Rhythmic structure in music: a study of the perception of metrical and phrase structure, from a mechanistic viewpoint

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RHYTHMIC STRUCTURE IN MUSIC: A STUDY OF THE PERCEPTION OF METRICAL AND PHRASE STRUCTURE, FROM A MECHANISTIC VIEWPOINT

by

George Robert Mackie Fraser

Thesis submitted to the Faculty of Music in the University of Durham for the Degree of Doctor of Philosophy

1982

In Two Volumes

VOLUME TWO

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22. MAY 1984
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LIST OF ABBREVIATIONS AND SYMBOLS

B  Bass Accentuation
DC Duration Contour
DP Duration Phrase
d-r Dissonance and Resolution
Estd Pre-established Metre
HR Harmonic Rhythm
I Interpreted structure
LN Longer-note Accompaniment
M Metre
MC Metrical Contour
p-p Pitch Unity
PS Pitch separation
R Repetition
S Subdivision (of metrical unit or phraselength)
S1 Beam altered by
S2 Separation Rule 1,2,5
S5
T Structurally accented Tonic
t Tonic
Tr Transferred phrase grouping
x: Structural groupings on this level produced by x, until otherwise indicated

x  Structural grouping created or positioned by x
*  End of phrase grouping
\  Tonic Accent
>  Dynamic Accent
\_  Tied note or articulated slur
\|  Staccato and non legato
\rightarrow 'gives way to' (of progressive closure)
\}  Directional Grouping
\equiv Congruent with
\equiv Incongruent with
\rightarrow Stronger than (and incongruent with)
\leftarrow Weaker than (and incongruent with)
\lceil  Subsidiary structural grouping
\lceil  Projected or anticipated structural grouping
\_\_\_\_\_\_ Beam reflecting separation and continuation
\_\_\_\_ Beam reflecting separation
\l\ Structural rest, tied note, subconscious metrical accent
\l  Dual branch
\u  Shared time point - two voices
\u  Shared branch (and subtree)
Ex. 1: Schubert, Impromptu in C minor, Op. 90/1

Allegro molto moderato

Ex. 2
Ex.1/1

Ex.1/2: Chopin, Nocturne in F#, Op. 15/2

Ex.1/3: Mozart, The Marriage of Figaro, Act I, 'Non so più'
Ex.1/4:Palestrina,Missa Papae Marcelli,Credo

Ex.1/5:Beethoven,Sonata in F minor,Op.2/1,II

Allegro

Ex.1/6:Bach,Musical Offering,Theme;Trio Sonata,IV

Theme

Variation Allegro

Theme

Variation
Ex.1/7: Beethoven, Sonata in D, Op. 10/3, I

Ex.1/8: Beethoven, Violin Concerto, III

Ex.1/9

Ex.1/10
Ex. 1/11

Ex. 1/12

Chopin, op. 34/3

D:  
C:  
B:  
A:  
G:  
F:  
E:  
D:  
Ex. 2/1: Bach, '48', I, Prelude No. 1

Ex. 2/2: Bach, '48', I, Prelude No. 6

Ex. 2/3

Ex. 2/4

Ex. 2/5: Bach, '48', II, Fugue No. 9
Ex. 2/13

Ex. 2/14

Ex. 2/15

Ex. 2/16

Ex. 2/17

Ex. 2/18

Ex. 2/19

Ex. 2/20

Ex. 2/21

Ex. 2/22: British National Anthem
Ex. 2/23: Haydn, Quartet, Op. 33/3, IV

Ex. 2/24: Chopin, Prelude in C minor, Op. 28/20

Ex. 2/25: Beethoven, Symphony No. 9, II

Ex. 2/27: Bach, 'O Haupt voll blut und Wunden'
Ex.2/28: Schubert, Piano Trio in B♭, op. 99, I

Ex.2/29

Ex.2/30: Dvořák, Piano Concerto, II

Ex.2/31

Ex.2/32

Ex.2/33: Beethoven, Minuet in G

Ex.2/34
Ex.2/35: Tchaikovsky, Symphony No.4, I

Ex.2/36: Mendelssohn, Symphony No.4, I

Ex.2/37

Ex.2/38

Ex.2/39
Ex. 2/40: Mozart, Sonata in A, K. 331, I

Ex. 2/41

Ex. 2/42

Ex. 2/43

Ex. 2/44

Ex. 2/45

a: Schumann, Piano Concerto, I
b: Brahms, Piano Concerto No. 1, I

Ex. 2/46: Beethoven, Symphony No. 1, I

Ex. 2/47: Bach, '48', I, Fugue No. 2
Ex. 2/48: Mozart, Sonata in D, K. 284, I
Ex.2/51

\[ \begin{align*}
\text{anbetont (beginning-accented)} \\
\text{inbetont (middle-accented)} \\
\text{abbetont (end-accented)}
\end{align*} \]

Ex.2/52

\[ \begin{align*}
a. & \quad \frac{c}{c} \quad \text{(p.104)} \\
b. & \quad \frac{c}{c} \quad \text{(p.65)}
\end{align*} \]

Ex.2/53

\[ \begin{align*}
4 & \quad \text{(p.170)}
\end{align*} \]

