Report

Project: 1958_Augusto Camacho/Água da Fonte

Key (Global - All Beats): ('b', 'min')
Key (Section 2 Only): ('b', 'min')

Computed median BPM: 33.31

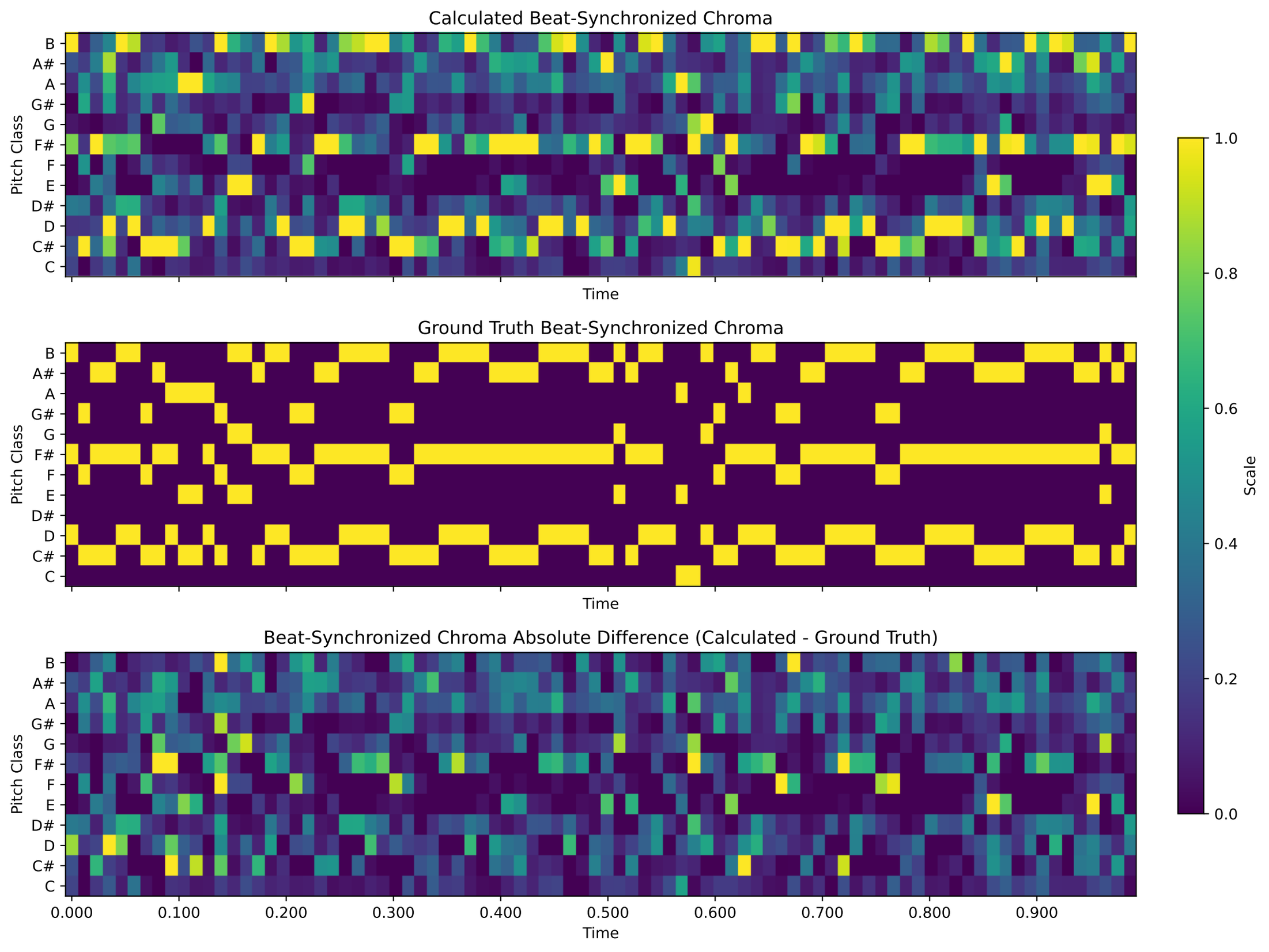
Beat-Synchronized HCF:
Pearson Correlation Coefficient (R): 0.7663
R-squared (R^2): 0.5873
P-value: 0.0000

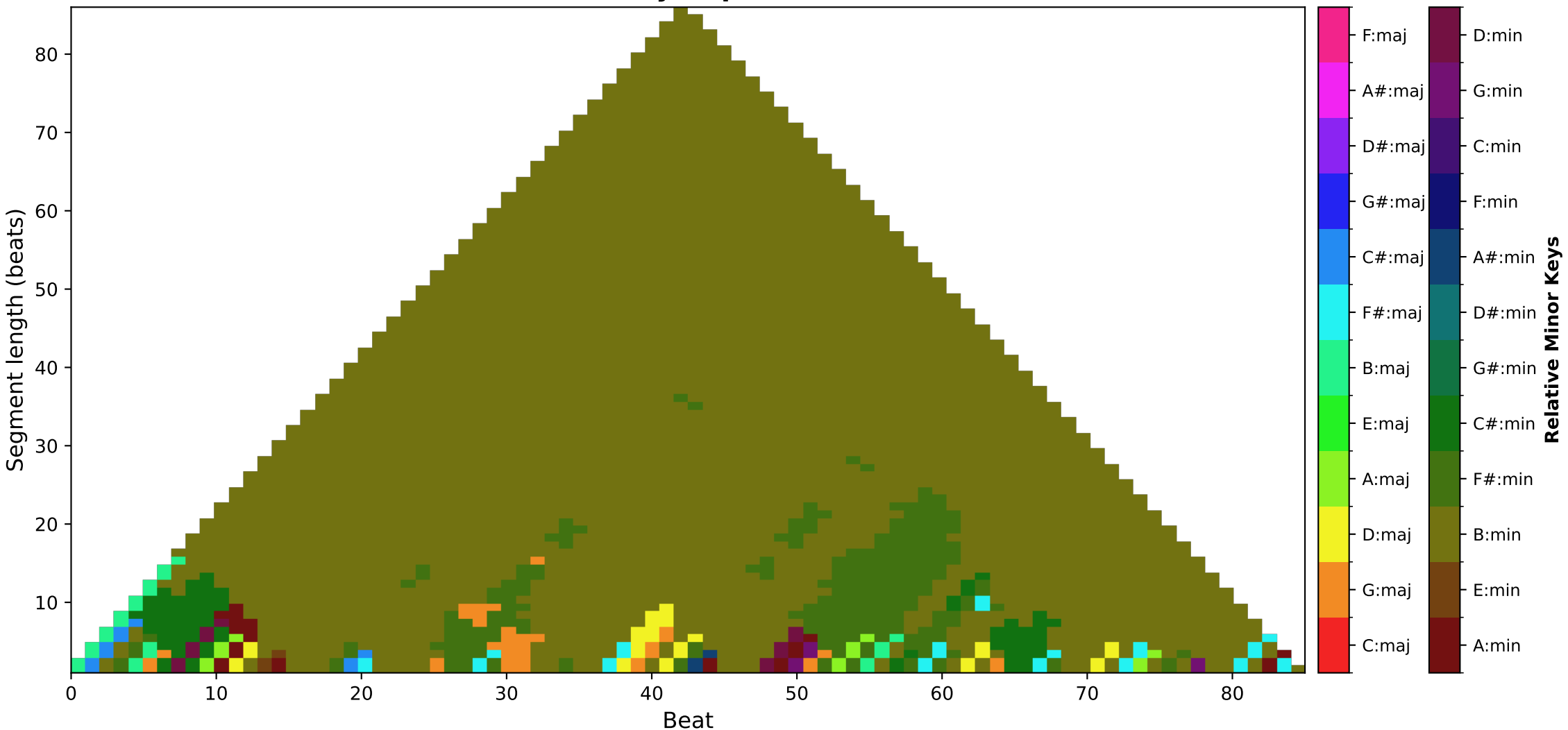
Frame-Level HCF:
Pearson Correlation Coefficient (R): 0.0198
R-squared (R^2): 0.0004
P-value: 0.0190

