



MTO 26.2 Examples: Kahrs, Consonance, Dissonance, and Formal Proportions in Two Works by Sofia Gubaidulina

(Note: audio, video, and other interactive examples are only available online)

<https://mtosmt.org/issues/mto.20.26.2/mto.20.26.2.kahrs.html>

Example 1a. A parameter complex from Ewell 2013, Example 1

Consonant EPs	Dissonant EPs
1. Articulations and Means of Sound Production: <ul style="list-style-type: none">• Legato• Arco strings• Cantabile voice	1. Articulations and Means of Sound Production: <ul style="list-style-type: none">• Staccato, Accents, Tremolo, Trills• Pizzicato strings• Sotto voce, Sprechstimme, Sprechgesang
2. Melody: <ul style="list-style-type: none">• Smooth movement• Smaller intervals	2. Melody: <ul style="list-style-type: none">• Leaps• Wider intervals
3. Rhythm: <ul style="list-style-type: none">• Monorhythmic	3. Rhythm: <ul style="list-style-type: none">• Polyrythmic
4. Texture: <ul style="list-style-type: none">• Continuous	4. Texture: <ul style="list-style-type: none">• Discontinuous
5. Compositional Writing: <ul style="list-style-type: none">• Precise	5. Compositional Writing: <ul style="list-style-type: none">• Aleatoric

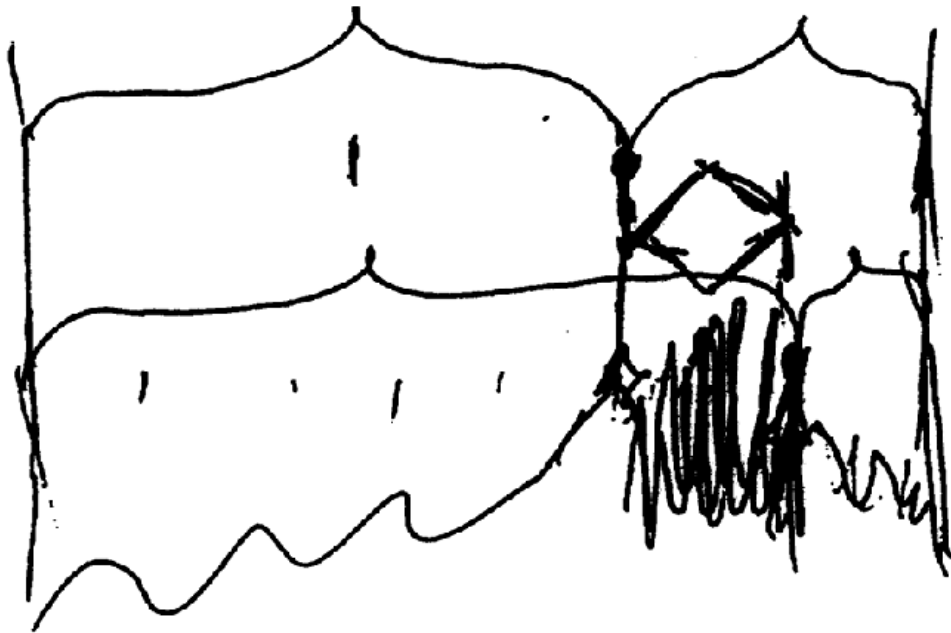
Example 1b. A list of numerical series of increasing dissonance, from Lukomsky and Gubaidulina 1999, p. 28, Ex. 1

initial numbers

-55	+34	-21	+13	-8	+5	-3	+1	-1	+1	0	1	1	2	3	5	8	13	21	34	55	89	144
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	4	5	9	14	23																	
1	5	6	11	17	28																	
1	6	7	13	20	33																	
1	7	8	15	23																		
1	8																					

more dissonant ↓

Example 1c. An example of dissonance between conflicting proportions, from Lukomsky and Gubaidulina 1999, p. 28, Ex. 2