Ex.2/54

\[ \begin{align*}
a. & \quad \text{(p.65)} \\
b. & \quad \text{(p.90)} \\
c. & \quad \text{(p.23)}
\end{align*} \]

Ex.2/55: Schubert, Symphony No.5,II

\[ \begin{align*}
\text{Andante con moto}
\end{align*} \]
Ex. 2/56: Beethoven, Sonata in A, Op. 2/2, III
Ex.2/63: Brahms, Symphony No.3, III

Ex.2/64

Ex.2/65: Beethoven, Violin Concerto, III

Ex.2/66
Ex. 3/1: Mendelssohn, Symphony No. 4, IV

Ex. 3/2: Brahms, Symphony No. 1, IV

Ex. 3/3: Bartók, Music for Strings, Percussion, and Celesta, III
Ex. 3/4

a.  
\[ \begin{array}{c}
2 & 1 & 2 & 1 & 2 & 1 & 2 \\
\end{array} \]

b.  
\[ \begin{array}{c}
3 & 1 & 3 & 1 & 3 & 1 & 3 \\
\end{array} \]

c.  
\[ \begin{array}{c}
7 & 1 & 7 & 1 & 7 & 1 & 7 \\
\end{array} \]

d.  
\[ \begin{array}{c}
1 & 0 & 1 & 6 & 0 & 1 \\
\end{array} \]

Ex. 3/5

Ex. 3/6

Ex. 3/7

Ex. 3/8
Ex.3/9: Chopin, Sonata in B minor, I

Ex.3/10: Bach, '48', II, Fugue No. 14

Ex.3/11: Brahms, Symphony No. 1, IV

Ex.3/12: Stravinsky, The Rite of Spring, 'Evocation of the Ancestors' (adapted)

Ex.3/13: Beethoven, Piano Concerto No. 5, III
Ex. 5/14: Chopin, Sonata in B minor, I

Ex. 5/15: Berlioz, Overture, 'Le Carnaval Romain'

Ex. 5/16: Handel, Water Music, VII, 'Air'

Ex. 5/17: Wagner, Götterdämmerung, Funeral Music

Ex. 5/18: Schumann, Piano Concerto, I
Ex.3/19: Berlioz, Romeo and Juliet, III

Adagio

Ex.3/20: Schumann, Piano Concerto, I

(d=84)

Ex.3/21: Berlioz, Romeo and Juliet, III

Adagio

Ex.3/22: Bach, '48', II, Fugue No. 14
Ex.3/23: Bach, '48', I, Fugue No. 8

Ex.3/24: Bach, '48', I, Fugue No. 14

Ex.3/25: Haydn, Symphony No. 101 ('Clock'), II

Ex.3/26: Chopin, Sonata in B minor, III

Ex.3/27: Brahms, Piano Concerto No. 1, I
Ex. 3/28: Mozart, Piano Trio in Bb, K. 502, II

Ex. 3/29: Mozart, Symphony No. 40, K. 550, I

Ex. 3/30

Ex. 3/31: Bach, '48', I, Fugue No. 15

Ex. 3/32: Mozart, Violin Concerto, K. 219, I
Ex. 3/33: Handel, Tolomeo, 'Non lo diro col labbro'

Ex. 3/34: Wagner, Die Meistersinger, Prelude

Ex. 3/35

Ex. 3/36

Ex. 3/37

Ex. 3/38

a. \( \frac{2}{3} \) A \( \frac{3}{4} \)  
b. \( \frac{6}{8} \)
Ex.3/40: Bernstein, West Side Story, 'America'

Ex.3/41: Bach, '48', Fugue No.3

Ex.3/42: Beethoven, Symphony No.5, III

Ex.3/43: Mozart, Serenade ('Eine Kleine Nachtmusik'), K.525, III

Ex.3/44

Ex.3/45: Mozart, Symphony No.25 in G minor, K.185, I
Ex.3/46

Ex.3/47

Ex.3/48: 'Auld Lang Syne'

Ex.3/49: Chopin, Prelude in E minor, Op. 28/4

Ex.3/50: Musical Cliché
Ex. 3/51: Bach, '48', I, Fugue No. 14

Ex. 3/52

A. S. Joplin, The Entertainer

b.

Ex. 3/53

a. 

\[ \wedge = \text{attack} \]
\[ 1 = \text{sounded metrical accent} \]
\[ : = \text{unsounded} \]

Ex. 3/54: Bartók, Mikrokosmos, No. 153

a. 

b. etc.
Ex. 3/55: Bach, Clavier Concerto in D minor, I 30

Ex. 3/56

Ex. 3/57: Grieg, Sonata in C minor (Violin and Piano), Op. 45, I

Ex. 3/58: Beethoven, Symphony No. 3 ('Eroica'), I
Ex.3/59: Brahms, Symphony No. 1, IV

Ex.3/60

Ex.3/61: Bach, '48', Fugue No. 6

Ex.3/62: 'Marseillaise'
Ex. 3/63: Brahms, Rhapsody, Op. 79/1
Ex. 3/64: Bach, Brandenburg Concerto No. 3, I
Ex. 3/65: Grieg, Peer Gynt, Åse's Death
Ex. 3/66: Bach, Brandenburg Concerto No. 3, I
Ex. 3/67: Schubert, Symphony No. 9, III
Ex. 3/68: Wagner, Tannhäuser, 'Pilgrims' Chorus'
Ex. 3/72: Wagner, Parsifal, Prelude

Ex. 3/73

Ex. 3/74: Haydn, Symphony No. 101 ('Clock'), I

Ex. 3/75: Mozart, Symphony No. 40, K. 550, IV
Ex.3/75 ctd.

