



# *Differentiae Database*

<http://differentiaedatabase.com>

Username: admin

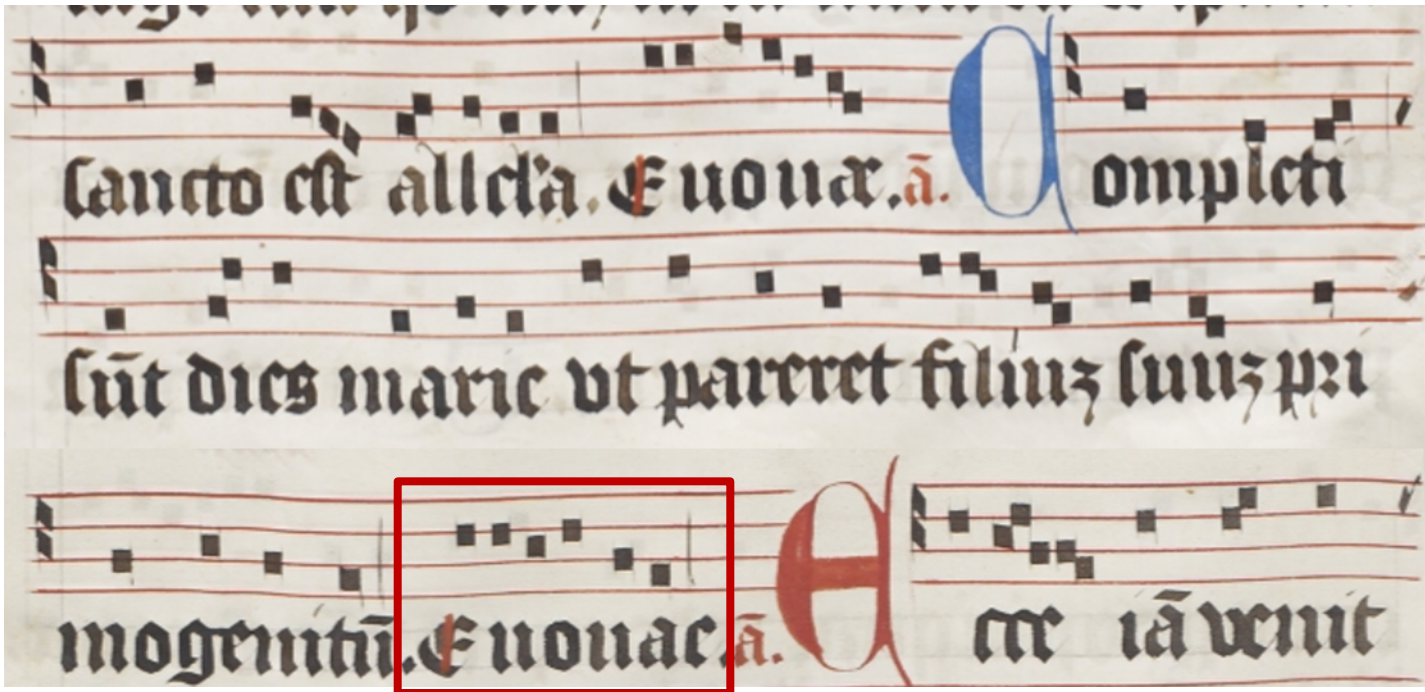
Password: Dalhousie2019

Rebecca Shaw

SIMSSA XIX (September 21, 2019)

r.shaw@utoronto.ca

1 + 4



[2] + 3

1. Antiphon



[2. Psalm and  
Doxology]