Example 2a. The first entrance of the waterphones in *Am Rande*, in which the sound is linked to high notes in the cello

125 $\text{♩} = 96$

Acq. I f solo arco l. v. l. v. sempre

II f solo arco l. v. l. v. sempre

Vc. I f solo arco l. v. l. v. sempre

II f solo arco l. v. l. v. sempre

III f solo arco l. v. l. v. sempre

IV f solo arco l. v. l. v. sempre

28 9" unexpected new sound

"abyss" of title

129 $\text{♩} = 60$

Acq. I f solo arco l. v. l. v. sempre

II f solo arco l. v. l. v. sempre

Vc. I p solo l. v. l. v. sempre

II p solo l. v. l. v. sempre

III p solo l. v. l. v. sempre

IV p solo l. v. l. v. sempre

29 12" also linked to waterphone

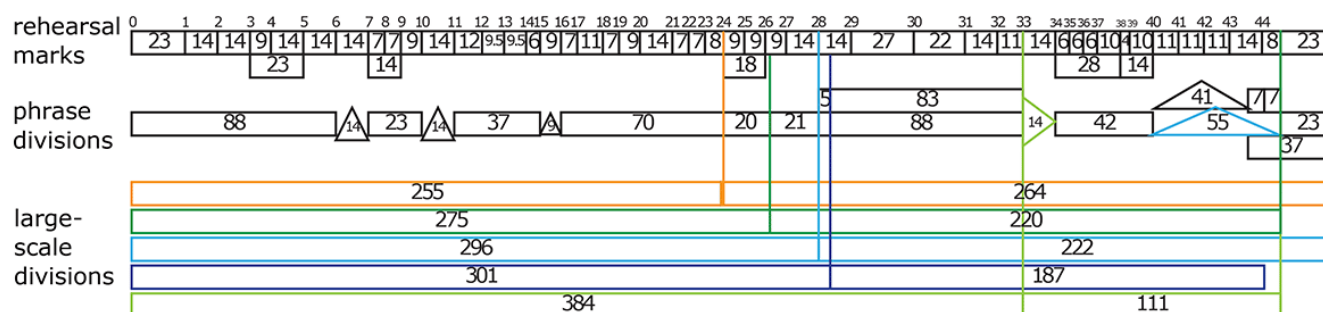
new sound linked to "abyss" by instrumentation/register

39 ∞ linked to final sustained reentrance of waterphone

The image shows a musical score for the opera 'The Death of Klinghoffer'. The score is for three parts: Acq. (Acoustic), I. v. sempre (Violoncello), and Vc. I (Violoncello). The Acq. part is in the upper staves, and the Vc. I part is in the lower staves. The score is marked with '178' and '48\"

[illegible]

Example 3. The full form of *Meditation*, as compiled from sketches at the Paul Sacher Stiftung (used with permission)



Example 4. An explanation of Gubaidulina's use of the number alphabet, from Milne 2007, p.170, Table 4.1

9	=	J
14	=	Bach
23	=	J. Bach
32	=	S. Bach
37	=	J. Chr[istus]
41	=	J. S. Bach
51	=	Bach + J. Chr.
73	=	S. Bach + J.S. Bach
88	=	Bach + (2 × J. Chr.)
114	=	Bach + (2 × J. S. Bach)
158	=	Johann Sebastian Bach
187	=	(2 × S. Bach) + (3 × J. S. Bach)

A	B	C	D	E	F	G	H	I/J	K	L	M	N	O	P	Q	R	S	T	U/V	W	X	Y	Z
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