Ex.3/76: Beethoven, Piano Concerto No. 3, III

Ex.3/77

Ex.3/78: Haydn, Symphony No. 101 ('Clock'), I
Ex. 3/80: Beethoven, Sonata in C minor, Op. 10/1, III

Ex. 3/81

Ex. 3/82

a. 2: \[ \begin{array}{c}
1 \\
1 \\
1 \\
\end{array} \times \begin{array}{c}
2 \\
1 \\
1 \\
\end{array} \]

X>1

b. 3: \[ \begin{array}{c}
1 \\
1 \\
1 \\
1 \\
\end{array} \times \begin{array}{c}
1+2 \\
1 \\
1 \\
\end{array} \]

c. 4: \[ \begin{array}{c}
1 \\
1 \\
1 \\
1 \\
\end{array} \times \begin{array}{c}
2x2 \\
1 \\
1 \\
1 \\
\end{array} \]

1+3

d. 5: \[ \begin{array}{c}
1 \\
1 \\
1 \\
1 \\
1 \\
\end{array} \times \begin{array}{c}
1+(2x2) \\
1 \\
1 \\
1 \\
1 \\
\end{array} \]

\[ \begin{array}{c}
1+3 \\
1 \\
1 \\
1 \\
1 \\
\end{array} \]

5 or \[ \begin{array}{c}
1 \\
1 \\
1 \\
1 \\
1 \\
\end{array} \times \begin{array}{c}
1 \\
1 \\
1 \\
1 \\
1 \\
\end{array} \]

[3x3]

e. 6: \[ \begin{array}{c}
1 \\
1 \\
1 \\
1 \\
1 \\
1 \\
\end{array} \times \begin{array}{c}
2+(2x2) \\
1 \\
1 \\
1 \\
1 \\
1 \\
1 \\
\end{array} \]

\[ \begin{array}{c}
3x2 \\
1 \\
1 \\
1 \\
1 \\
1 \\
1 \\
\end{array} \]

[2x3]
f. 7: \[ \begin{array}{c}
1+(2x3) \\
1+(2x3) \\
1+(2x3) \\
\end{array} \]

\[ \begin{array}{c}
1+(2x3) \\
1+(2x3) \\
1+(2x3) \\
\end{array} \]

\[ \begin{array}{c}
1+(2x3) \\
1+(2x3) \\
1+(2x3) \\
\end{array} \]

[2x3] (2x3]

g. 8: \[ \begin{array}{c}
1 \\
1 \\
1 \\
1 \\
1 \\
1 \\
\end{array} \times \begin{array}{c}
2x(2x2) \\
1 \\
1 \\
1 \\
1 \\
1 \\
1 \\
\end{array} \]

2+(2x3)
h. 9: \[ \begin{array}{c}
1 \\
1 \\
1 \\
1 \\
1 \\
1 \\
\end{array} \times \begin{array}{c}
3x3 \\
1 \\
1 \\
1 \\
1 \\
1 \\
1 \\
\end{array} \]

3+(2x3)
i. 10: \[ \begin{array}{c}
1 \\
1 \\
1 \\
1 \\
1 \\
1 \\
\end{array} \times \begin{array}{c}
2+(2x2) \\
1 \\
1 \\
1 \\
1 \\
1 \\
1 \\
\end{array} \]

1+(2x3)
j. 11: \[ \begin{array}{c}
1 \\
1 \\
1 \\
1 \\
1 \\
1 \\
\end{array} \times \begin{array}{c}
1+2+(2x2) \\
1 \\
1 \\
1 \\
1 \\
1 \\
1 \\
\end{array} \]

2+(2x3)
Ex. 3/83: Bach, '48', I, Fugue No. 5

Ex. 3/84

Ex. 3/85: Mozart, Sonata in F, K. 332, I

Ex. 3/86

Ex. 3/87: Bach, '48', I, Fugue No. 2

Ex. 3/88: Bach, Organ Chorale, 'Wachet Auf'
Ex.3/90

Ex.3/91

a: Beethoven, Symphony No. 6, I

\[\text{Allegretto}\]

b: Sibelius, Symphony No. 1, III

\[\text{d} = \text{Divisi}\]

\[\text{\(\overline{\text{S}}\)}\] = Subdivision (of lower-level phase grouping etc.)

\[\text{\(\overline{\text{S}}\)}\] = Duration phase

c: Copland, Appalachian Spring

\[\text{Allegro molto}\]

d: Beethoven, Sonata, Op. 110, II

\[\text{Allegro ma non troppo}\]

e: Schumann, Carnaval, 'Davidsbündler'

\[\text{Sforzando}\]

f: Haydn, Symphony No. 104, IV

\[\text{Sforzando}\]

g: Purcell, Dido and Aeneas, Act III

\[\text{Sforzando}\]

Ex.3/92

Ex.3/93
Ex.3/94: Chopin, Waltz in Eb, Op.18

Ex.3/95: Beethoven, Sonata in F minor, Op.2/1, I

Ex.3/96

a: Mendelssohn, Symphony No.3, IV

b: Sibelius, Symphony No.1, I

Ex.3/97

a.