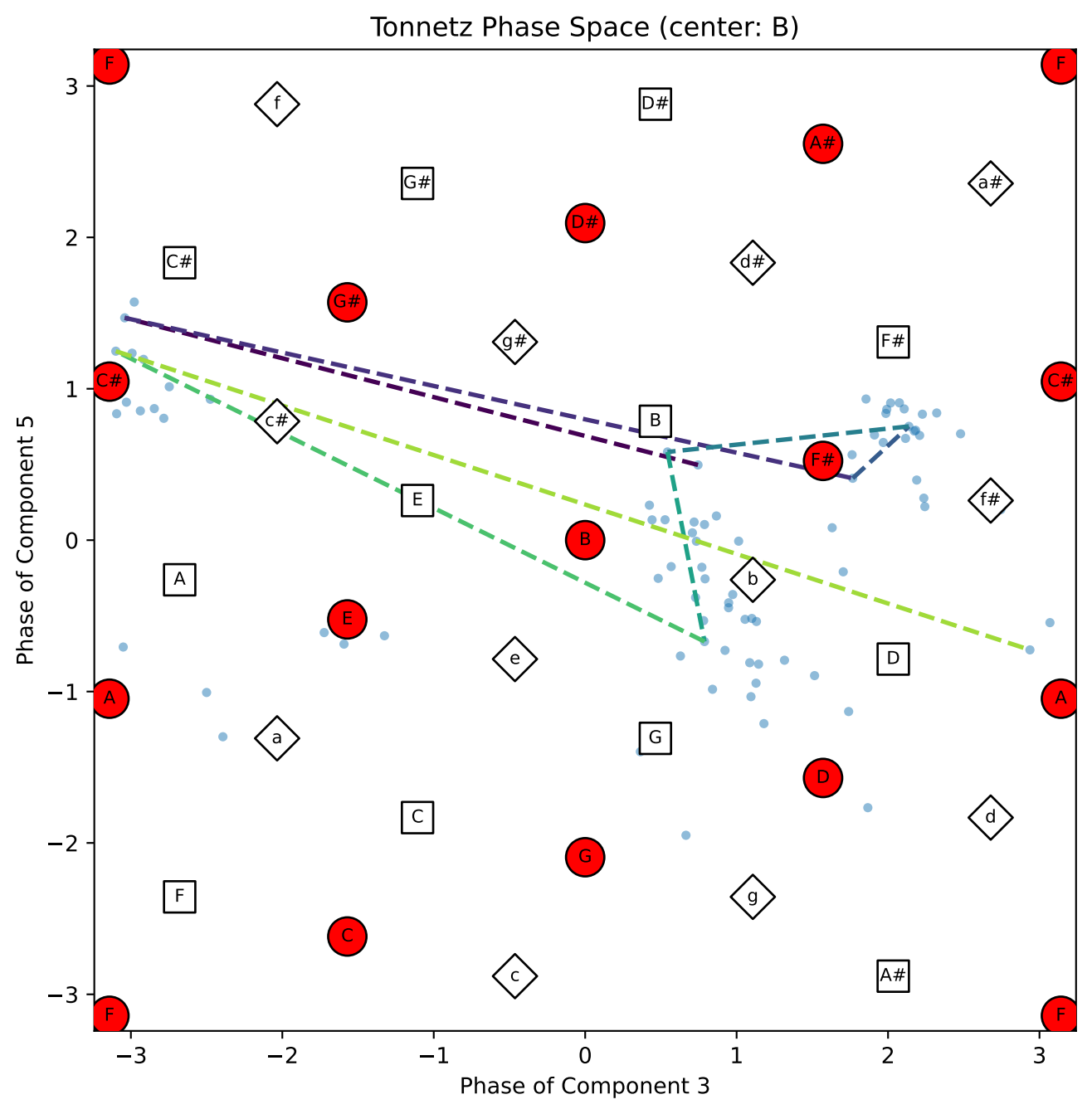
Beat-Synchronized Chroma Comparison:
Pearson Correlation Coefficient (R): 0.7088
R-squared (R^2): 0.5024
P-value: 0.0000
Sum of Absolute Differences: 217.0180
Sum of Squared Differences: 98.0054

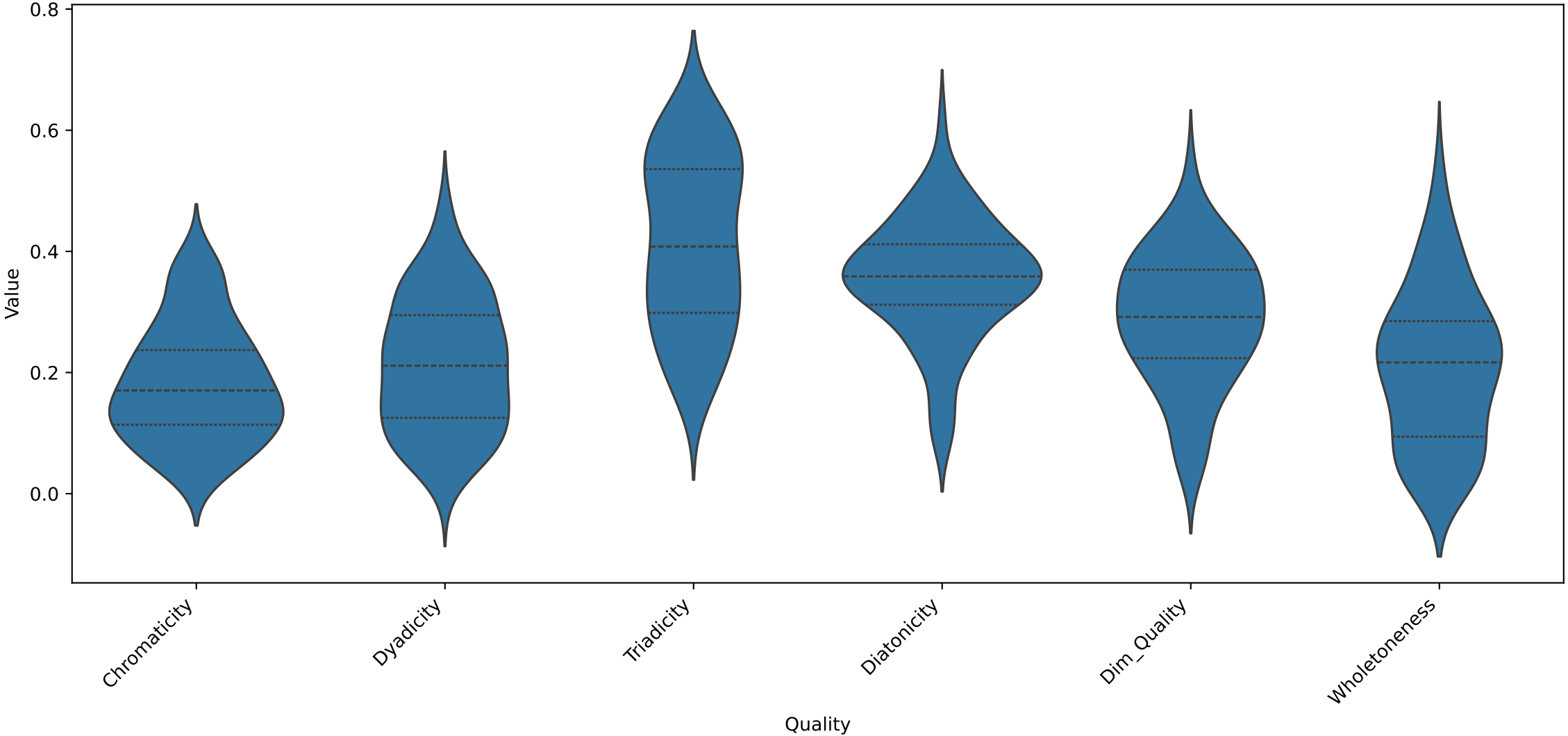
Sensory Dissonance and Tonal Dissonance:
Pearson Correlation Coefficient (R): 0.2444
R-squared (R^2): 0.0597
P-value: 0.0234

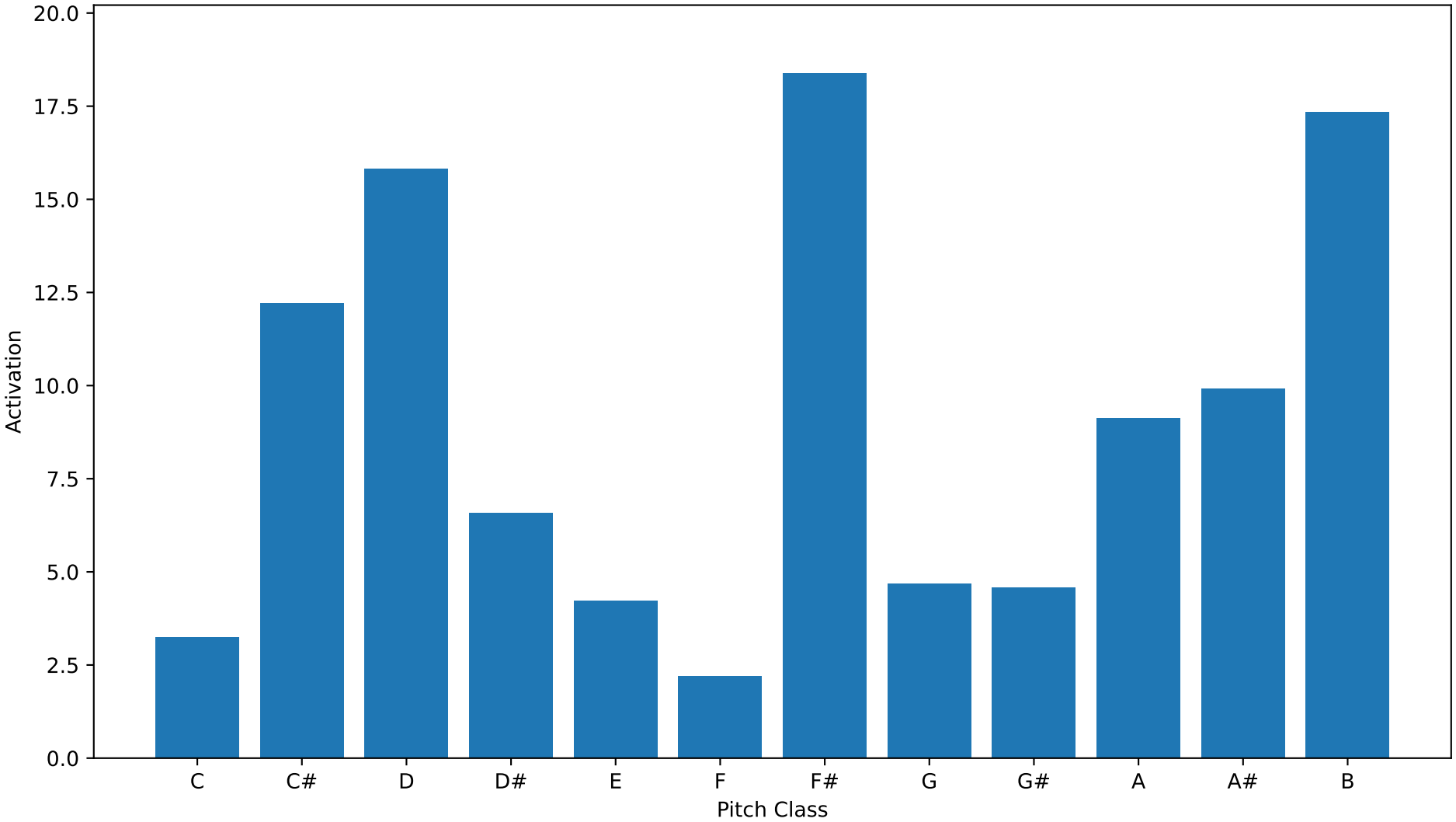
Tonal Dispersion (Audio vs. Ground Truth):
Pearson Correlation Coefficient (R): 0.7933
R-squared (R^2): 0.6294
P-value: 0.0000