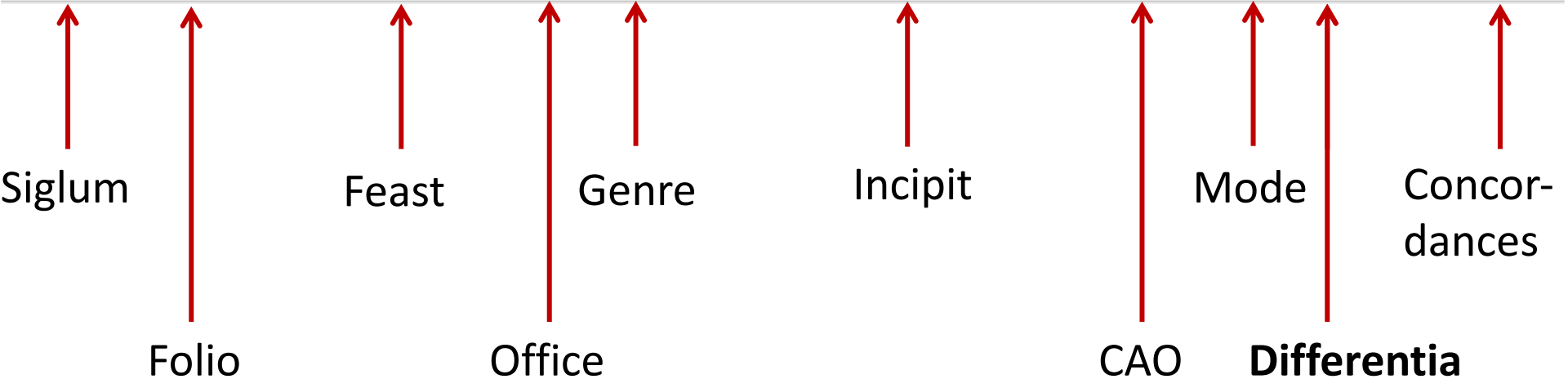


3. Differentia



4. Antiphon

|           |      |    |                      |    |   |   |   |        |   |   |               |
|-----------|------|----|----------------------|----|---|---|---|--------|---|---|---------------|
| I-PCsa 65 | 313v | 1  | Fer. 3 Hebd. 2 Quad. | V2 | A | M | <a href="#">Omnes enim vos fratres estis</a>  | 004121 | 4 | 2 | C E H R F L   |
| I-PCsa 65 | 313v | 2  | Fer. 3 Hebd. 2 Quad. | E  | A |   | <a href="#">Qui major est vestrum erit</a>    | 004477 | 8 | 1 | CGBEMVHRDFS   |
| I-PCsa 65 | 313v | 3  | Fer. 4 Hebd. 2 Quad. | L  | A | B | <a href="#">Ecce ascendimus Jerusalem et</a>  | 002496 | 7 | 3 | CGBEMVHRDFS   |
| I-PCsa 65 | 313v | 4  | Fer. 4 Hebd. 2 Quad. | V2 | A | M | <a href="#">Sedere autem mecum non est</a>    | 004857 | 7 | 3 | CG EM H R FSL |
| I-PCsa 65 | 313v | 5  | Fer. 4 Hebd. 2 Quad. | E  | A |   | <a href="#">Tradetur enim gentibus ad</a>     | 005165 | 1 | 1 | CGBE VHRDFS   |
| I-PCsa 65 | 313v | 6  | Fer. 5 Hebd. 2 Quad. | L  | A | B | <a href="#">Opera enim ipsa quae dedit</a>    | 203691 | 7 | 3 |               |
| I-PCsa 65 | 313v | 7  | Fer. 5 Hebd. 2 Quad. | V2 | A | M | <a href="#">Claritatem ab hominibus non</a>   | 001828 | 1 | 4 | V             |
| I-PCsa 65 | 313v | 8  | Fer. 5 Hebd. 2 Quad. | E  | A |   | <a href="#">Neque ejus vocem umquam</a>       | 203237 | 8 | 1 |               |
| I-PCsa 65 | 313v | 9  | Fer. 6 Hebd. 2 Quad. | L  | A | B | <a href="#">Malos male perdet et vineam</a>   | 003686 | 8 | 1 | C E VHRD S    |
| I-PCsa 65 | 313v | 10 | Fer. 6 Hebd. 2 Quad. | V2 | A | M | <a href="#">Malos male perdet et vineam</a>   | 003687 | 6 | 1 | CGBEMVHRDFS   |
| I-PCsa 65 | 313v | 11 | Fer. 6 Hebd. 2 Quad. | E  | A |   | <a href="#">Quaerentes eum tenere</a>         | 004428 | 3 | 1 | CGBEMVHRDFS   |
| I-PCsa 65 | 313v | 12 | Sabb. Hebd. 2 Quad.  | L  | A | B | <a href="#">Vadam ad patrem meum et dicam</a> | 005299 | 1 | 1 | C E VHRDF     |