Example 5. The “dissonant” center of *Meditation* with divisions from the sketches and activity shown in each instrument

rehearsal marks 24 25 26 27 28 29 30 31 32 33 34

harpsichord

quintuplet clusters from Eb

E major in unison with bass slowly build clusters, move higher

violin 1

violin 2

viola

Eb Major
C Minor
col legno
ricochet

Eb Major
C Minor
col legno
ricochet

cello

Eb Major/C Minor
circular bowing

E Major
standard articulation transitioning to tremolo

contrabass

Eb Major/C Minor
circular bowing

E Major
standard articulation transitioning to tremolo

large-scale divisions

255+264

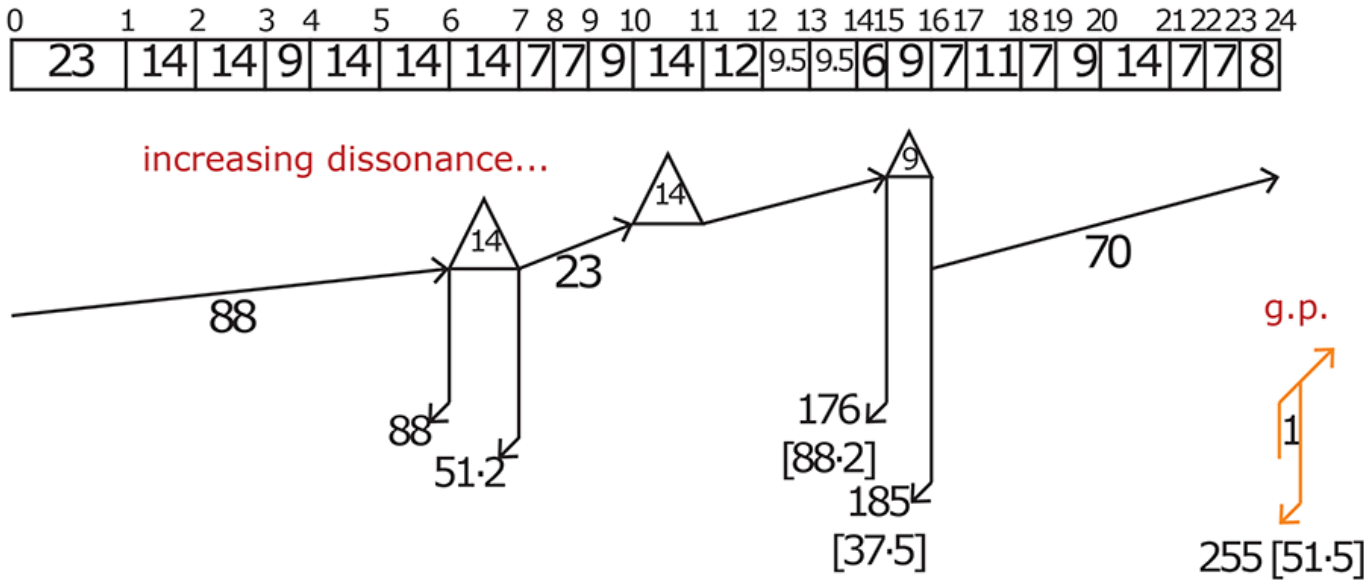
275+220

296+222

301+187

384+111

Example 7. The opening of *Meditation* as shown in the sketches (used with permission)



Example 8. Consonances and consonance-dissonance shifts in the three chorale statements in the opening of *Meditation*

(a)

33 $\frac{4}{4}$ **6** meno mosso $\text{♩} = 48$

Cemb.

C. b. *Solo vibr.* *mf* **consonant**

consonant

(b)

50 $\frac{4}{4}$ **10** meno mosso $\text{♩} = 48$

Cemb.

V-mi *ord.*

V-la *Pizz vibr.* *mf*

V-c *s.t. vibrato* *p*

C. b.

consonant → dissonant

(c)

69 $\frac{4}{4}$ **15** meno mosso $\text{♩} = 48$

Cemb.

I.M. 8°, 16°, 5

The image displays three musical excerpts from the opening of 'Meditation'. Excerpt (a) shows a Cembalo and C. b. part, with a red box highlighting a 'consonant' section. Excerpt (b) shows a Cembalo, V-mi, V-la, V-c, and C. b. part, with red boxes highlighting 'consonant' and 'dissonant' sections. Excerpt (c) shows a Cembalo part, with a red box highlighting a 'consonant' section. Red arrows indicate the flow of consonance and dissonance shifts between these sections.