1.

2.

3.

c.f. Ex.2/33
Ex. 3/98

A.

\[
\begin{array}{c}
1 & 1 & 1 & 1 & 1 \\
2 & 1 & 1 & 1 & 1 \\
\end{array}
\]

B.

\[
\begin{array}{c}
1 & 1 & 1 & 1 & 1 \\
2 & 1 & 1 & 1 & 1 \\
\end{array}
\]

I = Interpreted structural grouping

C.

\[
\begin{array}{c}
1 & 1 & 1 & 1 & 1 \\
2 & 1 & 1 & 1 & 1 \\
\end{array}
\]

D.

\[
\begin{array}{c}
1 & 1 & 1 & 1 & 1 \\
2 & 1 & 1 & 1 & 1 \\
\end{array}
\]

Ex. 3/99: Ravel, Piano Trio, I

Music. \( \frac{3}{4} \)
Ex.3/108

Ex.3/109

Ex.3/110

Ex.3/111

Ex.3/112

a.

b.

Ex.3/113: Chopin, Prelude in A, Op. 28/7

Ex.3/114
Ex.3/115

a: Boyce, Symphony No. 4, III

b: Berlioz, Symphonie Fantastique, IV.

c: Beethoven, Piano Concerto No. 4, I

d: Wagner, Die Meistersinger, Prelude

\[ S_1 = \text{Beam subject to deletion by} \]
\[ \text{Separation Rule 1} \]
\[ S_2 = \text{Beam marked for separation by} \]
\[ \text{Separation Rule 2} \]
\[ S_3 = \text{Beam subject to deletion by} \]
\[ \text{Separation Rule 3} \]
\[ S_4 = \text{Beam marked for separation by} \]
\[ \text{Separation Rule 4} \]
\[ S_5 = \text{Beam marked for separation by} \]
\[ \text{Separation Rule 5} \]
\[ \text{NR} = \text{Harmonic rhythm} \]
\[ \text{DC} = \text{Multiple from duration or chord in contour} \]
Ex.3/115e: Sibelius, Karelia, III

Ex.3/116: Prokofiev, Romeo and Juliet, 'Montagues and Capulets'

Ex.3/117: Bartók, Dance Suite, IV

Ex.3/118

a: Schubert, Symphony No. 9, I

b: Puccini, Manon Lescaut, Act I

c: Haydn, Symphony No. 104, I
Ex.3/119: Brahms, Variations on 'St. Anthony Chorale', Theme

Ex.3/120

Ex.3/121: Mozart, Sonata in A minor, K.310, III

Ex.3/122: Beethoven, Piano Concerto No. 4, I

Ex.3/123

a: 'Twinkle Twinkle Little Star'

b: Musical Cliché
Ex.3/123 ctd.

c: Schumann, Papillons, Op. 2, XII

---

Ex.3/124: Tchaikovsky, Symphony No. 4, I

a.  

b.  

Ex.3/124: Tchaikovsky, Symphony No. 4, I

---

d: Beethoven, Piano Concerto No. 3, I

e: Mozart, Sonata in C, K. 330, III

---

f: Arne, Rule Britannia
Ex.3/125: Beethoven, Symphony No.1, I

Ex.3/126: Holst, The Planets, 'Mars'

Ex.3/127

Ex.3/128
Ex.3/129: Haydn, Symphony No.101 ('Clock'), II

Decay value

4 1
.25

4 (1 1)
.39

4 (2 2)
.5

4 (4 4 4)
.707

4 2
.6299

4 (1 1)
.666

4 (1 1 1)
.6999

4 (1 1 1 1)
.707

4 (1 1 1 2 2 2)
.8409 (c.f. Ex.3/129)

4 (2 2 2 2)
.8909

Decay value

4 1
.25

4 (1 1)
.39

4 (2 2)
.5

4 (4 4 4)
.707

4 2
.666

4 (1 1)
.666

4 (1 1 1)
.6999

4 (1 1 1 1)
.707

4 (1 1 1 2 2 2)
.8409 (c.f. Ex.3/129)

4 (2 2 2 2)
.8909

Decay value

4 1
.25

4 (1 1)
.39

4 (2 2)
.5

4 (4 4 4)
.707

4 2
.666

4 (1 1)
.666

4 (1 1 1)
.6999

4 (1 1 1 1)
.707

4 (1 1 1 2 2 2)
.8409 (c.f. Ex.3/129)

4 (2 2 2 2)
.8909
Ex.3/131: Beethoven, Symphony No. 6, IV

Ex.3/132: Mozart, Quartet in D minor, K. 421, I

Ex.3/133

Ex.3/134
Ex.3/135: Beethoven, Symphony No. 7, I

Ex.3/136a: Berlioz, Te Deum, II, 'Tibi Omnes'