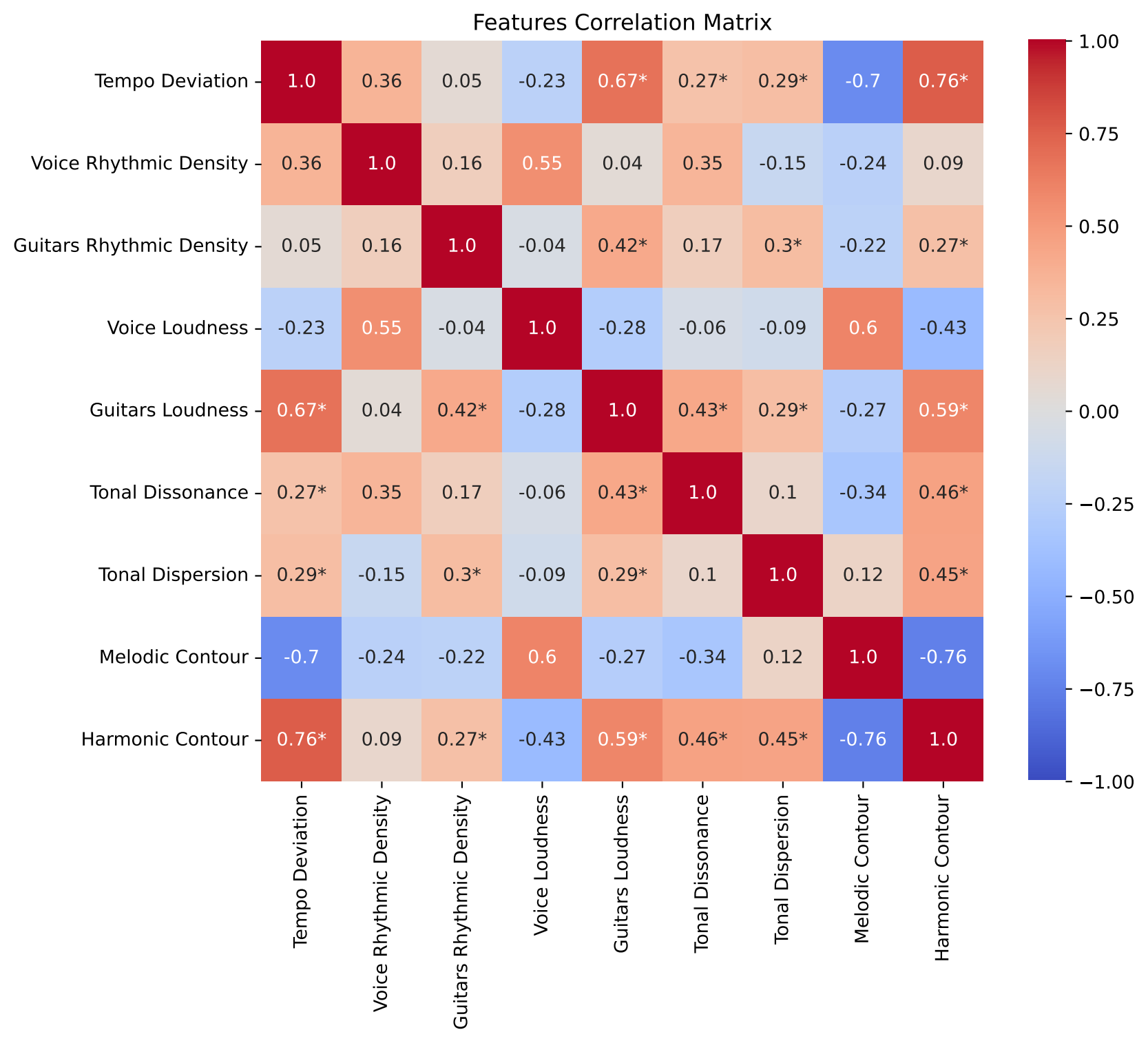

Calculated Beat-Synchronized Chroma
Ground Truth Beat-Synchronized Chroma
Beat-Synchronized Chroma Absolute Difference (Calculated - Ground Truth)
Pitch Class
B
A#
A
G#
G
F#
F
E
D#
D
C#
C
Time
0.000
0.100
0.200
0.300
0.400
0.500
0.600
0.700
0.800
0.900
Scale
1.0
0.8
0.6
0.4
0.2
0.0

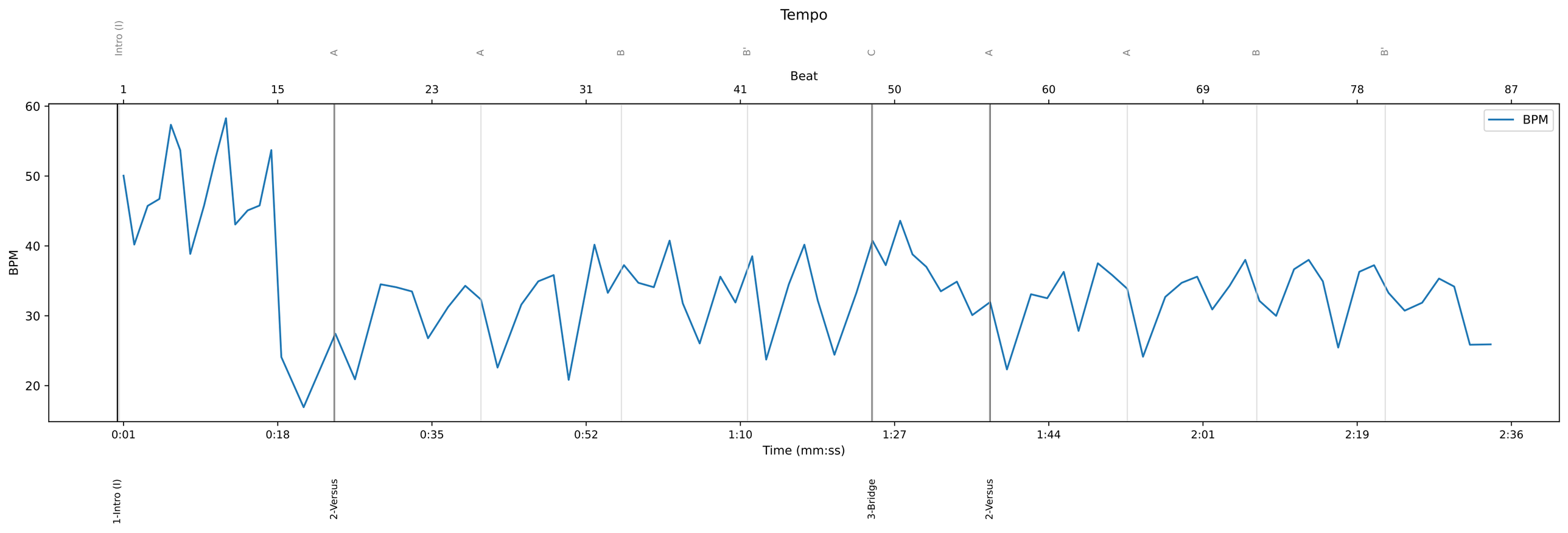

Keyscape
Segment length (beats)
Beat
0
10
20
30
40
50
60
70
80
F:maj
A#:maj
D#:maj
G#:maj
C#:maj
F#:maj
B:maj
E:maj
A:maj
D:maj
G:maj
C:maj
D:min
G:min
C:min
F:min
A#:min
D#:min
G#:min
C#:min
F#:min
B:min
E:min
A:min
Relative Minor Keys

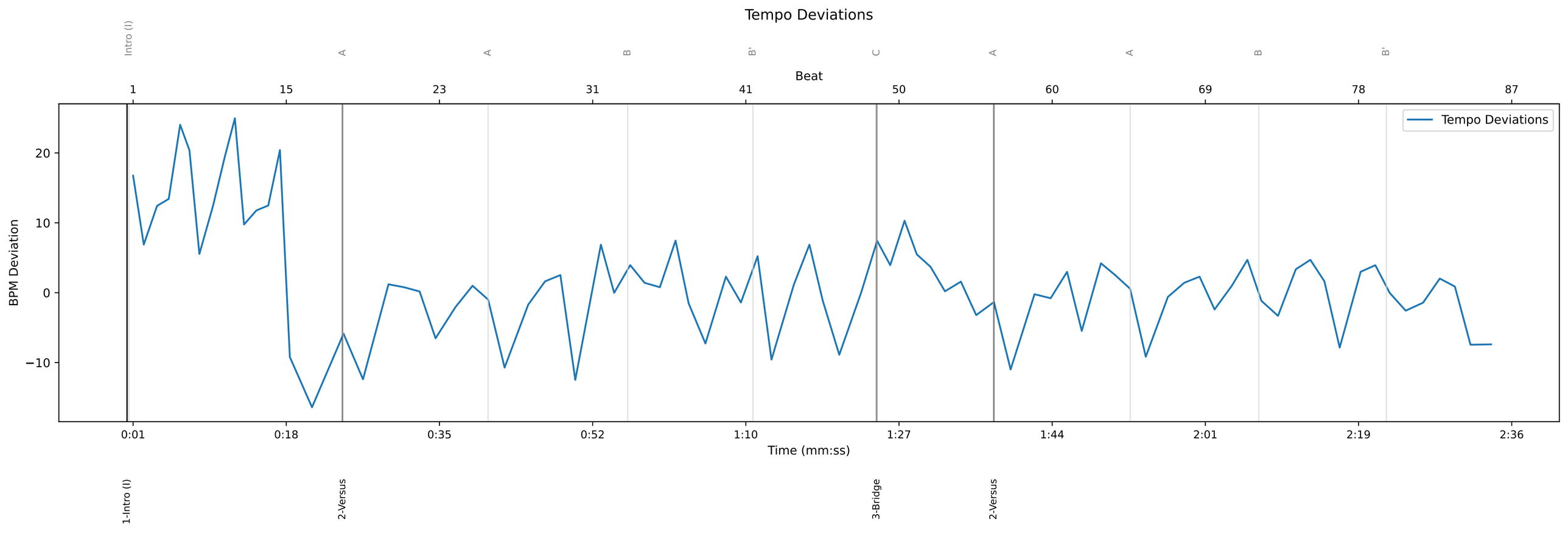

Tonnetz Phase Space (center: B)
Phase of Component 5
Phase of Component 3
3
2
1
0
−1
−2
−3
F
C#
G#
D#
A#
F#
B
E
A
D
G
C
f
c#
g#
d#
a#
f#
b
e
a
d
g
c

