



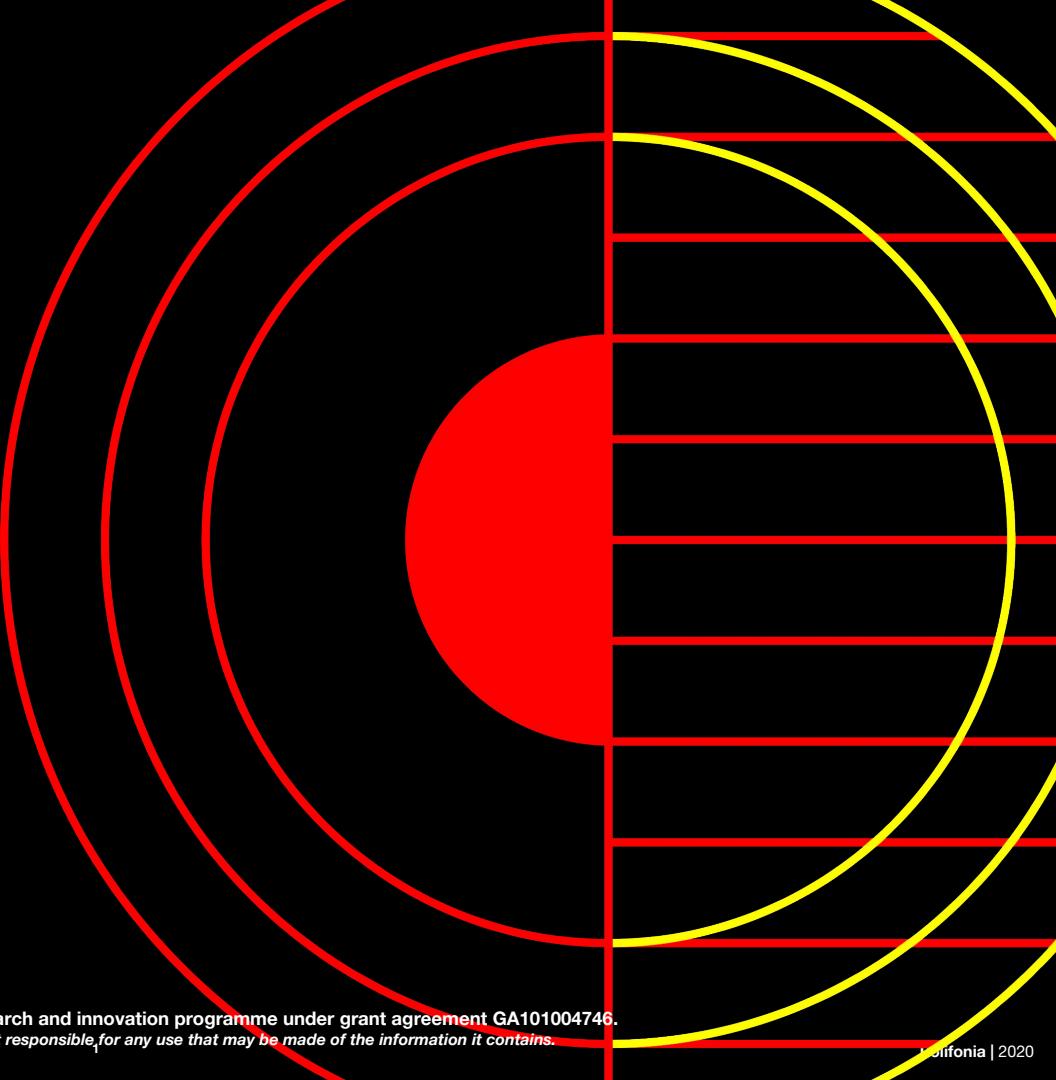
Bologna Meeting 13th-15th October 2021

TONALITIES - Goals and validation

14th October 2021 – 09:00-10:00

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Early adopter:
CNRS-IReMus



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TONALITIES' goals in a nutshell



- Classify musical works into modal-tonal categories on the basis of an in-depth understanding of their inner organisation;
- Apply different theoretical models to identify how the work's modal-tonal interpretation changes through the lense of a given theoretical framework;
- Confront modal-tonal attributions of a musical work;
- Look "inside" modal-tonal theories and compare them;
- Provide an argued, documented and authored modal-tonal analysis on the basis of the theoretical and analytical observations made.

Modelled on Polifonia's Persona/CQs/Story of Sethus

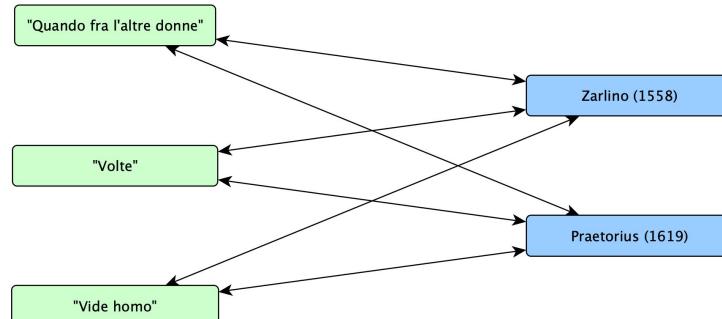
A day in Sethus' life

Sethus wants to analyse three works:

- Adrian Willaert, "Quando fra l'altre donne", *Musica nova* (1559)
- Michael Praetorius, "Volte", *Terpsichore* (1612), 233
- Orlando di Lasso, "Vide homo", *Lagrime di San Pietro* (1595), 21

... and has two theoretical models at his disposal:

- Gioseffo Zarlino, *Le Istitutioni Harmoniche* (1558), book IV.
- Michael Praetorius, *Syntagma Musicum* (1619), vol. III.