Ex.3/137: Rachmaninov, Symphony No. 3, I
Ex. 3/138

Ex. 3/139: Beethoven, Symphony No. 7, I

Ex. 3/140
Ex.3/141

a: Shostakovich, Symphony No.5, IV

b: Sibelius, Karelia, III

c: Tchaikovsky, Symphony No.5, IV

d: Chopin, Sonata in B minor, I
Ex.3/143: Schubert, Sonatina in D, Op.137, III

Ex.3/144: Monteverdi, Vespers, IV, 'Laudate pueri'

Ex.3/145: Bach, '48', I, Fugue No.8

Ex.3/146: Beethoven, Sonata in G# minor ('Moonlight'), II
Ex. 3/147: Wagner, Tannhäuser, 'Pilgrims' Chorus

Ex. 3/148: Mozart, Clarinet Concerto, K. 622, II

Ex. 3/149: Bartók, Mikrokosmos, No. 149

Ex. 3/150: Bartók, Mikrokosmos, No. 150
Ex. 3/154: Mozart, Sonata in D, K.284, I

Ex. 3/155: Borodin, On the Steppes of Central Asia (1st theme)

Ex. 3/156: Borodin, On the Steppes of Central Asia (2nd theme)

(3/157 not used)
Ex. 3/158: Stravinsky, The Rite of Spring, 'Danses des Adolescents'
Ex. 3/159: Stravinsky, *The Rite of Spring*, 'Glorification de l'Elue'

Ex. 3/160: Stravinsky, *The Rite of Spring*, 'Dance Sacrale'

\[ \text{\textsc{Ex.3/159: Stravinsky, The Rite of Spring, 'Glorification de l'Elue'}} \]

\[ \text{\textsc{Ex.3/160: Stravinsky, The Rite of Spring, 'Dance Sacrale'}} \]
Ex.3/161

Ex.3/162: Schubert, Symphony No. 5, III

Ex.3/163: Beethoven, Violin Concerto, III

Ex.3/164: Beethoven, Symphony No. 8, I

Ex.3/165: Haydn, Sonata in E minor, Hob.XVI/34, III
Ex.3/166: Beethoven, Sonata in D, Op.10/3, I

Ex.3/167: Mozart, Piano Trio in C, K.502, II

Ex.3/168: Mozart, Piano Concerto in C minor, K.491, III

Ex.3/169

a: Brahms, Requiem, II, 'Denn alles Fleisch'

b: Brahms, Symphony No.4, II

Ex.3/170: Mozart, Adagio and Fugue, K.546 (426), Fugue
Ex.3/171: Tchaikovsky, *Swan Lake,* 'Dance of the Swans'

HR = Structural grouping created by Harmonic Rhythm

Ex.3/172

a. \[2 3 4 1 \]

b. \[2 3 4 1 \]

c. \[2 3 4 1 \]

Ex.3/173

HR = Structural grouping created by Harmonic Rhythm

Ex.3/174: Bach, '48', I, Prelude No.7

HR = Structural grouping created by Harmonic Rhythm
Ex. 3/183: Stravinsky, The Rite of Spring, 'Cortège du Sage'

Ex. 3/184: Mozart, Symphony No. 40, K. 550, I

Phrase contour: 1: 1: 2

Ex. 3/185: Beethoven, Symphony No. 1, III

Phrase contour: 1: 1: 2

Ex. 3/186: Beethoven, Symphony No. 3 ('Eroica'), IV

Phrase contour: 1: 1: 3
Ex. 3/187: Schumann, Sonata in A minor (Violin and Piano), Op. 105, II

Ex. 3/188: Bach, '48', I, Fugue No. 6

Ex. 3/189: Bach, Mass in B minor, III, 'Kyrie Eleison'
Ex. 3/191

Ex. 3/192: Bartók, Mikrokosmos, No. 151

Ex. 3/193: Bartók, Mikrokosmos, No. 153

Ex. 3/194: Bartók, Mikrokosmos, No. 148
Ex. 3/195: Schubert, Impromptu in A\textsubscript{b}, Op. 90/4

Ex. 3/196: Beethoven, Symphony No. 8, II

Ex. 3/197: Mozart, Symphony No. 41, K. 551, II

Ex. 3/198

(a) (b)

Predominant metric:

Attack string:
Ex.3/199

Ex.3/200

Ex.3/201

Ex.3/202: Brahms, Intermezzo in B minor, Op.119/1

Ex.3/203: Mozart, Sonata in C minor, K.457, III

3/204 not used
Ex. 3/205: Bach, '48', II, Fugue No. 19

Ex. 3/206

Ex. 3/207: Bach, '48', II, Fugue No. 19

Ex. 3/208

Ex. 3/209
Ex.3/208.1
a: Chopin, Ballade No.4 in F minor, Op.52
Andante con moto

Ex.3/209: Rachmaninov, Symphony No.3, Op.44, III

Ex.3/209: Beethoven, Sonata in G, Op.79, II
Andante
Ex. 3/210

a: Beethoven, Sonata in F (Violin and Piano, 'Spring'), Op. 24, I

Ex. 3/211: Dvořák, 'Cello Concerto, Op. 104, I
Ex.3/212

Ex.3/213

Ex.3/214: Purcell, Abdelazar, Hornpipe (Britten, Young Person's Guide, Op.34, I)
Ex.3/216: Mozart, Quartet in E, K.428, I