Example 9. The opening of the second meditation, shifting from consonance to dissonance

7 più mosso $\text{♩} = 63$

8

becoming dissonant...

consonant

Cemb.

ord. vibr.

V. ni

ord.

V. la

V. c

C. b

9 più mosso $\text{♩} = 96$

completely dissonant

Cemb.

V. ni

V. la

V. c

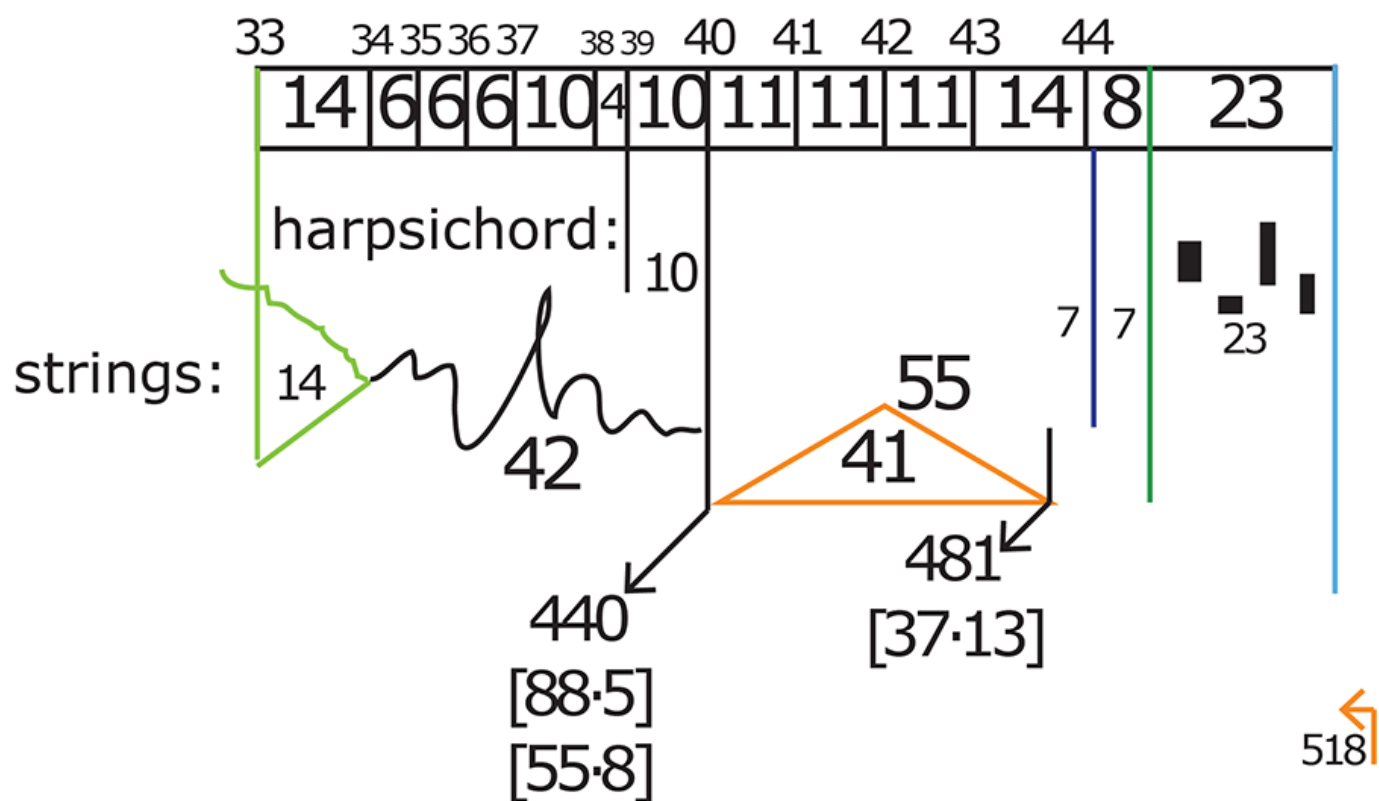
C. b

arco

tremolo

glissando

Example 10. Outline of form at the conclusion as shown in the sketches (used with permission)