Goals and objectives

1. Adrian Willaert, "Quando fra l'altre donne", *Musica nova* (1559)

Sethus selects Willaert's madrigal "Quando fra l'altre donne", to which he applies the theoretical model derived from Gioseffo Zarlino, *Le Istitutioni Harmoniche* (1558), book IV.

Quando fra l'altre donne

Petrarca, *Canzoniere XIII* (13) Adrian Willaert (c.1490-1562)
Musica Nova (1559)

Prima parte

Cantus Altus Tenor Quintus Bassus

Quan - do fra l'al - tre don - ne ad ho - ra ad ho - ra A - mor vien
Quan-do fra l'al - tre don - ne ad ho - ra ad ho - ra
Quan - do fra l'al - tre don-ne ad ho - ra ad ho - ra
Quan-do fra l'al - tre don - ne ad ho - ra ad ho - ra
Quan - do fra l'al - tre don - ne ad ho - ra ad ho - ra A -

nel bel vi - so di co - ste - - i; Quan -
A - mor vien nel bel vi - so di co - ste - - i; Quan-to cia - scu - na e men bel -
A - mor vien nel bel vi - so di co - ste - - i; Quan-to cia - scu - na e men bel -
mor vien nel bel vi - so di co - ste - - i; Quan - to cia - scu - na e men bel -

to cia - scu - na e men bel - la - di le - i; Tan -
la di le - i; cia - scu - na e men bel - la - di le - i; Tan - to cre - scel de - sio, che m'in-na - mo -
la di le - i; cia - scu - na e men bel - la - di le - i; Tan - to cre - scel de - sio, che m'in-na -
le - i; cia - scu - na e men bel - la - di le - i; Tan - to cre - scel de - sio, che m'in-na -
la di le - i; Tan - to cre - scel de - sio, che m'in-na - mo -

1 5 10 15 20

....to this end, Sethus identifies in the score the information needed for the model to be applied (clefs, keys, cadences, voice ranges, etc.)

Quando fra l'altre donne (score)

stro sed te - ro: Si, ch'i vo già de la spe - ran - za gl - te - ro, de la spe - ran - za gl - te -

sen - te - ro: Si, ch'i vo già de la spe - ran - za gl - te - ro, de la spe - ran - za gl - te -

te - ro: Si, ch'i vo già de la spe - ran - za gl - te - ro, de la spe - ran - za gl - te -

Si, ch'i vo già de la spe - ran - za gl - te - ro,

6 40

te - ro: Si, ch'i vo già de la spe - ran - za gl - te - ro,

za al - te - ro: Si, ch'i vo già de la spe - ran - za gl - te - ro, de la spe - ran - za gl - te - ro.

Si, ch'i vo già de la spe - ran - za gl - te - ro, Si, ch'i vo già de la spe - ran - za gl - te - ro.

ro, Si, ch'i vo già de la spe - ran - za gl - te - ro, de la spe - ran - za gl - te - ro.

Si, ch'i vo già de la spe - ran - za gl - te - ro,

45



- clausula cantizans
- Phrygian clausula cantizans
- clausula altizans
- clausula tenorizans
- Phrygian clausula tenorizans
- clausula basizans

Goals and objectives

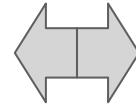
1. Adrian Willaert, "Quando fra l'altre donne", *Musica nova* (1559)

Sethus checks whether it is possible to make a modal attribution on the basis of the model

Property assertions: Willaert_Quando_fra

Object property assertions +

- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_d3
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_f2_1
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_f3
- cantusHasFinalis Willaert_Quando_fra_cantusHasFinalis_f4
- bassusHasAmbitus Willaert_Quando_fra_bassusHasAmbitus_f2_a3
- altusHasAmbitus Willaert_Quando_fra_altusHasAmbitus_e3_g4
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_c3_3
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_c3_5
- bassusHasClef Willaert_Quando_fra_bassusHasClef_f_4
- cantusHasClef Willaert_Quando_fra_cantusHasClef_c_2
- cantusHasAmbitus Willaert_Quando_fra_cantusHasAmbitus_c4_c5
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_d3_1
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_d3_3
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_d3_5
- hasSystemAlteration Willaert_Quando_fra_hasSystemAlteration_b-
- altusHasFinalis Willaert_Quando_fra_altusHasFinalis_c3
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_f2_3
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_a2
- quintusHasAmbitus Willaert_Quando_fra_quintusHasAmbitus_bb2_d4
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_f2
- tenorHasAmbitus Willaert_Quando_fra_tenorHasAmbitus_c3_d4
- tenorHasClef Willaert_Quando_fra_tenorHasClef_c_4
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_c3_2
- quintusHasClef Willaert_Quando_fra_quintusHasClef_f_3
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_c3_4
- quintusHasFinalis Willaert_Quando_fra_quintusHasFinalis_f3
- tenorHasFinalis Willaert_Quando_fra_tenorHasFinalis_a3
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_d3_2
- bassusHasFinalis Willaert_Quando_fra_bassusHasFinalis_f2