Ex.3/217: Francisco de la Torre, Alta (HAM No.102a)
Ex. 3/218: Schoenberg, Six Little Piano Pieces, Op. 19, III

Sehr langsamer \( \text{\textit{d}} \)
Ex. 4/1: Tchaikovsky, Symphony No. 5, I

Ex. 4/2: Bach, '48', I, Prelude No. 6

Ex. 4/3: Stravinsky, The Rite of Spring, 'Evocation of the Ancestors'

Ex. 4/4: Tchaikovsky, Symphony No. 4, I
Ex. 4/5: Prokofiev, Romeo and Juliet, Op. 64, 'Dance'

Vivo, 4=160

\( ^\wedge = \text{Tonic accent} \)
\( \searrow = \text{Directional grouping} \)

Ex. 4/6: Berlioz, Harold in Italy, Op. 16, IV

\( \searrow = \text{Subsidiary structural grouping} \)

Ex. 4/7: Bach, '48', I, Fugue No. 21

\( \text{PS} = \text{Pitch Separation} \)
\( \text{NR} = \text{Harmonic Rhythm} \)

Ex. 4/8: Bach, Sonata in G minor (Solo Violin), Fugue
Ex. 4/9: Bach, Suite No. 3 (Solo 'Cello), Bourrée I

Ex. 4/10: Bach, '48', I, Prelude No. 21

Ex. 4/11: Shostakovich, Symphony No. 5, I

Ex. 4/12: Brahms, Symphony No. 2, I
Ex. 4/13: Prokofiev, *Romeo and Juliet*, Op. 64, 'Dance of the Maids from the Antilles'

Ex. 4/14: Mozart, Sonata in A (Piano and Violin), K. 305, I

Ex. 4/15

Ex. 4/16: Mozart, Sonata in B♭, K. 333, III

Ex. 4/17: Beethoven, Sonata in G# minor ('Moonlight'), Op. 27/2, III
Ex. 4/18: Bach, '48', I, Prelude No. 14

Ex. 4/19: Chopin, Ballade No. 4 in F minor, Op. 52 (ending)

Ex. 4/20: Bach, '48', I, Prelude No. 11

Ex. 4/21: Bach, '48', II, Fugue No. 6

Ex. 4/22
Ex.4/23: Mozart, Sonata in F, K.332, III

Ex.4/24: Brahms, Piano Concerto in D minor, III

Ex.4/25: Schumann, Sonata in A minor (Violin and Piano), Op.105, III

Ex.4/26

Ex.4/27: Bach, '48', I, Prelude No.15
Ex. 4/28: Bach, Brandenburg Concerto No. 3, I

Ex. 4/29: Chopin, Ballade No. 1 in G minor, Op. 23

Ex. 4/30: Beethoven, Sonata in F minor, Op. 21, I

Ex. 4/31: Beethoven, Sonata in C ('Waldstein'), Op. 53, III

Ex. 4/32: Chopin, Ballade No. 1 in G minor, Op. 23
Ex.4/33: 'Twinkle Twinkle Little Star'

Ex.4/34: Mozart, Sonata in C minor, K.457, I

Ex.4/35: Bach, '48', II, Prelude No. 6

Ex.4/36: Bach, Sonata in G minor (Solo Violin), IV

Ex.4/37: Bach, Mass in B minor, XIX, 'Confiteor'

Ex.4/38
Ex. 4/39: Bach, Brandenburg Concerto No. 1, I

Ex. 4/40

Ex. 4/41: Brahms, Piano Concerto in D minor, I

See 2/45b for accompaniment

Ex. 4/42: Kodály, Suite: Háry János, V, "Intermezzo"

Ex. 4/43: Brahms, Piano Concerto No. 2, III

Ex. 4/44: Berlioz, Symphonie Fantastique, Op. 14, II
Ex. 4/45: Beethoven, Quartet, Op. 18/1, I

Ex. 4/46

Ex. 4/47

Ex. 4/48: Bach, Orchestral Suite No. 3 in D, I

Ex. 4/49

Ex. 4/50
Ex.4/51: Schubert, Symphony No.8, I

Ex.4/52

Ex.4/53

Ex.4/54: Mozart, Sonata in F, K.332, I

Ex.4/55

Ex.4/56
Ex.4/61: Bruckner, Symphony No.8, IV

Ex.4/62: Schumann, Piano Concerto, Op.54, I


b. Debussy, Prelude, 'La fille aux cheveux de lin'

Ex.4/64: Stravinsky, Symphony of Psalms, II

Ex.4/65: Bach, Concerto in C minor (Two Claviers and Orchestra), BWV 1060, III
Ex.4/66: Bach, Violin Concerto in A minor, I

Ex.4/67: Chopin, Nocturne in E, Op. 9/2 (accompaniment)

Ex.4/68: Bach, Brandenburg Concerto No. 3, I

Ex.4/69: Brahms, Piano Concerto No. 1, III

Ex.4/70

Ex.4/71
Ex.4/72: Ravel, Piano Concerto in G, II

Adagio assai, \( \text{\#} = 76 \)