Example 11. Consonance and dissonance at the end of *Meditation*

(a)

33 più mosso ♩ = 72 residually dissonant

Cemb

ord. consonant

V-ni 1 2

V-la

V-c

C-b

(b)

35 all dissonant

V-ni 1 2

V-c

C-b

(c)

40 meno mosso ♩ = 66

163

Cemb.

tr

tr

tr

consonant (chorale statement)

V. mi

1

mf

2

mf

V. La

mf

V. C

mf

C. b

mf

11d. Summary of dissonance in harpsichord clusters in the conclusion of *Meditation*

(d)

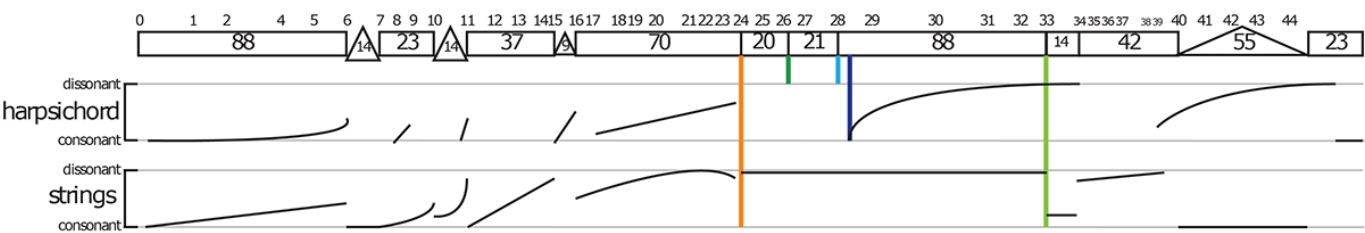
39 40 41 42 43 44

slightly dissonant → very dissonant

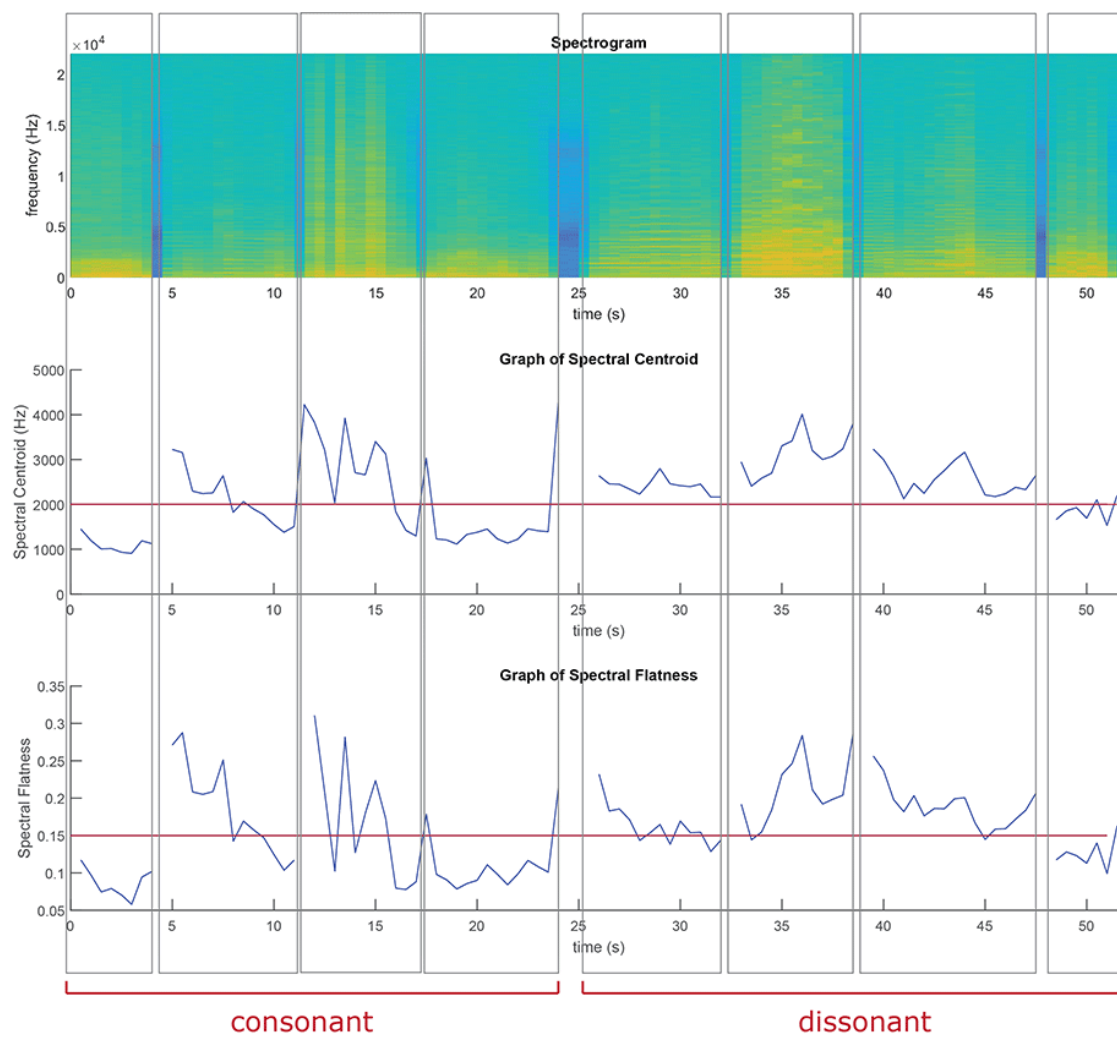
Example 12a. Consonance and dissonance across the conclusion of *Meditation*

	33	34	35	36	37
harpsichord			slightly dissonant	→	very dissonant
strings	consonant	dissonant	→	consonant	