Description: CModePlagalPolyphonicF

Equivalent To +

- CModePlagalF
and (altusHasAmbitus some f3_f4)
and (bassusHasAmbitus some F2_F3)
and (cantusHasAmbitus some c4_c5)
and (tenorHasAmbitus some c3_c4)

SubClass Of +

- PolynomicCModePlagal
- CModePlagalF

General class axioms +

SubClass Of (Anonymous Ancestor)

- (hasIrregularCadenceOn some (not (a3)))
and (hasIrregularCadenceOn some (not (c3)))
and (hasIrregularCadenceOn some (not (c4)))
and (hasIrregularCadenceOn some (not (f3)))
- (hasIrregularInitialTone some (not (a3)))
and (hasIrregularInitialTone some (not (c3)))
and (hasIrregularInitialTone some (not (c4)))
and (hasIrregularInitialTone some (not (f3)))
- ((hasCadenceOn some a3) or (hasCadenceOn some c3) or (hasCadenceOn some c4) or (hasCadenceOn some f3))
and (hasInitialTone some a3) or (hasInitialTone some c3) or (hasInitialTone some c4) or (hasInitialTone some f3)
and (hasFinalis some f3)
and (hasSystemAlteration some SystemAlteration_b-)
- hasEthos some Cheerful
- hasEthos some Sad
- hasOctaveSpecies some OctaveSpeciesG
- hasEthos some Lamentful
- hasTextContentsAssociation some ThoughtsOfLove

Instances +

- Willaert_Quando_fra_laltre_donne

[List of Zarlino's references to music repertoire](#)

Goals and objectives

1. Adrian Willaert, "Quando fra l'altre donne", *Musica nova* (1559)

Based on his former observations, Sethus chooses another model: Praetorius (1619)

Property assertions: Willaert_Quando_fra

Object property assertions +

- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_d3
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_f2_1
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_f3
- cantusHasFinalis Willaert_Quando_fra_cantusHasFinalis_f4
- bassusHasAmbitus Willaert_Quando_fra_bassusHasAmbitus_f2_a3
- altusHasAmbitus Willaert_Quando_fra_altusHasAmbitus_e3_g4
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_c3_3
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_c3_5
- bassusHasClef Willaert_Quando_fra_bassusHasClef_f_4
- cantusHasClef Willaert_Quando_fra_cantusHasClef_c_2
- cantusHasAmbitus Willaert_Quando_fra_cantusHasAmbitus_c4_c5
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_d3_1
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_d3_3
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_d3_5
- hasSystemAlteration Willaert_Quando_fra_hasSystemAlteration_b-
- altusHasFinalis Willaert_Quando_fra_altusHasFinalis_c3
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_f2_3
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_a2
- quintusHasAmbitus Willaert_Quando_fra_quintusHasAmbitus_bb2_d4
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_f2
- tenorHasAmbitus Willaert_Quando_fra_tenorHasAmbitus_c3_d4
- tenorHasClef Willaert_Quando_fra_tenorHasClef_c_4
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_c3_2
- quintusHasClef Willaert_Quando_fra_quintusHasClef_f_3
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_c3_4
- quintusHasFinalis Willaert_Quando_fra_quintusHasFinalis_f3
- tenorHasFinalis Willaert_Quando_fra_tenorHasFinalis_a3
- hasCadenceOn Willaert_Quando_fra_hasCadenceOn_d3_2
- bassusHasFinalis Willaert_Quando_fra_bassusHasFinalis_f2

Description: CModePlagalP

Equivalent To +

- (altusHasAmbitus some f3_f4)
and (bassusHasAmbitus some f2_f3)
and (bassusHasClef some f_4)
and (bassusHasFinalis some f2)
and (cantusHasAmbitus some c4_c5)
and (cantusHasClef some c_1)
and (cantusHasFinalis some f4)
and (cantusHasRepercussio some Interval_f1_a1)
and (hasSystemAlteration some SystemAlteration_b-)
and (tenorHasAmbitus some c3_c4)

SubClass Of +

- CModePlagal
- isInSistema some TransposedSystem
- PlagalPolyphonicMode
- PolyphonicCModePlagal
- TransposedMode

General class axioms +

SubClass Of (Anonymous Ancestor)

- hasOctaveSpecies some
- cantusHasOctaveDivision
- bassusHasOctaveDivision
- tenorHasOctaveDivision
- altusHasOctaveDivision

...since the mode cannot be inferred from Praetorius' model, Sethus wants to know which would be the “best guess”: *c mode plagal on f* (like Zarlino).

... he also wants to understand why the mode cannot be fully ascribed to this class according to Praetorius: the cantus clef (c2) does not correspond to what is expected (c1).

Goals and objectives

2. Michael Praetorius, "Volte", *Terpsichore* (1612), 233

Sethus selects the "Volte" n. 233 in *Terpsichore* by Praetorius, to which he applies the theoretical model derived from Gioseffo Zarlino, *Le Istitutioni Harmoniche* (1558), book IV.