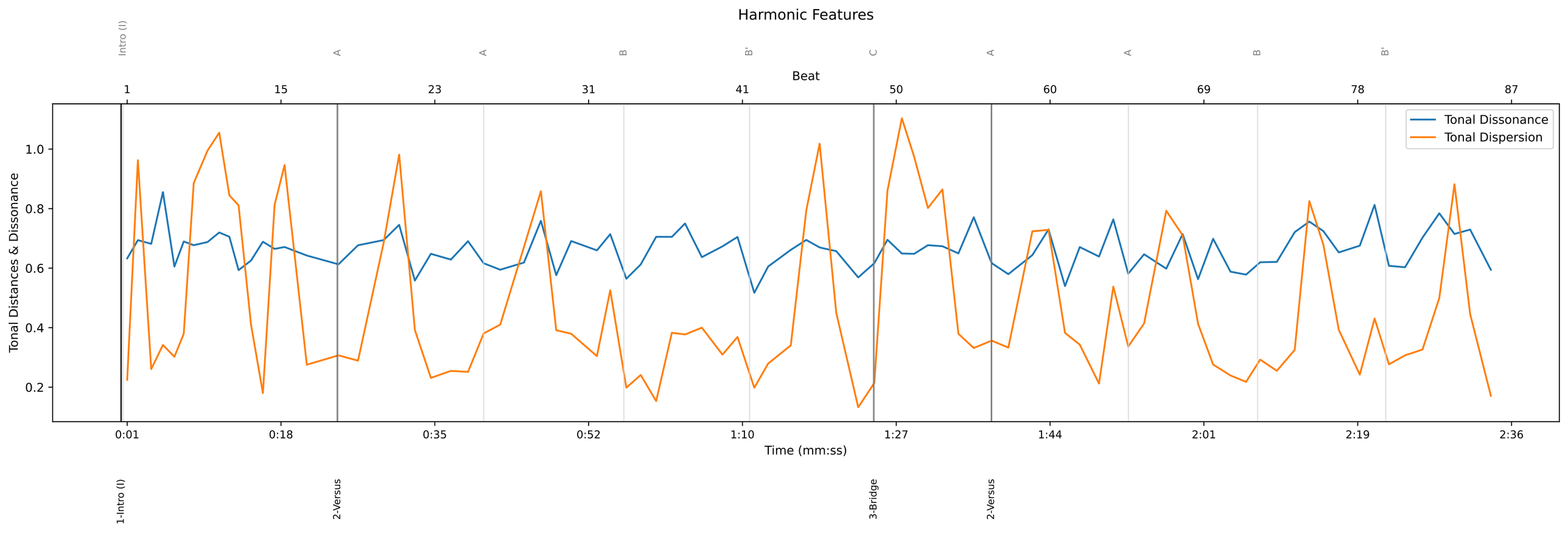

Distribution of Tonal Qualities
Value
0.8
0.6
0.4
0.2
0.0
Chromaticity
Dyadicity
Triadicity
Diatonicity
Dim_Quality
Wholetoneness
Quality

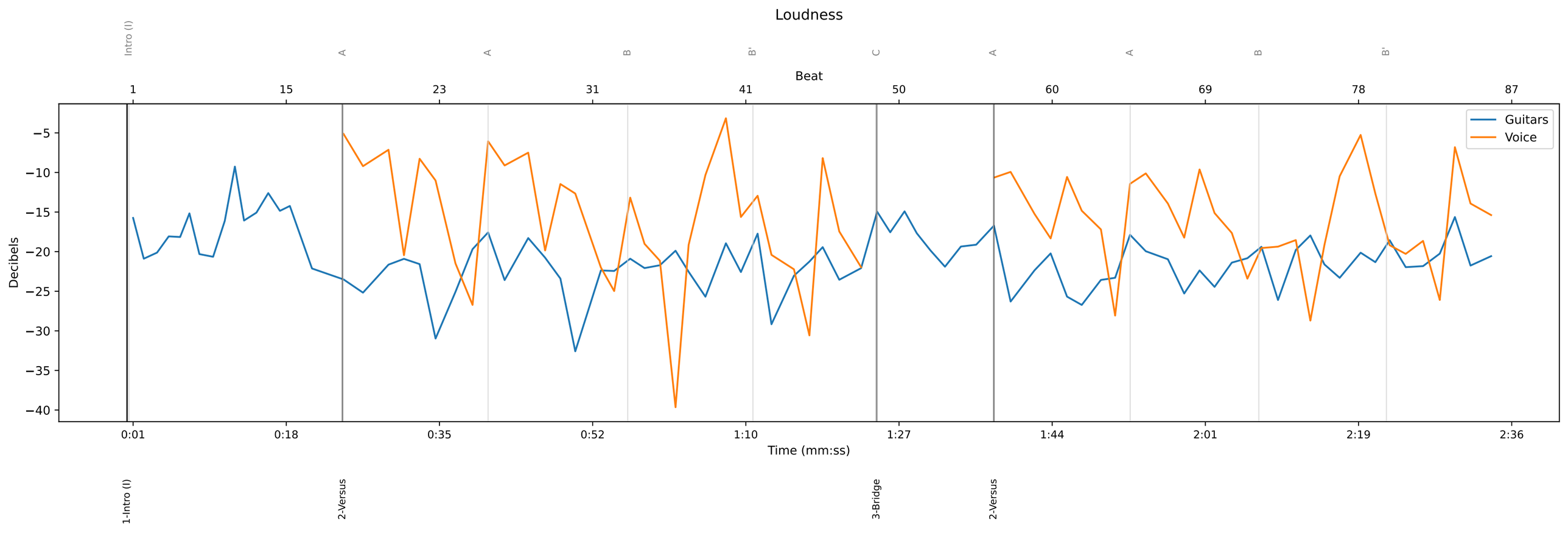

Global Chroma Vector (Section 2)
Activation
Pitch Class
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
C
C#
D
D#
E
F
F#
G
G#
A
A#
B

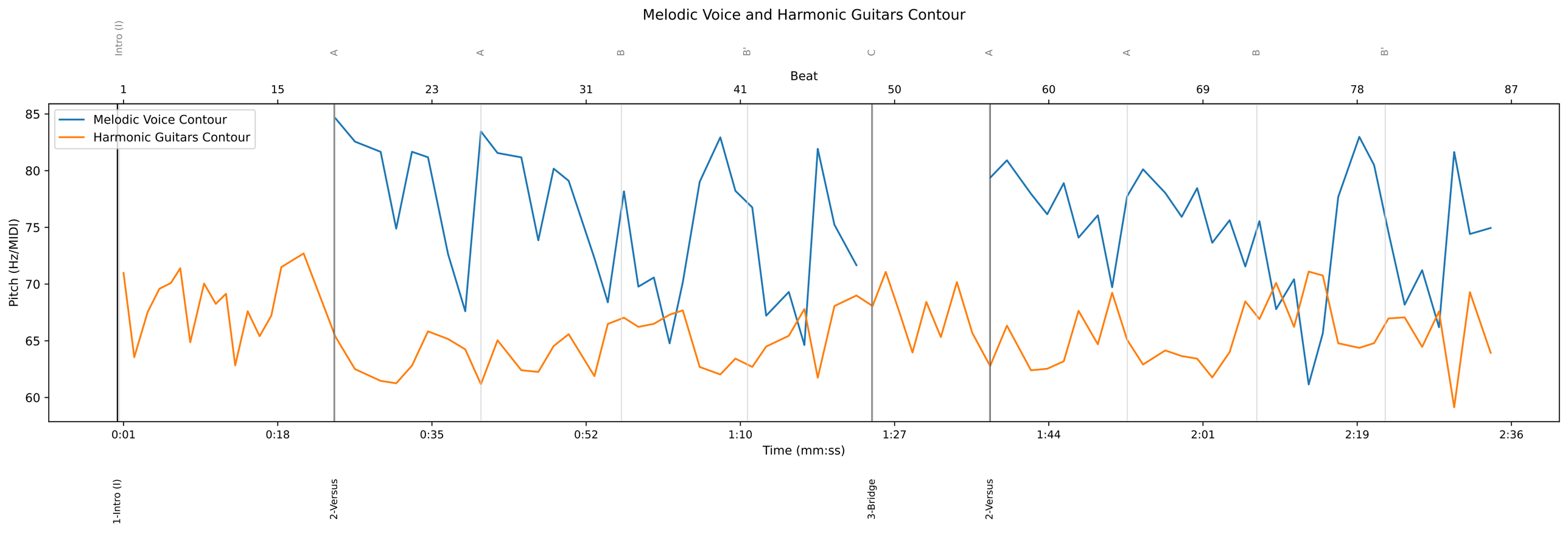

Features Correlation Matrix
Tempo Deviation
Voice Rhythmic Density
Guitars Rhythmic Density
Voice Loudness
Guitars Loudness
Tonal Dissonance
Tonal Dispersion
Melodic Contour
Harmonic Contour
1.0 0.36 0.05 -0.23 0.67* 0.27* 0.29* -0.7 0.76*
0.36 1.0 0.16 0.55 0.04 0.35 -0.15 -0.24 0.09
0.05 0.16 1.0 -0.04 0.42* 0.17 0.3* -0.22 0.27*
-0.23 0.55 -0.04 1.0 -0.28 -0.06 -0.09 0.6 -0.43
0.67* 0.04 0.42* -0.28 1.0 0.43* 0.29* -0.27 0.59*
0.27* 0.35 0.17 -0.06 0.43* 1.0 0.1 -0.34 0.46*
0.29* -0.15 0.3* -0.09 0.29* 0.1 1.0 0.12 0.45*
-0.7 -0.24 -0.22 0.6 -0.27 -0.34 0.12 1.0 -0.76
0.76* 0.09 0.27* -0.43 0.59* 0.46* 0.45* -0.76 1.0
1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00