Displaying 1 - 50 of 1430 unique *differentias*

| Diff. ID | Melodic transcription | Mode   | Saeculorum | Amen | No. of mss. ▼ | No. of theor. |
|----------|-----------------------|--------|------------|------|---------------|---------------|
| 129a     |                       | Mode 5 |            |      | 142           | 50            |
| 143b     |                       | Mode 7 |            |      |               |               |
| 7a       |                       | Mode 6 |            |      |               |               |
| 118a     |                       | Mode 8 |            |      |               |               |
| 66d      |                       | Mode 1 |            |      |               |               |
| 99d      |                       | Mode 8 |            |      |               |               |

# Differentiae Database

| Diff. ID | Example | Melodic transcription | Mode   | Old Code |
|----------|---------|-----------------------|--------|----------|
| 69b      |         |                       | Mode 1 | 1        |
| 66d      |         |                       | Mode 1 | 2        |
| 66l      |         |                       | Mode 1 | 3        |
| 64c      |         |                       | Mode 1 | 4        |

# Data Summary

- 159 manuscripts (1,258 unique *differentiae*)
- 61 theoretical treatises (435 unique *differentiae*)
- 1,457 unique *differentiae*
- 129,526 antiphons with standardized *differentiae*

# Purpose and impact

- provides a standardized means of indexing *differentiae*
- enables the cross-manuscript study of *differentiae*
  - clarify function of *differentiae* in antiphonal psalmody
  - improve understanding of modally-ambiguous antiphons
  - assist in identification of manuscript provenance
  - understand the ‘medieval’ memorization and categorization of antiphon melodies



1--h-h-g-f-gh-gfed 1, Da45, 4, 7, D1, D2g, D4, D2e, D1a, D01, ab, D3...



# 1--h-h-g-f-gh-gled--4



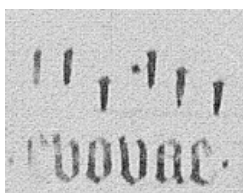
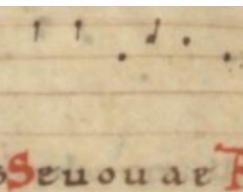
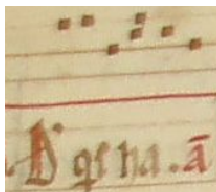
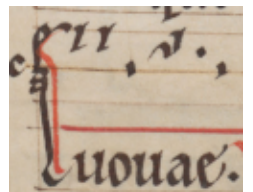
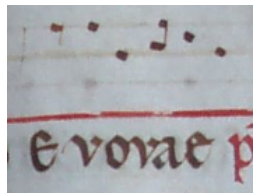


## Melodic Transcription:



Mode:

Mode 6



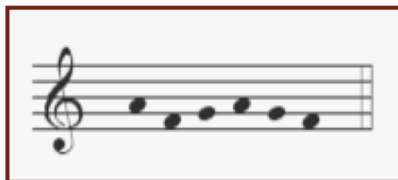
transposed *differentia*

variations in pitch repetition,  
syllabic grouping, and  
neumation

↑ ↑  
T7aA

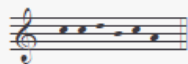
↓  
unique pitch contour

↓  
variations in transposition  
levels



# Differentia ID: 129a

Melodic Transcription:



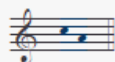
Mode:

Mode 5

Saeculorum:



Amen:



Syllabic contour:

n-n-n-n-n-n

Pitch contour:



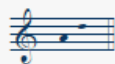
Overall direction:

Down

Overall movement:



Range:



Liquescents?:

No

Transposed?:

No

Found in 142 manuscript(s)

Paris, Bibliothèque nationale de France - Département des Manuscrits, latin 1085  
Sankt Gallen, Stiftsbibliothek, 390  
Sankt Gallen, Stiftsbibliothek, 391  
Toledo, Catedral - Archivo y Biblioteca Capítulares, 44.1  
Roma, Biblioteca Vallicelliana, C.5  
Toledo, Catedral - Archivo y Biblioteca Capítulares, 44.2  
Berlin, Staatsbibliothek zu Berlin Preußischer Kulturbesitz, Mus. 40047  
Vercelli, Biblioteca Capitolare, LXIV  
Montecassino, Monumento Nazionale di Montecassino - Biblioteca, 542  
Worcester, Cathedral - Music Library, F.160 (olim 1247) (with hymnal)  
Klosterneuburg, Augustiner-Chorherrenstift - Bibliothek, 1013  
Vercelli, Biblioteca Capitolare, LXX  
Monza, Basilica di S. Giovanni Battista - Biblioteca Capitolare e Tesoro, 15/79  
Gottschalk Antiphoner (fragments)  
Klosterneuburg, Augustiner-Chorherrenstift - Bibliothek, 1012

(Page 1)

Found in 50 theoretical source(s)

De modorum formulis et tonarius, 11th century  
De musica cum tonario, 11th century  
Commentum super tonos, 11th century  
Tractatus, 11th century  
Tonale Sancti Bernardi, 12th century  
Regulae de arte musica, 12th century  
Summa de Speculatione Musica, 13th century  
Tractatus de tonis, 13th century  
Tractatus de musica, 13th century  
Ars musica, 13th century  
Tractatus de intonatione tonorum, 14th century  
Intonarum, 14th century  
Tractatus de tonis, 14th century  
De origine musice artis, 14th century  
Speculum musicae, Liber sextus, 14th century

(Page 1)

# Saeculorum:

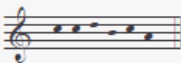


Contains 57 unique *differentias*

| Diff. ID | Melodic transcription | Saeculorum | Amen | Mode   | No. of mss. ▼ | No. of tonaries |
|----------|-----------------------|------------|------|--------|---------------|-----------------|
| 129a     |                       |            |      | Mode 5 | 142           | 50              |
| 131a     |                       |            |      | Mode 5 | 42            | 21              |
| 129c     |                       |            |      | Mode 5 | 25            | 0               |
| 130a     |                       |            |      | Mode 5 | 18            | 13              |
| T129aA   |                       |            |      | Mode 5 | 16            | 0               |
| 129o     |                       |            |      | Mode 5 | 16            | 3               |
| 131c     |                       |            |      | Mode 5 | 9             | 0               |
| 129t     |                       |            |      | Mode 5 | 9             | 0               |
| T129aB   |                       |            |      | Mode 5 | 8             | 0               |
| T131aA   |                       |            |      | Mode 5 | 8             | 0               |

# Differentia ID: 129a

Melodic Transcription:



Mode:

Mode 5

Saeculorum:



Amen:



Syllabic contour:

n-n-n-n-n-n

Pitch contour:



Overall direction:

Down

Overall movement:



Range:



Liquescents?:

No

Transposed?:

No

Found in 142 manuscript(s)