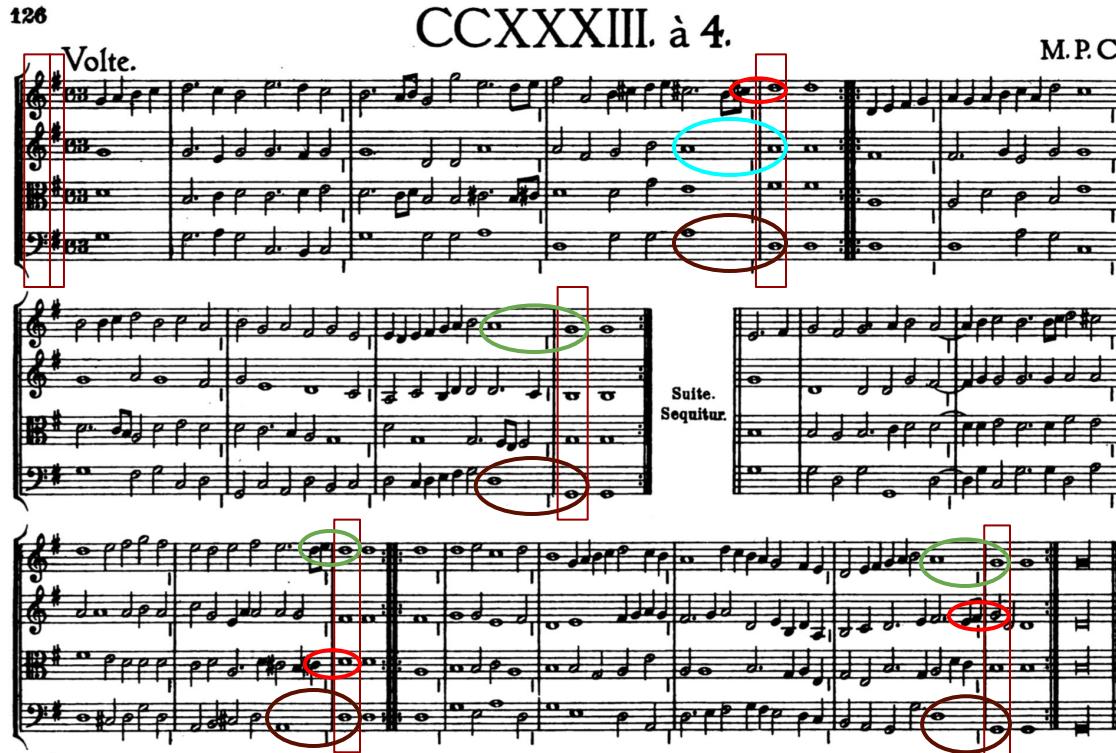
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CCXXXIII. à 4.

M.P.C.

Volte.

Suite. Sequitur.



The musical score consists of three staves of four voices each. The top staff is labeled 'Volte.' and the bottom two are labeled 'Suite. Sequitur.'. The score includes clefs, keys, and a tempo marking 'M.P.C.'. Various musical features are highlighted with colored circles and red boxes. A legend on the right side identifies the symbols:

- clausula cantizans (red circle)
- Phrygian clausula cantizans (light blue circle)
- clausula altizans (green circle)
- clausula tenorizans (dark blue circle)
- Phrygian clausula tenorizans (yellow circle)
- clausula basizans (brown circle)

....Sethus identifies again the information needed for the model(s) to be applied (clefs, keys, cadences, voice ranges, etc.)

Link to Neuma

- clausula cantizans
- Phrygian clausula cantizans
- clausula altizans
- clausula tenorizans
- Phrygian clausula tenorizans
- clausula basizans

Goals and objectives

2. Michael Praetorius, "Volte", *Terpsichore* (1612), 233

Sethus checks whether it is possible to make a modal attribution on the basis of Zarlino's theory

.... according to Zarlino, the work cannot be ascribed to a mode. The "best guess" would be a *g mode on g* but the cantus' clef, the tenor's clef and the finalis do not match.

Property assertions: *Terpsichore_233*

Object property assertions
cantusHasAmbitus <i>Terpsichore_233_cantusHasAmbitus_d4_d5</i>
cantusHasClef <i>Terpsichore_233_cantusHasClef_g2</i>
altusHasAmbitus <i>Terpsichore_233_altusHasAmbitus_a3_b4</i>
bassusHasAmbitus <i>Terpsichore_233_bassusHasAmbitus_g2_a2</i>
tenorHasAmbitus <i>Terpsichore_233_tenorHasAmbitus_e3_g4</i>
hasInitialTone <i>Terpsichore_233_hasInitialTone_g3</i>
hasCadenceOn <i>Terpsichore_233_hasCadenceOn_d3</i>
hasCadenceOn <i>Terpsichore_233_hasCadenceOn_g2</i>
hasFinalis <i>Terpsichore_233_hasFinalis_g2</i>
tenorHasClef <i>Terpsichore_233_tenorHasClef_c3</i>

Description: *GModePlagalPolyphonicG*

Equivalent To +

- (altusHasAmbitus some g3_g4)
and (bassusHasAmbitus some g2_g3)
and (cantusHasAmbitus some d4_d5)
and (cantusHasClef some c_1)
and (tenorHasAmbitus some d3_d4)
and (tenorHasClef some c_4)

SubClass Of +

- GModePlagalG*
- hasTranspositionByUpperFourth some *GModePlagalPolyphonicC*
- PlagalPolyphonicMode*
- PolyphonicGModePlagal*

General class axioms +

SubClass Of (Anonymous Ancestor)

- (hasIrregularInitialTone some (not (b3)))
and (hasIrregularInitialTone some (not (d3)))
and (hasIrregularInitialTone some (not (d4)))
and (hasIrregularInitialTone some (not (g3)))
- (hasIrregularCadenceOn some (not (b3)))
and (hasIrregularCadenceOn some (not (d3)))
and (hasIrregularCadenceOn some (not (d4)))
and (hasIrregularCadenceOn some (not (g3)))

hasFinalis some g3

- ((hasRegularInitialTone some b3) or (hasRegularInitialTone some d3) or
(hasRegularInitialTone some d4) or (hasRegularInitialTone some g3))
and (hasRegularCadenceOn some b3)
and (hasRegularCadenceOn some d3)
and (hasRegularCadenceOn some d4)
and (hasRegularCadenceOn some g3)

Goals and objectives

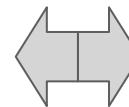
2. Michael Praetorius, "Volte", *Terpsichore* (1612), 233

What about Praetorius' own theoretical viewpoint on the work ?