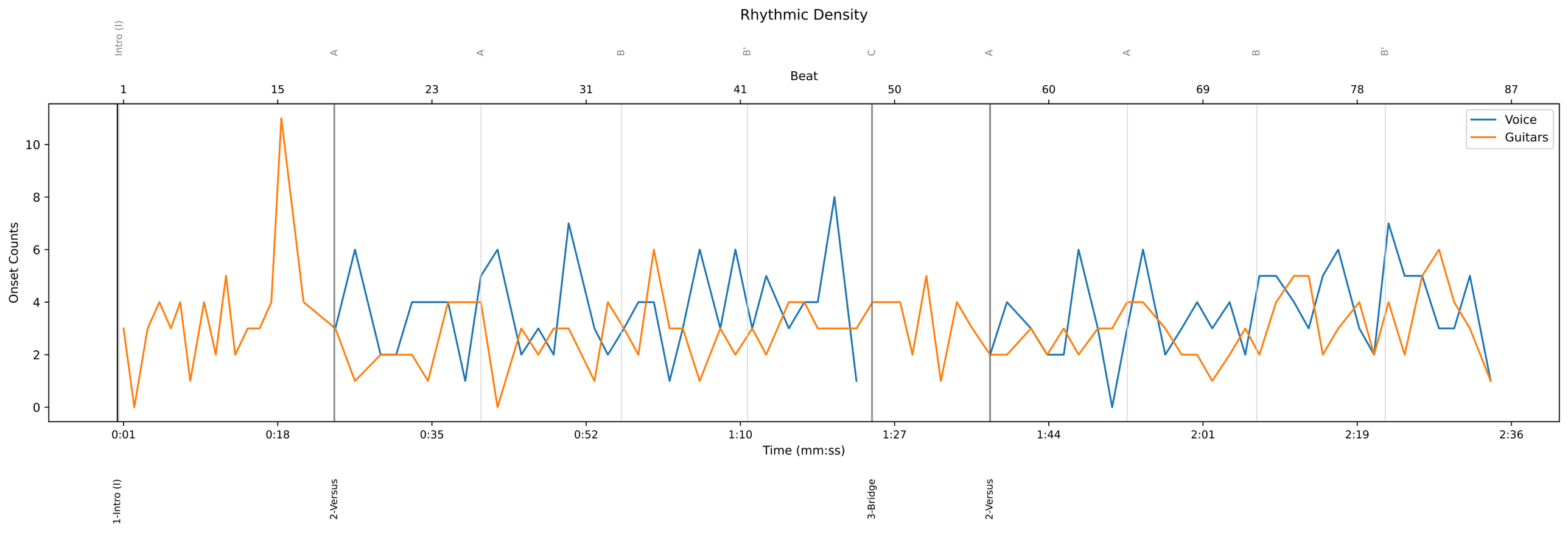

Tempo
Intro (I)
A
A
B
B'
C
A
A
B
B'
Beat
1
15
23
31
41
50
60
69
78
87
60
50
40
30
20
BPM
BPM
0:01
0:18
0:35
0:52
1:10
1:27
1:44
2:01
2:19
2:36
Time (mm:ss)
1-Intro (I)
2-Versus
3-Bridge
2-Versus

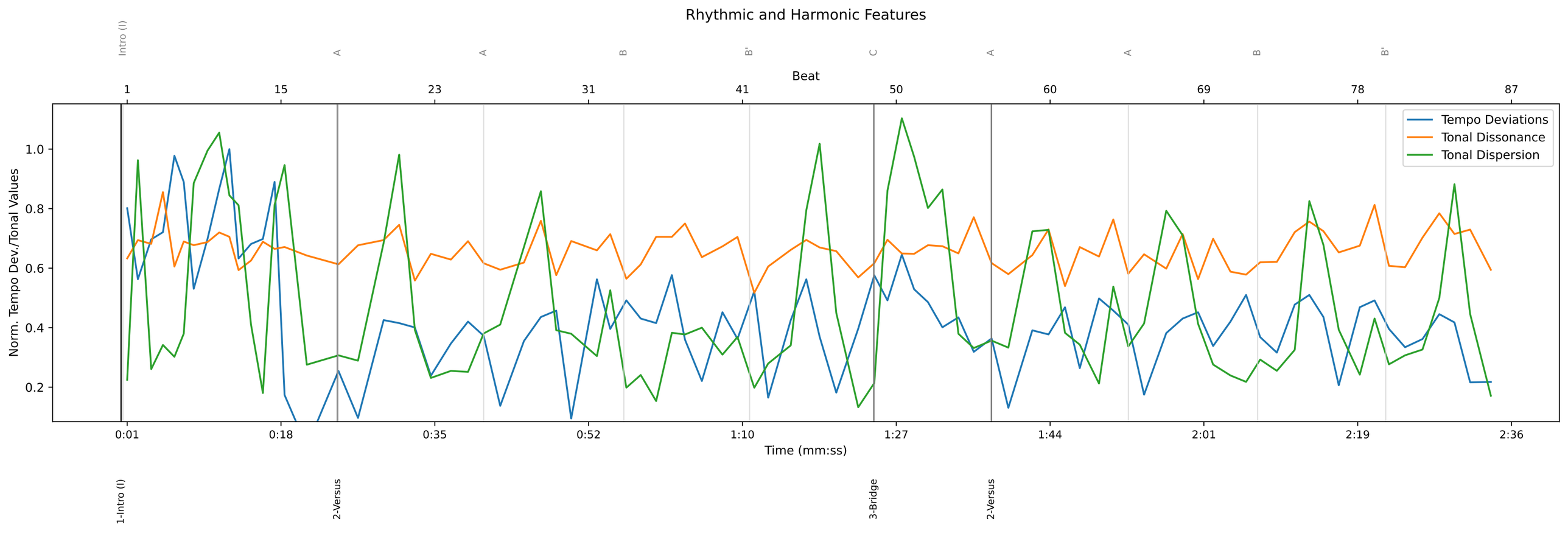

Tempo Deviations
Intro (I)
A
A
B
B'
C
A
A
B
B'
Beat
1
15
23
31
41
50
60
69
78
87
Tempo Deviations
BPM Deviation
20
10
0
−10
0:01
0:18
0:35
0:52
1:10
1:27
1:44
2:01
2:19
2:36
Time (mm:ss)
1-Intro (I)
2-Versus
3-Bridge
2-Versus

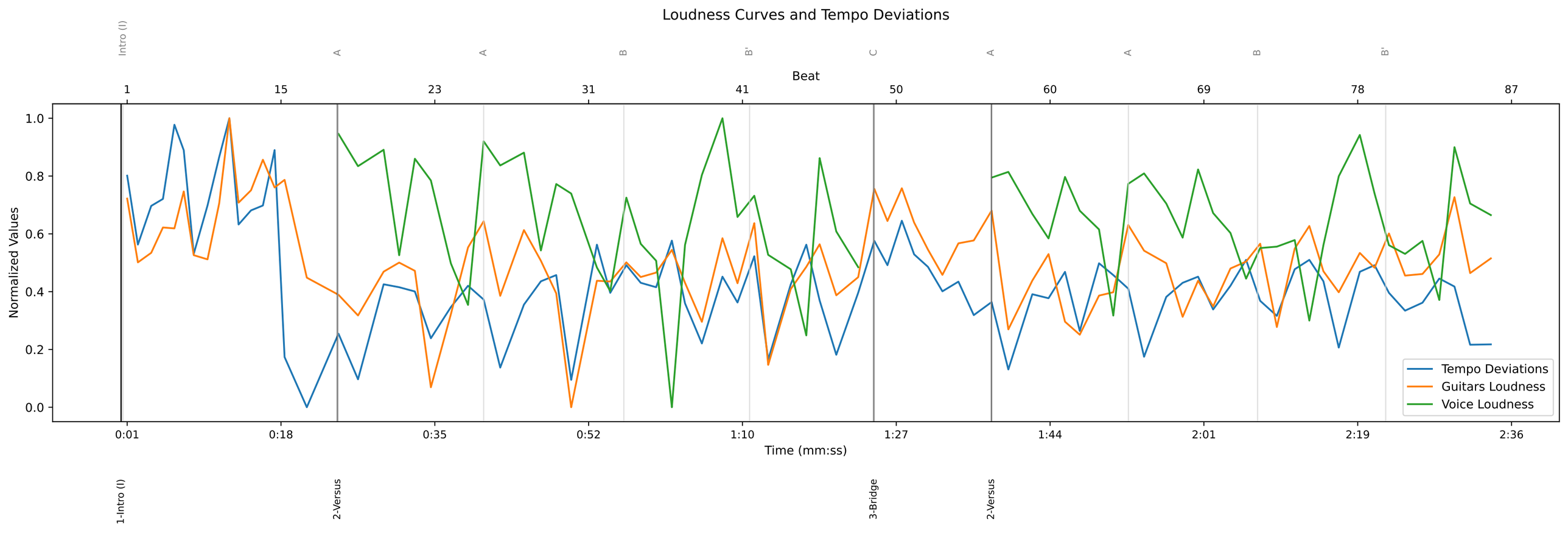

Harmonic Features
Intro (I)
A
A
B
B'
C
A
A
B
B'
Beat
1
15
23
31
41
50
60
69
78
87
Tonal Dissonance
Tonal Dispersion
Tonal Distances & Dissonance
1.0
0.8
0.6
0.4
0.2
0:01
0:18
0:35
0:52
1:10
1:27
1:44
2:01
2:19
2:36
Time (mm:ss)
1-Intro (I)
2-Versus
3-Bridge
2-Versus