- Paris, Bibliothèque nationale de France - Département des Manuscrits, latin 1085
- Sankt Gallen, Stiftsbibliothek, 390
- Sankt Gallen, Stiftsbibliothek, 391
- Toledo, Catedral - Archivo y Biblioteca Capítulares, 44.1
- Roma, Biblioteca Vallicelliana, C.5
- Toledo, Catedral - Archivo y Biblioteca Capítulares, 44.2
- Berlin, Staatsbibliothek zu Berlin Preußischer Kulturbesitz, Mus. 40047
- Vercelli, Biblioteca Capitolare, LXIV
- Montecassino, Monumento Nazionale di Montecassino - Biblioteca, 542
- Worcester, Cathedral - Music Library, F.160 (olim 1247) (with hymnal)
- Klosterneuburg, Augustiner-Chorherrenstift - Bibliothek, 1013
- Vercelli, Biblioteca Capitolare, LXX
- Monza, Basilica di S. Giovanni Battista - Biblioteca Capitolare e Tesoro, 15/79
- Gottschalk Antiphoner (fragments)
- Klosterneuburg, Augustiner-Chorherrenstift - Bibliothek, 1012

(Page 1)

Found in 50 theoretical source(s)

- De modorum formulis et tonarius,11th century
- De musica cum tonario,11th century
- Commentum super tonos,11th century
- Tractatus,11th century
- Tonale Sancti Bernardi,12th century
- Regulae de arte musica,12th century
- Summa de Speculatione Musica,13th century
- Tractatus de tonis,13th century
- Tractatus de musica,13th century
- Ars musica,13th century
- Tractatus de intonatione tonorum,14th century
- Intonarum,14th century
- Tractatus de tonis,14th century
- De origine musice artis,14th century
- Speculum musicae, Liber sextus,14th century

(Page 1)



# Vercelli, Biblioteca Capitolare,

LXIV

Siglum

I-VCd LXIV

Century

12th century

Date range

1173-1200

Provenance

Vercelli

Monastic order or cathedral

Cathedral

Male/Female

Not applicable

Notation

Messine

Differentiae type

In-line

Information on differentias

In the original *Cantus* index for this manuscript, the *differentiae* were identified based on the second tonary included in the manuscript *I-VCd LXX* (ff. 213v-222r).

Bibliography

Brusa, Gionata. Inventory of "Vercelli, Biblioteca Capitolare, LXIV." In: *Cantus Manuscript Database for Latin Ecclesiastical Chant: Inventories of Chant Sources*. Directed by Debra Lacoste (2011-), Terence Bailey (1997-2010), and Ruth Steiner (1987-1996). Web developer, Jan Kolářček

Contains 33 unique *differentias*

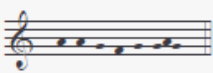
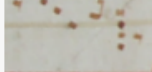
Mode

- Any -

Transposed

- Any -

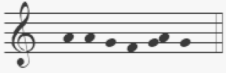
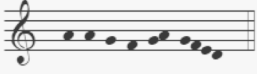
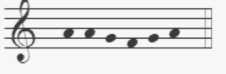

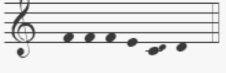
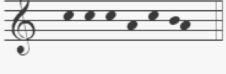
Apply

| Diff. ID | Example   | Melodic transcription  | Mode   | Old Code |
|----------|---|--|--------|----------|
| 69b      |    |    | Mode 1 | 1        |
| 66d      |    |    | Mode 1 | 2        |
| 66l      |    |    | Mode 1 | 3        |
| 64c      |   |    | Mode 1 | 4        |
| 72b      |  |  | Mode 1 | 5        |
| 304a     |  |  | Mode 1 | 6        |
| T304a    |  |  | Mode 1 | 6        |

Slide 12

# Dominican

Contains 20 unique *differentias*

| Diff. ID | Melodic transcription  | Mode ▲ |
|----------|--|--------|
| 66d      |   | Mode 1 |
| 72b      |   | Mode 1 |
| 64b      |   | Mode 1 |
| 152b     |   | Mode 2 |
| 152g     |   | Mode 2 |
| 97a      |  | Mode 3 |

- provenance
- century
- monastic order or cathedral
- male/female monastic order
- style of notation
- type of *differentia*