Property assertions: Terpsichore_233

Object property assertions +

- cantusHasRepercussio
Terpsichore_233_cantusHasStrongestPitches_g4_b4
- bassusHasAmbitus Terpsichore_233_bassusHasAmbitus_g2_a2
- cantusHasClef Terpsichore_233_cantusHasClef_g2
- hasSystemAlteration Terpsichore_233_hasSystemAlteration_f+
- altusHasAmbitus Terpsichore_233_altusHasAmbitus_a3_b4
- bassusHasFinalis Terpsichore_233_bassusHasFinalis_g2
- cantusHasAmbitus Terpsichore_233_cantusHasAmbitus_d4_d5
- cantusHasFinalis Terpsichore_233_cantusHasFinalis_g4
- tenorHasAmbitus Terpsichore_233_tenorHasAmbitus_e3_g4



Description: CModePlagalPolyphonicG

Equivalent To +

- (altusHasAmbitus some g3_g4)
and (bassusHasAmbitus some g2_g3)
and (bassusHasFinalis some g2)
and (cantusHasAmbitus some d4_d5)
and (cantusHasClef some g_2)
and (cantusHasFinalis some g4)
and (cantusHasRepercussio some Interval_g1_h1)
and (hasSystemAlteration some SystemAlteration_f+)
and (tenorHasAmbitus some d3_d4)

SubClass Of +

- CModePlagal
- PlagalPolyphonicMode
- PolyphonicCModePlagal
- TransposedMode

General class axioms +

SubClass Of (Anonymous Ancestor)

- hasOctaveSpecies some OctaveSpeciesG
- cantusHasOctaveDivision some ArithmeticDivision
- bassusHasOctaveDivision some HarmonicDivision
- tenorHasOctaveDivision some ArithmeticDivision
- altusHasOctaveDivision some HarmonicDivision

Instances +

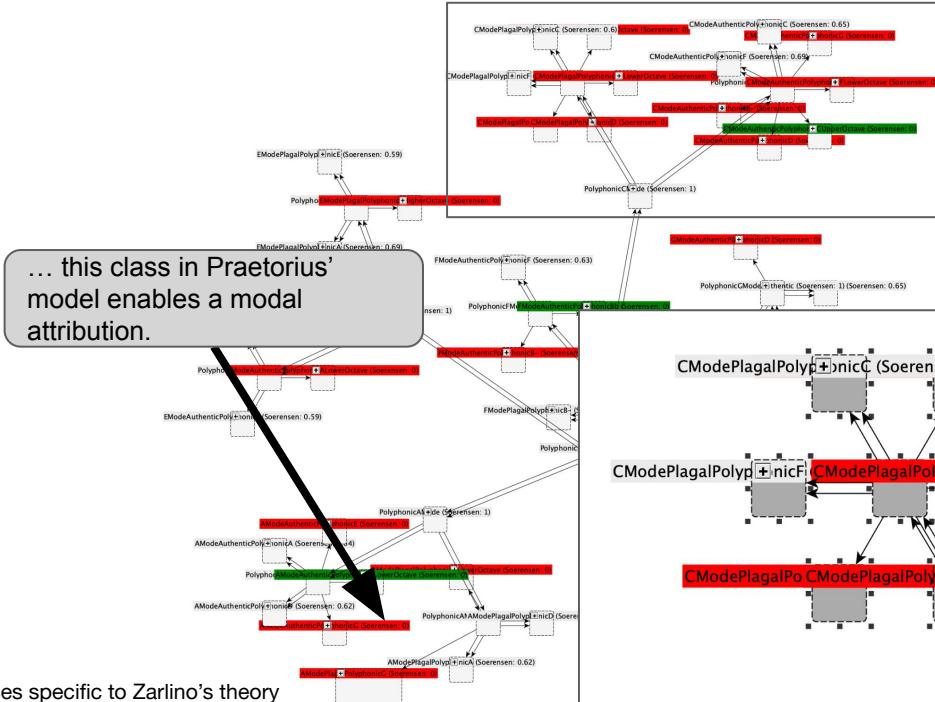
- Terpsichore_233

.... this works, but according to the model derived from Praetorius, the dance would be ascribed to a **c mode on g** (and not to a **g mode on g**). WHY?