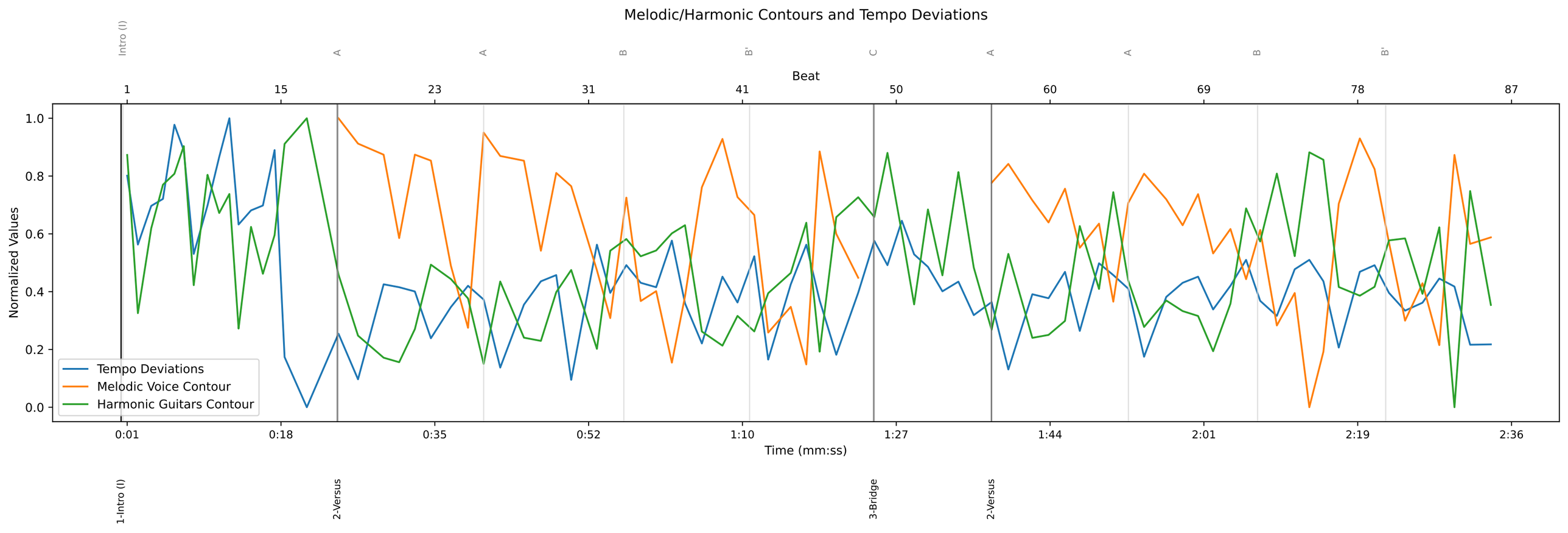

Loudness
Intro (I)
A
A
B
B'
C
A
A
B
B'
Beat
1
15
23
31
41
50
60
69
78
87
Guitars
Voice
Decibels
−5
−10
−15
−20
−25
−30
−35
−40
0:01
0:18
0:35
0:52
1:10
1:27
1:44
2:01
2:19
2:36
Time (mm:ss)
1-Intro (I)
2-Versus
3-Bridge
2-Versus

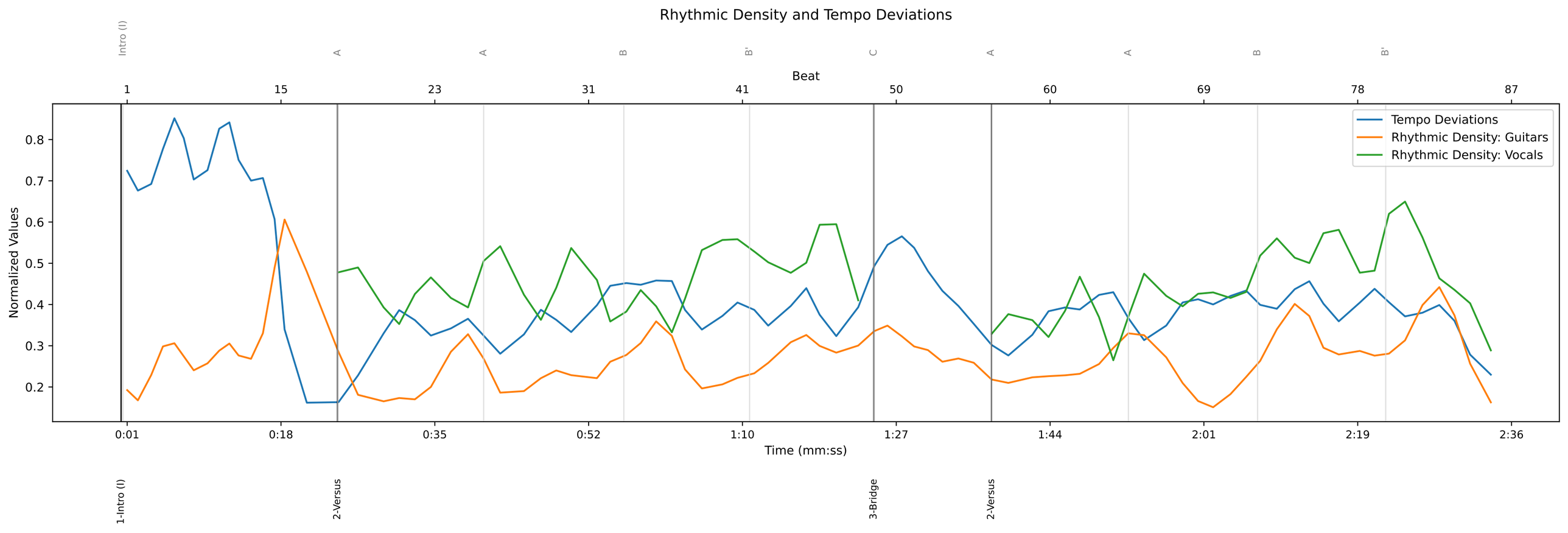

Melodic Voice and Harmonic Guitars Contour
Intro (I)
A
A
B
B'
C
A
A
B
B'
Beat
1
15
23
31
41
50
60
69
78
87
Melodic Voice Contour
Harmonic Guitars Contour
Pitch (Hz/MIDI)
85
80
75
70
65
60
0:01
0:18
0:35
0:52
1:10
1:27
1:44
2:01
2:19
2:36
Time (mm:ss)
1-Intro (I)
2-Versus
3-Bridge
2-Versus

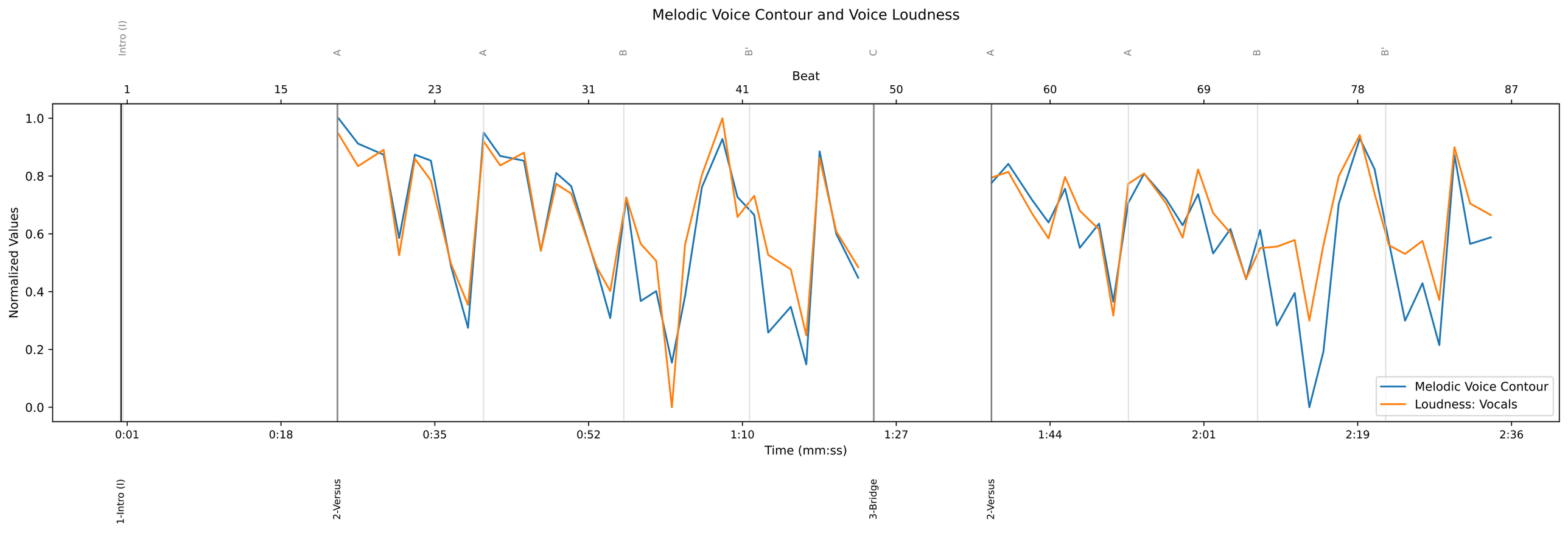

Rhythmic Density
Intro (I)
A
A
B
B'
C
A
A
B
B'
Beat
1
15
23
31
41
50
60
69
78
87
Voice
Guitars
Onset Counts
0
2
4
6
8
10
0:01
0:18
0:35
0:52
1:10
1:27
1:44
2:01
2:19
2:36
Time (mm:ss)
1-Intro (I)
2-Versus
3-Bridge
2-Versus