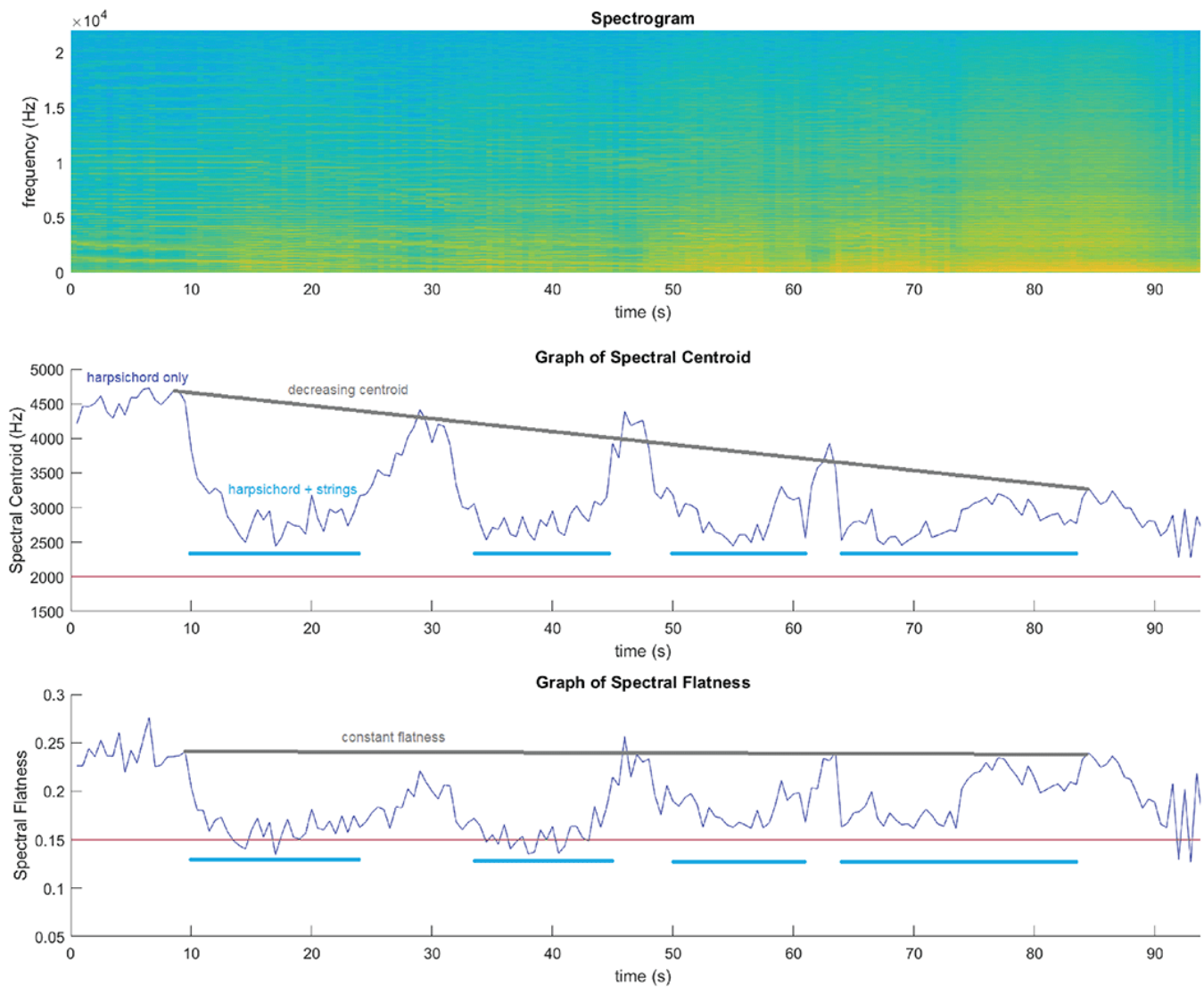
Example 12b. Consonance and dissonance across all of *Meditation*



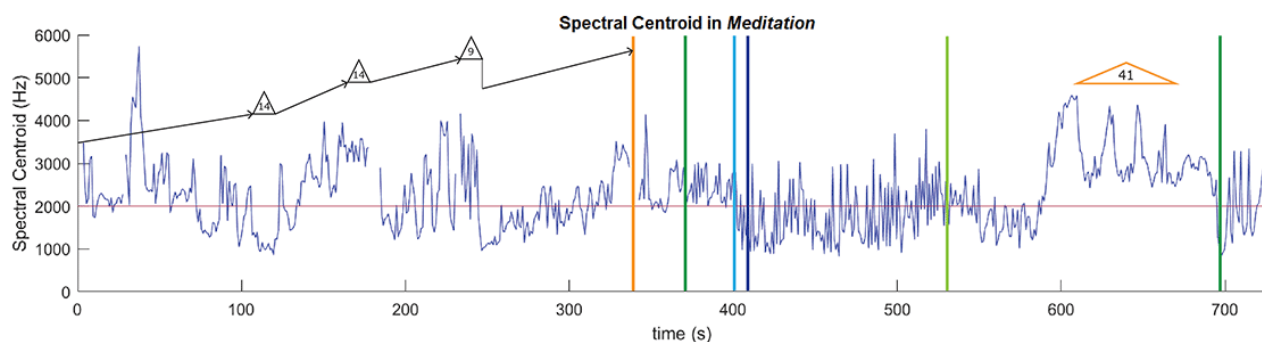
Example 13. Spectrograms and graphs of spectral parameters for clearly consonant and dissonant excerpts from *Meditation*
(Click on bracketed areas to see and hear the fragments)