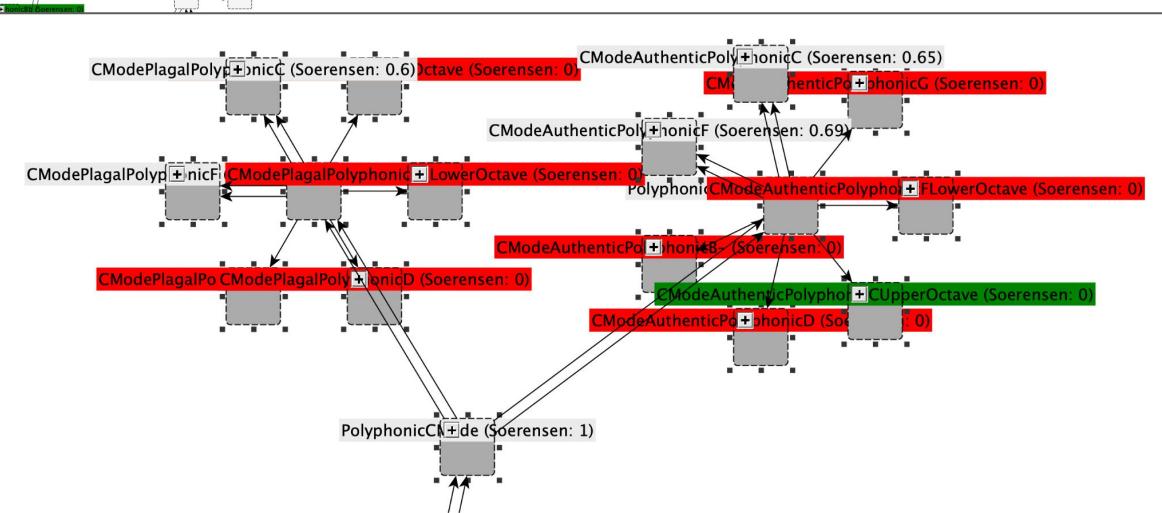
Goals and objectives

2. Michael Praetorius, "Volte", *Terpsichore* (1612), 233

Sethus wants to compare the theoretical models



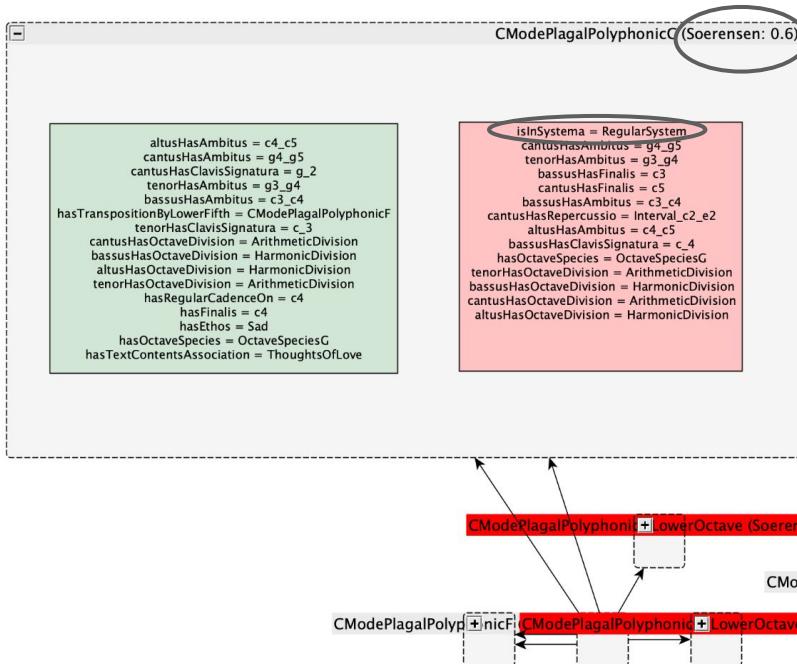
... at this point of his journey, Sethus wants to understand what has changed between Zarlino and Praetorius. He realises that modal transpositions (related to instrumental practice) have dramatically increased in Praetorius' theory.



Goals and objectives

2. Michael Praetorius, "Volte", *Terpsichore* (1612), 233

Sethus wants to compare the theoretical models

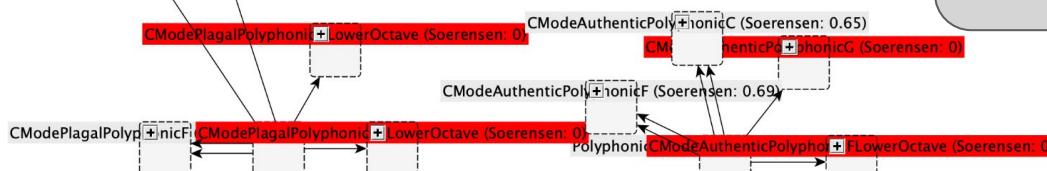


... Sethus wants to look "inside" the definitions and understand to what extent they overlap between the models.

The Soerensen index is used to evaluate the similarity between property-value sets (0== no similarity, 1== perfect similarity)

$$DSC = \frac{2|X \cap Y|}{|X| + |Y|}$$

... he notices that Praetorius' model is more aware of the underlying diatonic system.



 Properties and values in Zarino's theory

 Properties and values Praetorius' theory

Goals and objectives



3. Orlando di Lasso, "Vide homo", *Lagrime di San Pietro* (1595), 21.

Sethus selects Lasso's motet "Vide homo", to which he applies the theoretical models derived from Gioseffo Zarlino and Michael Praetorius.

Vide homo

Luigi Tansillo
(1510-68)

Orlando di Lasso
(1532-94)

Canto I

Canto II

Alto I

Alto II

Tenor I

Tenor II

Basso

Vi - de ho - mo,

Vi - de ho - mo,

Vi - de ho - mo,

Quæ pro te pa - ti - or, quæ pro

Quæ pro te pa - ti - or, quæ pro te

Quæ pro te, quæ pro te

Quæ pro te, pa -

Ad te cla - - - - mo,

Ad te cla - - - - mo,

Ad te cla - - - - mo,

te pa - ti - or;

pa - ti - or;

Ad te cla - - - - mo, qui

pa - ti - or;

- ti - or, qui

qui

....Sethus identifies the information needed for the models to be applied (clefs, keys, cadences, voice ranges, etc.)