Consists of 5 manuscripts

Chicago, Art Institute of Chicago, Mrs.  
William E. Kelley Collection, 1911.142b

Provenance  
Bologna

Century  
13th century

Monastic order or cathedral  
Dominican

Notation  
Square

Differentiae type  
In-line

- standardized *differentia* ID

- *saeculorum*

- *amen*

- mode

- pitch contour

- syllabic contour

- direction of movement

- interval of movement

- range

- inclusion of liquescents

- transposition

| Saeculorum   | Amen   | Syllabic contour   | Mode   | Liquescents | Transposed? | Century |
|--|--|--|--|-------------|-------------|---------|
| <div>e-e-d-c</div> <div>e-e-d-e</div> <div>f-d-f-e</div> <div>f-f-d-e</div> <div>f-f-d-fe</div> <div>f-f-e-c</div> <div>f-f-e-cd</div> <div>f-f-e-d</div> <div>f-f-e-e</div> | <div>c-cd</div> <div>c-d</div> <div>c-da</div> <div>c-dc</div> <div>cd-c</div> <div>cd-cd</div> <div>cd-d</div> <div>cd-dc</div> <div>cd-def</div> | <div>n-n-n-n-n</div> <div>n-n-n-n-n-d</div> <div>n-n-n-n-n-dd</div> <div>n-n-n-n-n-ddd</div> <div>n-n-n-n-n-dddd</div> <div>n-n-n-n-n-ddddu</div> <div>n-n-n-n-n-ddddud</div> <div>n-n-n-n-n-dddu</div> <div>n-n-n-n-n-ndu</div> | - Any -  | - Any -     | - Any -     | - Any - |
| <div>Contour code</div> <div></div> <div>e.g., 1, 2, 3, etc.</div>   |  |  | <div>Differentia ID</div> <div></div> <div>Enter exact</div>                                     |             |             |         |
| <div>Pitch contour</div> <div></div> <div>Enter with Volpiano, see "User Tutorial"</div>   |  |  | <div>Melodic transcription</div> <div></div> <div>Enter with Volpiano, see "User Tutorial"</div> |             |             |         |
| <div>Appears in...</div> <div>- Any -</div> <div>Limit to manuscript or theorist sources</div>   |  |  |  |             |             |         |
| <div>Apply</div>   |  |  |  |             |             |         |

- provenance
- century
- monastic order or cathedral
- male/female monastic order
- style of notation
- type of *differentia* (in-line, margin, tonary letters)

|  |   |   |  |   |
|--|---|---|--|---|
| <b>Siglum</b><br><input type="text"/><br>Contains        | <b>Century</b><br>- Any -<br>Select one | <b>Order/Cathedral</b><br>- Any -<br>Select one | <b>Notation</b><br>- Any -<br>Select one | <b>Male/Female</b><br>- Any -<br>Select one |
| <b>Provenance</b><br><input type="text"/><br>Enter exact |   |   |  |   |
| <input type="button" value="Apply"/>                     |   |   |  |   |



# Impact and Significance

1. Enables cross-manuscript comparisons of *differentiae*
2. Existing definitions of *differentiae* are predominantly reliant on medieval theoretical sources
3. Provides answers to questions and contestations over *differentia* function and the relationship between *differentiae*, mode, and the melodic incipits of antiphons
4. Allows *differentiae* to be used in assessments of manuscript similarity and provenance, and studies of chant transmission

# Next steps

1. Finish editing manuscript *differentiae*
2. Launch public database
3. Add images for *differentiae* from theoretical sources and edit
4. Integrate the standardized *differentiae* IDs into *Cantus Manuscript Database* indices
5. Use standardized ID in future indices and continue adding manuscripts to the database

# Thank you!



Social Sciences and Humanities  
Research Council of Canada

Conseil de recherches en  
sciences humaines du Canada

Canada



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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



**compute** | **calcul**  
canada | canada



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