenor and Contratenor parts starting on a soprano clef. The second system continues the music, with the Superius part on a soprano clef and the Tenor and Contratenor parts on a soprano clef. The score is written in a style that uses diamond-shaped notes and vertical bar lines to indicate phrasing. The Superius part is written in a higher register than the Tenor and Contratenor parts. The Tenor and Contratenor parts are written in a lower register than the Superius part. The score is written in a style that uses diamond-shaped notes and vertical bar lines to indicate phrasing. The Superius part is written in a higher register than the Tenor and Contratenor parts. The Tenor and Contratenor parts are written in a lower register than the Superius part.

# With the Scoring-up Tool

The image displays a musical score for three vocal parts: Superius, Tenor, and Contratenor. The score is presented in a system of seven staves. The top three staves are labeled 'Superius', 'Tenor', and 'Contratenor' on the left. Each staff begins with a treble clef and a common time signature. The music consists of a sequence of notes and rests, with vertical red lines indicating bar boundaries. The notes are represented by diamond shapes, and rests are indicated by horizontal lines. The score is divided into measures by vertical red lines. The bottom four staves continue the musical notation without labels.

# Conclusions

- The scoring-up tool presents the piece in score format
- Facilitates visualizing the vertical sonorities and studying the relation between the voices of a piece, which was difficult given the separate-parts layout of the original sources
- Preserves the original note values

# Thank you!

**SIMSSA** | Single Interface for Music  
Score Searching and Analysis



Social Sciences and Humanities  
Research Council of Canada

Conseil de recherches en  
sciences humaines du Canada

Canada



McGill



Schulich School of Music  
École de musique Schulich

DDMAL

DISTRIBUTED DIGITAL MUSIC  
ARCHIVES & LIBRARIES LAB



Centre for Interdisciplinary Research  
in Music Media and Technology

Fonds de recherche  
Société et culture

Québec