Goals and objectives

3. Orlando di Lasso, "Vide homo", *Lagrime di San Pietro* (1595), 21

Sethus selects Lasso's motet "Vide homo", to which he applies the theoretical model derived from Giuseppe Zarlino, *Le Istitutioni Harmoniche* (1558), book IV.

Ambitus, initial tones, final tones, clefs, keys, diatonic system

Part	Ambitus	Initial tones	Final tones	Clefs	Keys	Diatonic system
C1	g4-g5	a4	c#5	G2	[♩]	Ambiguity between Regular and transposed system
C2	f4-g5	e5	e5	G2		
A1	a3-c5	a4	e4	C2		
A2	a3-b4	e4	a4	C2		
T1	f3-a4	a3	a3	C3		
T2	e3-g4	a3	e3	C3		
B	a2-a3	d3	a2	F3		

....Zarlino's theory does not allow to identify with certainty the mode of *Vide homo*.

Best guess is a *mode plagal* on a, but many properties do not match

- Properties match between analysis and model
- Properties do not match between analysis and model
- Neutral or not taken into account

Cadences

bars	6-7	9-10	12-13	15-16	17-18	20-21	22-23	27-28	30-31	34-35	38-39	45-46	49-50	51
cantizans	[none]	b4-c5 A1	a3-bb3 T2	c#5-d5 C1	b2-c3 B	e5-f5 C1	[none]	e5-f5 C2	[absent]	[none]	[none]	g#4-a4 A2	g#4-a4 A1	d3-e3 T2
tenorizans	f3-e3 B	[none]	c3-bb2 B	[none]	d4-c4 T2	g4-f4 A1	b3-a3 T2	g3-f3 T1	e3-d3 B	f4-e4 A2	f4-e4 A2	b3-a3 T2	b3-a3 T1	f5-e5 C1
Lowest note	e3	c4	bb2	d3	c3	f3	a2	f3	d3	a3	a2	a3	a2	a2
verse end	1		2		3		4		5	6	7	8	8	8

Goals and objectives

3. Orlando di Lasso, "Vide homo", *Lagrime di San Pietro* (1595), 21

Sethus selects Lasso's motet "Vide homo", to which he applies the theoretical model derived from Praetorius, *Syntagma musicum* (1619), book III.

Ambitus, initial tones, final tones, clefs, keys, diatonic system

Part	Ambitus	Initial tones	Final tones	Clefs	Keys	Diatonic system
C1	g4-g5	a4	c#5	G2	[H]	Cantus durus (but highly ambiguous: 58% cantus durus, 42% cantus mollis)
C2	f4-g5	e5	e5	G2		
A1	a3-c5	a4	e4	C2		
A2	a3-b4	e4	a4	C2		
T1	f3-a4	a3	a3	C3		
T2	e3-g4	a3	e3	C3		
B	a2-a3	d3	a2	F3		

....Praetorius' theory also fails to identify the mode of *Vide homo*, but not for the same reasons as Zarlino.

Here again, the best guess is a mode plagal on a,

- Properties match between analysis and model
- Properties do not match between analysis and model
- Neutral or not taken into account

Cadences

bars	6-7	9-10	12-13	15-16	17-18	20-21	22-23	27-28	30-31	34-35	38-39	45-46	49-50	51
cantizans	[none]	b4-c5 A1	a3-bb3 T2	c#5-d5 C1	b2-c3 B	e5-f5 C1	[none]	e5-f5 C2	[absent]	[none]	[none]	g#4-a4 A2	g#4-a4 A1	d3-e3 T2
tenorizans	f3-e3 B	[none]	c3-bb2 B	[none]	d4-c4 T2	g4-f4 A1	b3-a3 T2	g3-f3 T1	e3-d3 B	f4-e4 A2	f4-e4 A2	b3-a3 T2	b3-a3 T1	f5-e5 C1
Lowest note	e3	c4	bb2	d3	c3	f3	a2	f3	d3	a3	a2	a3	a2	a2
verse end	1		2		3		4		5	6	7	8	8	8

Goals and objectives

3. Orlando di Lasso, "Vide homo", *Lagrime di San Pietro* (1595), 21

Sethus makes his own modal-tonal analysis based on the information collected. This attribution is documented, argued and authored.

Information provided by Zarlino:

- Ambitus
- Initial and final tones
- Clefs
- Cadences
- Finalis of the tenor
- Keys

Information provided by Praetorius:

- Ambitus
- Clefs
- Diatonic system
- Final tones
- Keys
- Extended transpositions
- Important melodic intervals

Sethus analyses the information provided by the models:

- The ambitus does not correspond to a plagal A-mode.
- The clefs do not support this hypothesis either.
- The initial and final tones however match well.
- Only some of the cadences are in line with a plagal a mode.
- The diatonic system (cantus durus) is globally observed.

Sethus puts the different criteria into perspective:

- The ambitus of the tenor/cantus are problematic, the global distribution could however correspond to a plagal mode.
- The cadences on a correspond to the mode's final. However, the many Phrygian cadences create an ambiguity: they may suggest (local) E-finals and a more general Phrygian character.
- The Phrygian/Aeolian ambivalence is reinforced by the very strong presence of bbs, which create an ambiguity of the diatonic system (cantus durus/mollis).