Ex.4/73: Chopin, Ballade No. 1, Op. 23

Ex.4/74
Ex. 4/75: Chopin, Ballade No. 4, op. 52

Ex. 4/76: Bach, Mass in B minor, VII, 'Domine Deus'

Ex. 4/77: Holst, The Planets, 'Mars'

Ex. 4/78: Mozart, Fantasia, K. 475, Andantino
Ex. 4/79: Beethoven, Sonata in F minor, Op. 2/1, I

Ex. 4/80: Tchaikovsky, Symphony No. 6, IV

Ex. 4/81

Ex. 4/82: Tippett, Fantasia Concertante on a Theme of Corelli, Theme
Ex. 4/83

Ex. 4/84: Beethoven, Sonata in C minor, Op. 10/1, I

Ex. 4/85: Mozart, Sonata in F, K. 332, I

Ex. 4/86: Beethoven, Sonata in A, Op. 2/2, IV

Ex. 4/87: Mozart, Sonata in Bb, K. 333, III
Ex. 4/88: Beethoven, Sonata in C minor, Op. 10/1, II

Ex. 4/89: Mozart, Symphony No. 41, IV

Ex. 4/90: Scriabin, Prelude in G# minor, Op. 11/13

Ex. 4/91: Tchaikovsky, Symphony No. 5, IV
Ex. 4/92: Bach, Concerto in D minor (Two Violins), I

Ex. 4/93: Mozart, Piano Concerto in A, K. 448, I

Ex. 4/94: Tchaikovsky, Piano Concerto No. 1, I

Ex. 4/95: Bach, Mass in B minor, III, 'Kyrie Eleison'
Ex.4/96: Beethoven, Symphony No.3, II

Ex.4/97: Beethoven, Overture, Leonore No.3, Op.72a

Ex.4/98: Beethoven, Sonata in C minor, Op.10/1, II

Ex.4/99: Wagner, Die Meistersinger, Prelude
Ex. 4/100: Mozart, Fantasie, K. 475, Andantino

Ex. 4/101: Beethoven, Sonata in C minor, Op. 10/1, II

Ex. 4/103: Brahms, Piano Concerto No. 2, IV
Ex. 4/104: Brahms, Piano Concerto No. 2, I

Ex. 4/105: Tchaikovsky, Symphony No. 5, III

Ex. 4/106: Tchaikovsky, Symphony No. 5, III
Ex. 4/107: Beethoven, Violin Concerto, I


Ex. 4/109: Bach, '48', I, Prelude No. 24

Ex.4/11: Chopin, Op. 22

Allegro molto

1.

Resolutions in category:

2.

but also:

3.

4.

5.
Ex.4/113 (c.f. Elgar, 'Enigma Variations', 'Nimrod')

Ex.4/114: Beethoven, Six Variations, Op.34, Var.II

Ex.4/115
Ex. 4/118: Brahms, Piano Concerto No. 1, I

Ex. 4/119: Bach, Partita No. 1 (Solo Violin), Gigue

Ex. 4/120: Mozart, Serenade ('Eine Kleine Nachtmusik'), K. 525, III
Ex. 4/121: Mozart, Quartet in D minor, K. 421, III

Ex. 4/122: Berlioz, Harold in Italy, Op. 16, III

Ex. 4/123: Chopin, Piano Concerto No. 1, Op. 11, I

Ex. 4/124: Prokofiev, Romeo and Juliet, Op. 64, 'Folk Dance'
Ex.4/125: Schubert, Impromptu in Ab, Op.90/4

Ex.4/126: Bach, '48', I, Prelude No.24

Ex.4/127: Mozart, Serenade, K.380, IV

Ex.4/128: Brahms, Piano Concerto No.1, III
Ex. 4/129: Bach, Mass in B minor, XXI, 'Hosanna'

Ex. 4/130: Brahms, Intermezzo in E, Op. 117/1

Ex. 4/131: Bach, '48', II, Prelude No. 14

Ex. 4/132: Mozart, Sonata in D, K. 576, I
Ex. 4/133: Haydn, Quartet, Op. 50/1, III

Ex. 4/134: Mozart, Quintet, K. 516, V

Ex. 4/135: Beethoven, Sonata in E, Op. 14/1, III

Ex. 4/136: Mozart, Sonata in A, K. 33l, I, Variation 1
Ex. 4/137: Bartók, Musie for Strings, Percussion and Celesta, I

Ex. 4/138 a. 

b. 