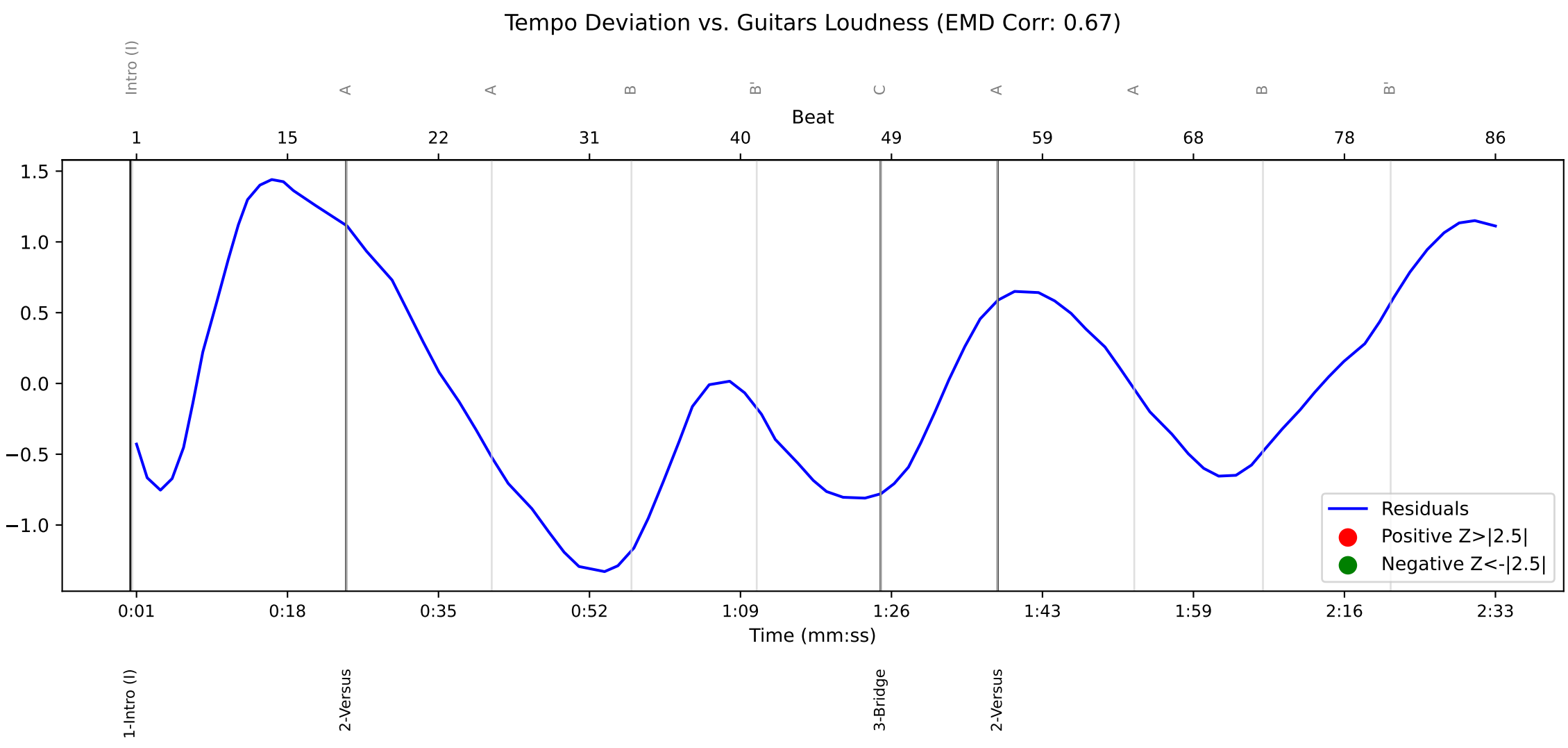

Rhythmic and Harmonic Features
Intro (I)
A
A
B
B'
C
A
A
B
B'
Beat
1
15
23
31
41
50
60
69
78
87
Tempo Deviations
Tonal Dissonance
Tonal Dispersion
Norm. Tempo Dev./Tonal Values
1.0
0.8
0.6
0.4
0.2
0:01
0:18
0:35
0:52
1:10
1:27
1:44
2:01
2:19
2:36
Time (mm:ss)
1-Intro (I)
2-Versus
3-Bridge
2-Versus

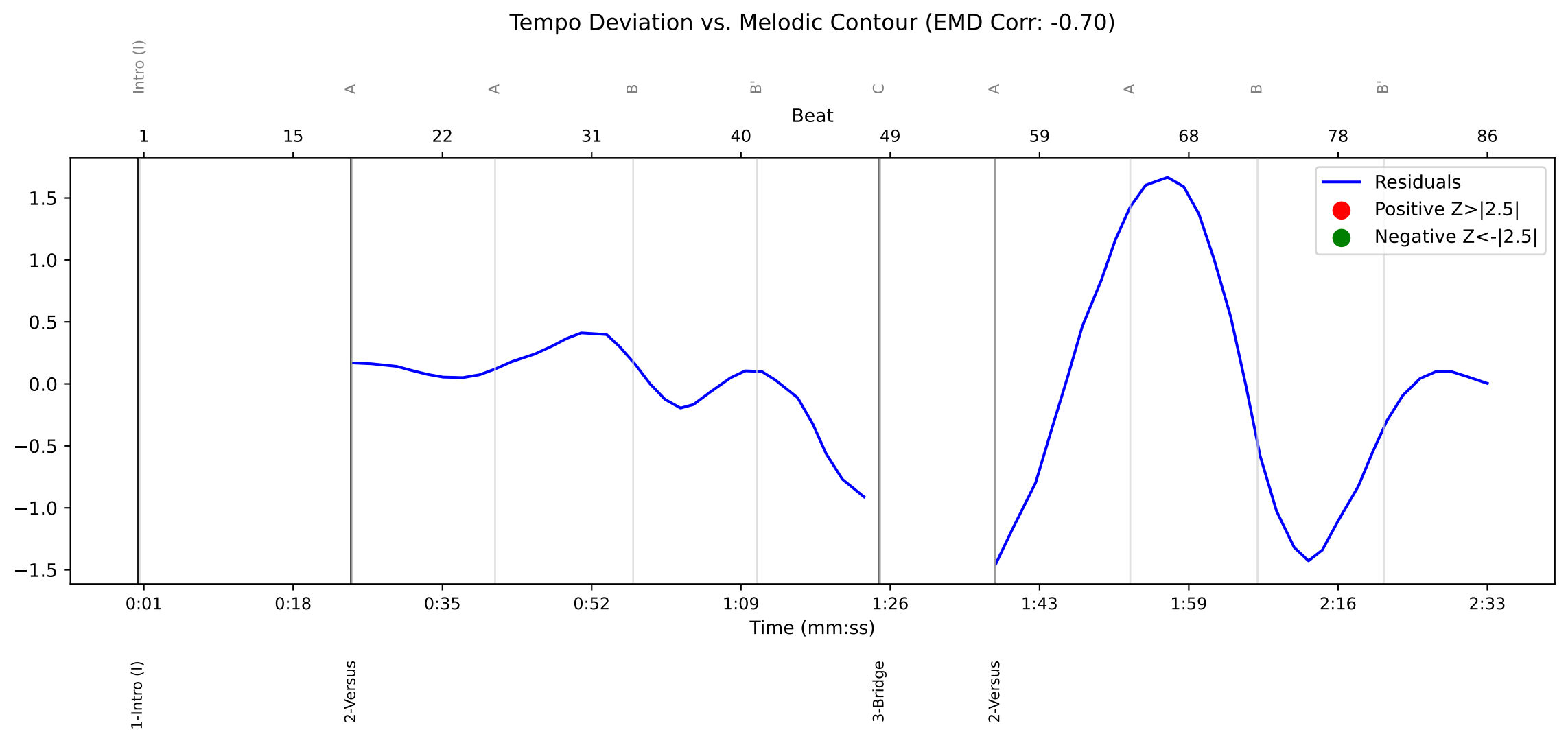

Loudness Curves and Tempo Deviations
Intro (I)
A
A
B
B'
C
A
A
B
B'
Beat
1
15
23
31
41
50
60
69
78
87
Normalized Values
1.0
0.8
0.6
0.4
0.2
0.0
Tempo Deviations
Guitars Loudness
Voice Loudness
0:01
0:18
0:35
0:52
1:10
1:27
1:44
2:01
2:19
2:36
Time (mm:ss)
1-Intro (I)
2-Versus
3-Bridge
2-Versus