Sethus provides his own analysis based on the arguments advanced:

- *Vide homo* exploits the links that exist between the A-mode and E-mode due to their scalar properties.
- The Phrygian cadences on a suggest modes 3 and 4. The regular cadences on the same degree anchor the work in mode 10.
- This modal ambivalence corresponds to Zarlino's concept of mixed modes. It is probably exegetically motivated.

Sethus gives his own modal-tonal analysis:

a mode plagal on a mixed with e mode plagal on a

(but should this work really be classified in view of its internal properties?)

To sum up...

... Sethus:

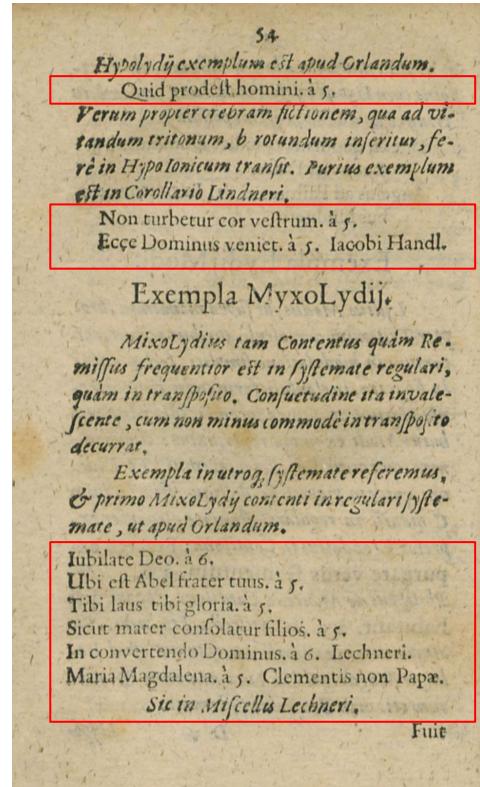
1. selects a work to which he applies a theoretical model;
2. checks if a modal attribution can be made according to this model;
3. confronts the results with modal-tonal information gained from other models;
4. wants to understand why the attribution could be made or not according to a given theory;
5. compares the models and identifies overlaps / differences between them;
6. makes his own modal-tonal analysis based on the information collected. This attribution is documented, argued and authored.



Some criteria to be tested through a story - initial thoughts

1. Does the theoretical model allow for the correct inference of modal attributions?

- Some theorists cite a large number of examples to illustrate modal-tonal categories:
 - Glarean: [c. 250 examples with modal attributions](#)
 - Calvisius: c. 274 examples with modal attributions
 - Zarlino: [c. 150 examples with modal attributions](#)
 - etc.
- Once verified, these attributions (and other attributions that may be made by modern analysts) could be used to validate the correspondent theoretical model provided in *Tonalities*.



Some criteria to be tested through a story - initial thoughts

2. Is the analytical information provided by user(s) or computed by algorithms correctly stored and retrievable ?

- Tonalities produces analytical information from two main sources:
 - Machine annotations (for the retrieval of vocal registers, clefs, chord identification or contrapuntal patterns)
 - Manual annotations using the score annotation interface currently under development (to identify/correct cadences, melodic patterns, etc.)
- Both information sources can be combined, for example when machine annotations are corrected by humans.
- The validity of the pilot depends on the infrastructure's ability to manage, store and retrieve the different layers of analytical information.

Some criteria to be tested through a story - initial thoughts

3. Can the argumentative chain be correctly reconstructed?

- Tonalities methodology requires that any analytical statement can be linked to one or more theoretical models.
- The validity and success of the system depends on its ability to make explicit the links between the analytical statement and its theoretical assumptions.

4. Does the music annotation environment meet usability requirements ?

- Score annotation is highly complex: the zones to be identified may be limited to a single pitch or extend over several hundred notes - they may encompass elements from each other or conversely a selection of pitches within a single chord.
- The production of a documented, argued and signed analysis requires the management of "scientific primitives" (confirm, refute, qualify, validate, etc.) within an argumentative chain. The digital edition of this chain requires an efficient interface.
- The annotation interface will have to meet ergonomic and performance criteria to be specified in connection with user surveys.

- The most interesting thing for us is not to assign works to modal-tonal classes, but to understand what makes up their modal-tonal nature.
- There is nothing universal about modal-tonal theories: they evolve in time in relation to the musical language and to the theorist's viewpoints. Tonality is a tool to understand this evolution.
- The models are often either too permissive or too restrictive. We do not see them as the ending point of modal-tonal analysis, but as the starting point.
- Up to now, we have focused on historical models. We need to extend the modelling to current theories (tonal types, harmonic vectors, etc.).

- 10/2021: Define our needs in terms of analytical and scientific annotation/argumentation models
- 11/2021: Draft an ontology of works and analyses in line with the project
- 11/2021: Make available, for test purposes, 30% of the corpus identified at this stage (about 150 polyphonic and monodic works quoted by theorists) in MEI format
- 12/2021: Verify and test the models derived from Zarlino (1558) and Praetorius (1619) using the test corpus
- 12/2022: Modelling a new theoretical approach: harmonic vectors
- 01/2022: Define the annotation interface features and functionalities.
- 01/2022: Finalise the annotation interface mock-up
- 02/2022: Online publication of the MEI test corpus with analytical data relevant to the web portal
- 06/2022: Make the annotation interface available online in a beta version

Thanks