Example 14. Spectrogram and graphs of spectral parameters for the conclusion of the *Meditation* showing the distinct qualities of string and harpsichord sounds and the non-correlation of centroid and flatness



Example 15. Spectral centroid as a proxy for dissonance over all of *Meditation* with formal overlay from the sketches as represented in Examples 3, 7, and 10



Example 16. Appearance of the “Dies Irae” in close contact with dissonant sounds as discussed in Example 2

titular abyss (from Figure 2a)

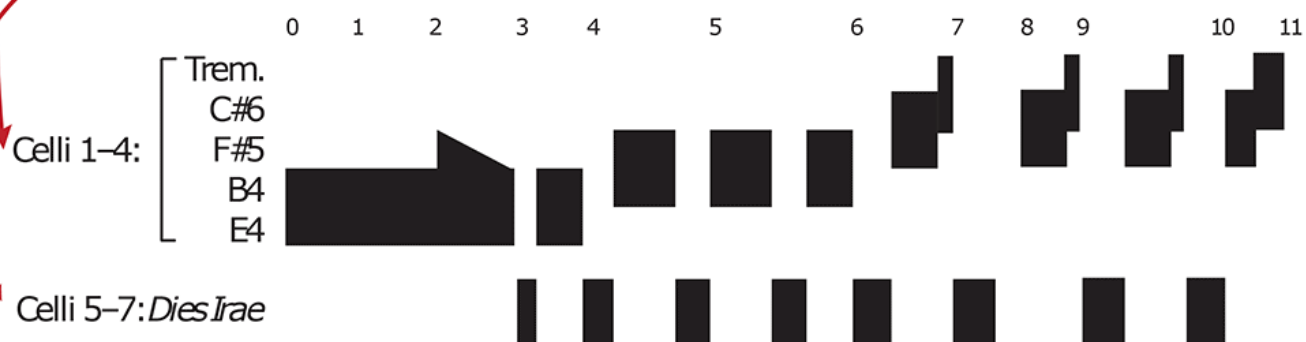
marks “Dies irae” as dissonant by association

Example 17. Consonance and dissonance in the opening of *Am Rande* in (a) score and (b) schematic summary; “Dies Irae” statements expand in length as consonant statements become registrally higher and introduce timbrally dissonant tremolo

consonant (sixths, rhythmically spaced, harmonics)

dissonant (clusters, rhythmically close together, harsh pizz)

(a)



(b)

Example 18a. Context for a “Dies Irae” entrance near the beginning of *Am Rande*

54

arco vibr.

11 meno mosso ♩ = 72

12 ♩ = 120

I

II

III

Vc.

IV

V

VI

VII

tremolo (dissonant continuation of consonant opening)

“Dies irae” (dissonant as in Figure 16)

Example 18b. Context for a “Dies Irae” entrance near the end of *Am Rande*

extended dissonant waterphone/cello-slide (as in Figure 2b)

44

197 → 48"

I. v. sempre

ff

II

I. v. sempre

ff

I

II

III

Vc.

IV

“Dies irae” (dissonant as in Figure 14)

Example 19. Summary of consonances and dissonances in both *Meditation* and *Am Rande*

	Consonant	Dissonant
Both	Harmonics, <i>ordinario</i> , <i>sul tasto</i> , triads	Tremolo, clusters, <i>sul ponticello</i> , staccato
Meditation	Step-based melodies	Circular-bowing, leap-based melodies
Am Rande	Long durations	Waterphone, short durations, pitch slides

Example 20. Spectrograms and graphs of spectral parameters for clearly consonant and dissonant excerpts from *Am Rande*

(Click on bracketed areas to see and hear the fragments)