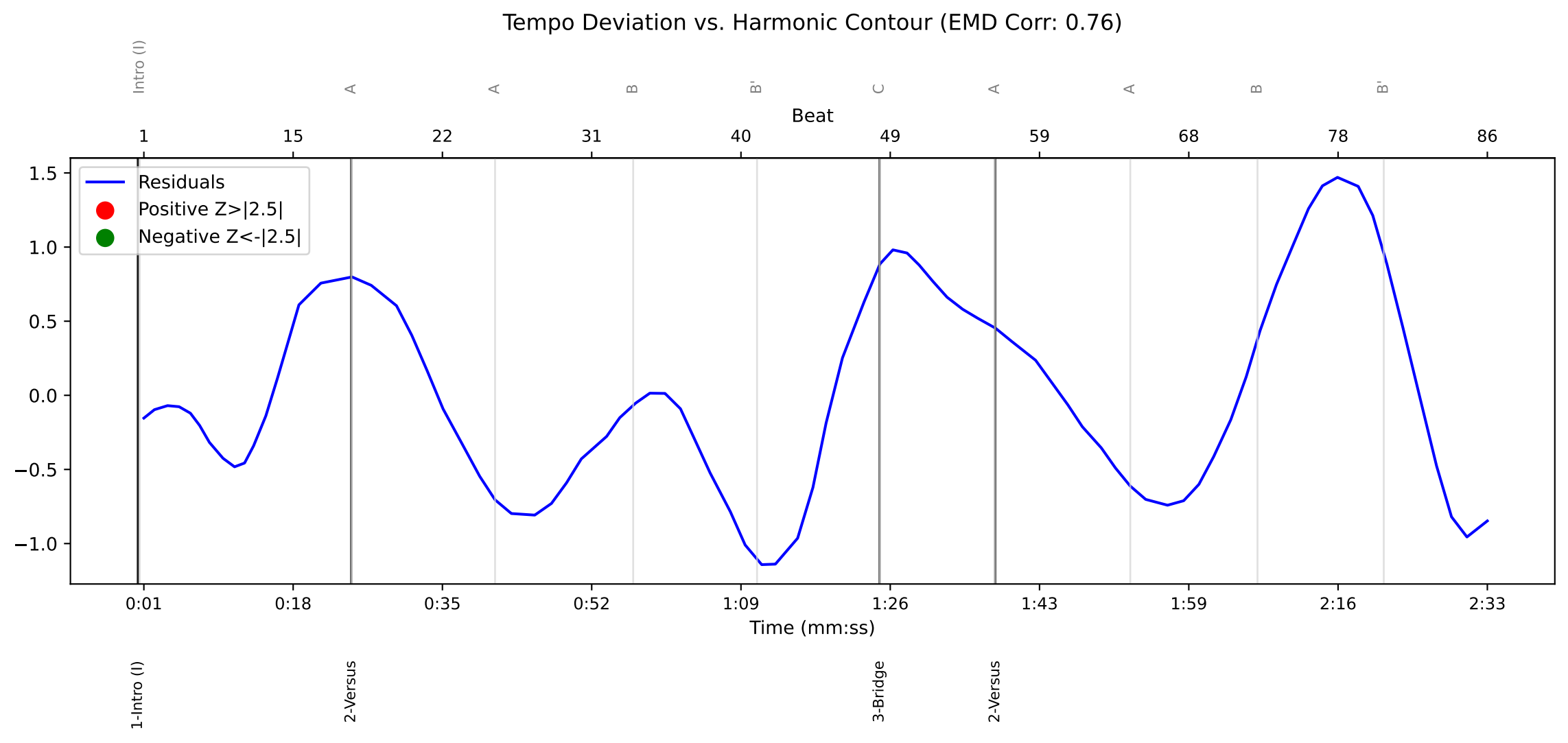

Melodic/Harmonic Contours and Tempo Deviations
Intro (I)
A
A
B
B'
C
A
A
B
B'
Beat
1
15
23
31
41
50
60
69
78
87
Normalized Values
1.0
0.8
0.6
0.4
0.2
0.0
Tempo Deviations
Melodic Voice Contour
Harmonic Guitars Contour
0:01
0:18
0:35
0:52
1:10
1:27
1:44
2:01
2:19
2:36
Time (mm:ss)
1-Intro (I)
2-Versus
3-Bridge
2-Versus

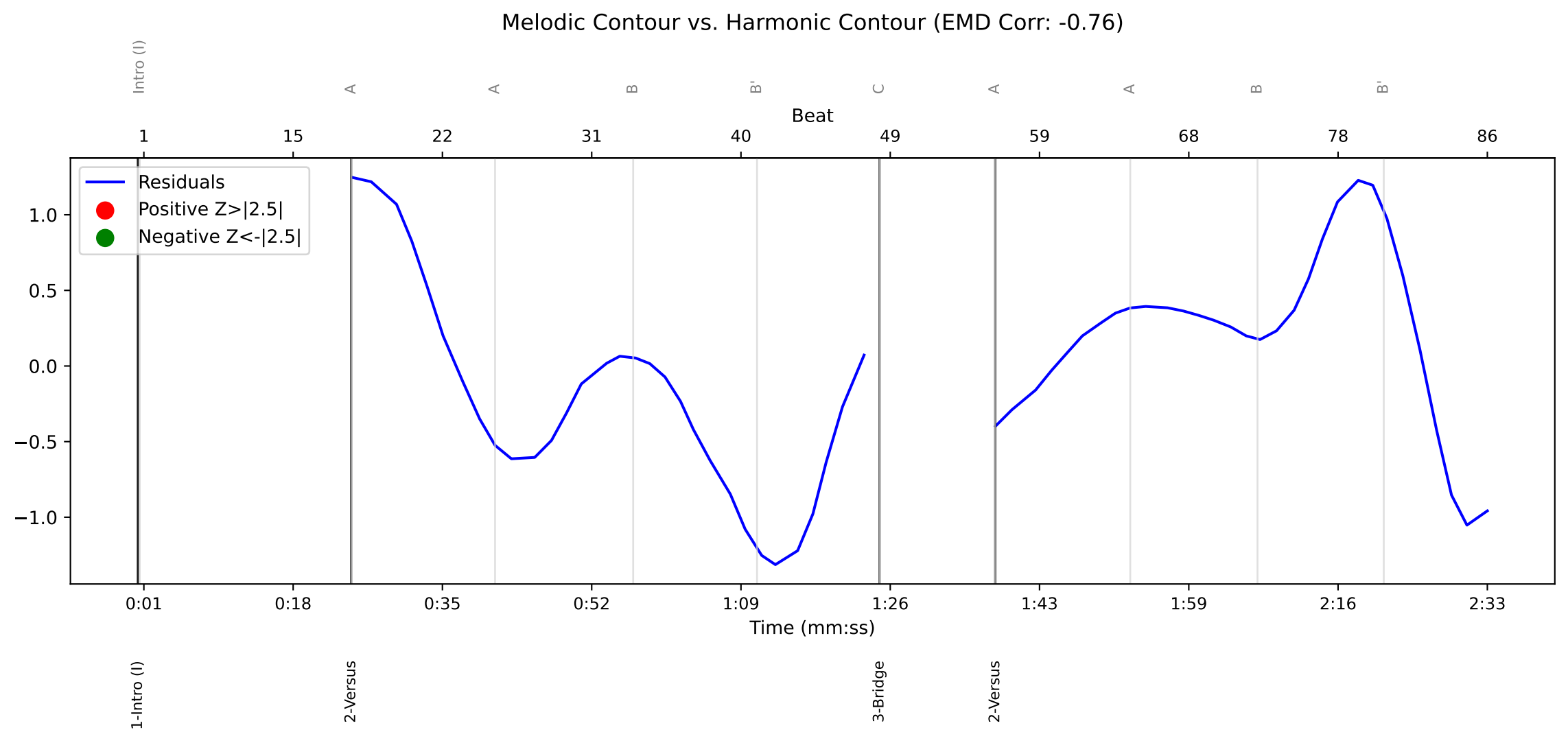

Rhythmic Density and Tempo Deviations
Intro (I)
A
A
B
B'
C
A
A
B
B'
Beat
1
15
23
31
41
50
60
69
78
87
Tempo Deviations
Rhythmic Density: Guitars
Rhythmic Density: Vocals
Normalized Values
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0:01
0:18
0:35
0:52
1:10
1:27
1:44
2:01
2:19
2:36
Time (mm:ss)
1-Intro (I)
2-Versus
3-Bridge
2-Versus


Melodic Voice Contour and Voice Loudness
Intro (I)
A
A
B
B'
C
A
A
B
B'
Beat
1
15
23
31
41
50
60
69
78
87
Normalized Values
1.0
0.8
0.6
0.4
0.2
0.0
0:01
0:18
0:35
0:52
1:10
1:27
1:44
2:01
2:19
2:36
Time (mm:ss)
Melodic Voice Contour
Loudness: Vocals
1-Intro (I)
2-Versus
3-Bridge
2-Versus


Tempo Deviation vs. Guitars Loudness (EMD Corr: 0.67)
Intro (I)
A
A
B
B'
C
A
A
B
B'
Beat
1
15
22
31
40
49
59
68
78
86
1.5
1.0
0.5
0.0
−0.5
−1.0
Residuals
Positive Z>|2.5|
Negative Z<-|2.5|
0:01
0:18
0:35
0:52
1:09
1:26
1:43
1:59
2:16
2:33
Time (mm:ss)
1-Intro (I)
2-Versus
3-Bridge
2-Versus


Tempo Deviation vs. Melodic Contour (EMD Corr: -0.70)
Intro (I)
A
A
B
B'
C
A
A
B
B'
Beat
1
15
22
31
40
49
59
68
78
86
Residuals
Positive Z>|2.5|
Negative Z<-|2.5|
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
0:01
0:18
0:35
0:52
1:09
1:26
1:43
1:59
2:16
2:33
Time (mm:ss)
1-Intro (I)
2-Versus
3-Bridge
2-Versus


Tempo Deviation vs. Harmonic Contour (EMD Corr: 0.76)
Intro (I)
A
A
B
B'
C
A
A
B
B'
Beat
1
15
22
31
40
49
59
68
78
86
Residuals
Positive Z>|2.5|
Negative Z<-|2.5|
1.5
1.0
0.5
0.0
−0.5
−1.0
0:01
0:18
0:35
0:52
1:09
1:26
1:43
1:59
2:16
2:33
Time (mm:ss)
1-Intro (I)
2-Versus
3-Bridge
2-Versus


Melodic Contour vs. Harmonic Contour (EMD Corr: -0.76)
Intro (I)
A
A
B
B'
C
A
A
B
B'
Beat
1
15
22
31
40
49
59
68
78
86
Residuals
Positive Z>|2.5|
Negative Z<-|2.5|
1.0
0.5
0.0
−0.5
−1.0
0:01
0:18
0:35
0:52
1:09
1:26
1:43
1:59
2:16
2:33
Time (mm:ss)
1-Intro (I)
2-Versus
3-Bridge
2-Versus