Ex. 4/139

Ex. 4/140: Debussy, Prélude à l'Après-midi d'un Faune (ending)
Ex.4/141

Ex.4/142: Beethoven, Sonata in E minor, Op. 90, I

Mit Lobhaftigkeit

(Con moto)

b. = Harmonic unity (Harmonic Rhythm)

p–p = Pitch unity
Ex.4/145: 'Gaudeamus Igitur'

Ex.4/144: Beethoven, Sonata in D, Op.102, IV

Ex.4/145: Bach, '48', II, Prelude No.4

Ex.4/146: Beethoven, Piano Trio, Op.97, III
Ex. 4/147: Beethoven, Sonata in C minor, Op. 111, II

Adagio molto

Ex. 4/148: Brahms, Variations on a Hungarian Song, Op. 21/2


Ex. 4/150

Top line:

\[ HR = LN \quad HR > LN \quad DC > HR \quad HR + LN (exp) > LN (base) \]
Ex. 4/151: Mussorgsky, Pictures at an Exhibition, 'The Gnome'

Ex. 4/152: Beethoven, Sonata in D, Op. 10/3, I

Ex. 4/153: Beethoven, Sonata in E, Op. 14/1, I

Ex. 4/154
Ex. 4/55: Saint-Saëns, Quartet, Op. 112, II

Ex. 4/56: Brahms, Intermezzo in E minor, Op. 119/2


Ex. 4/58
Ex. 4/159: Mozart, Quartet, K. 590, IV

Ex. 4/160: Mozart, Sonata in F, K. 332, I

Ex. 4/161: Bach, English Suite No. 3, Gavotte

Ex. 4/162: Mozart, Sonata in C, K. 330, III
Ex.4/163: Beethoven, Piano Concerto No. 4, I

Ex.4/164: Mozart, Symphony No. 40, K. 550, III

Ex.4/165: Schumann, Sonata in A minor (Violin and Piano), Op. 105, II

Ex.4/166: Bach, Mass in B minor, XXI, 'Hosanna'
Ex. 4/167: Chopin, Mazurka in E\textsubscript{b}, Op. 7/1

Ex. 4/168

a: Mozart, Sonata in F (Piano and Violin), K. 377, II

b: Franck, Symphony in D minor, I

Ex. 4/169: Mozart, Sonata in A (Piano and Violin), K. 305, I
Ex.4/170: Beethoven, Sonata in F minor, Op. 57, I

Ex.4/171

Ex.4/172

HR:  

N = Neighbour-note

Ex.4/173: Beethoven, Sonata in F minor, Op. 2/1, I
Ex. 4/173.1: Bach, *Musical Offering* (as Ex. 1/6)
Ex. 4/174: Chopin, Ballade No. 1, Op. 23

Ex. 4/175: Corelli, Sonata, Op. 5/8, Sarabanda

Ex. 4/176: Mozart, Symphony No. 34, K. 338, I

Ex. 4/177
Ex. 4/161: Brahms, Intermezzo in A, Op. 118/2

Moderato

Ex. 4/162: R. Rogers, The King and I, 'March of the Siamese Children'
Ex.5/1

Ex.5/2: Beethoven, Sonata in G, Op.14/2, I

Ex.5/3: Schumann, Album for the Young, Op.68, 'Soldiers' March'

Ex.5/4: Bartók, Allegro Barbaro

\[ d = \text{tempo} \]
Ex. 5/5: Dvořák, Symphony No. 6, III

Ex. 5/6: Brahms, Rhapsody in Eb, Op. 119/4

Ex. 5/7: Stravinsky, The Rite of Spring, 'Dances des Adolescents'

Ex. 5/8: Beethoven, Symphony No. 6, I
Ex. 5/9: Beethoven, Symphony No. 3 ('Eroica'), IV

Ex. 5/10

Ex. 5/10.1

Ex. 5/10.2

(\(\sim\) = Articulation, not ties)
Ex. 5/12: Beethoven, Quartet in C# minor, Op. 131, IV

Ex. 5/13: Haydn, Symphony No. 97 ("Salomon"), IV

Ex. 5/14: Mozart, Duo for violin and viola, K. 423, III

Ex. 5/15: adapted from: Beethoven, Sonata in Eb, Op. 56/3, IV
Ex. 5/17: Lassus, Chanson, 'Bon Jour Mon Coeur'

Ex. 5/18: Mon douce et mon ame, Mon douce et mon ame, Mon douce et mon ame,

Ex. 5/19: Mon douce et mon ame, Mon douce et mon ame, Mon douce et mon ame,
Ex.5/19

Schering

Sachs

Gombosi

Ex.5/20: Bore, Madrigal, 'Quando Lieta Sperai'
Ex.5/21: Brahms, Piano Concerto No.1, III

Ex.5/22: Janáček, Sinfonietta, IV
Ex.5/23: Bach, Orchestral Suite No.2 in B minor, Badinerie

Ex.5/24: Bizet, L'Arlesienne, Suite No.1, I, Overture

Ex.5/25: Mozart, Violin Concerto in G, K.216, II

Ex.5/26: Berlioz, Harold in Italy, I
Ex. 5/30: Brahms, Symphony No. 2, I

Ex. 5/31: Shostakovitch, Symphony No. 1, II

Top line alone:

Ex.5/33

a: Debussy, *Nocturnes*, II, 'Fêtes'

Top line relative to accompaniment:
Ex. 5/33: Ravel, *Introduction and Allegro*

Top line relative to accompaniment: R(Aug.)

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Ex. 5/34: Stravinsky, *Symphony of Psalms*, III

Top line: K

Bottom line relative to top: K

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Ex. 5/35: Ravel, *Quartet in F*, II

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Leicht, zart (\(\uparrow\))

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etwas zögernd

flüchtig

express.

leicht
Ex. 5/39: Schoenberg, Piano Concerto, I

Ex. 5/40: Mozart, Sonata in A, K. 331, III (adapted)