

The Problem of Motion in Straight Lines

with forewords by Richard Wolfson.

For Ensemble and Computer track
Commissioned by Contemporanea

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The Problem with Motion in Straight Lines

BLJ
KODA
DMF
DKP

Perc

The musical score is written in 4/4 time and consists of three staves. The top staff is a grand staff with a treble clef and contains notes for Wwbclk, Brake dr., Bongo, W.chm, and Tam-tam. The middle staff is a grand staff with a treble clef and contains notes for SN.D, 3 Temple Bells, Vibraphone, TAIKO Kant, and Skind. The bottom staff is a bass staff with a bass clef and contains a note for B.D. The score includes various rhythmic values such as quarter notes, eighth notes, and rests, with some notes marked with dynamic markings like *pp*.

Wwbclk. Brake dr. Bongo W.chm Tam-tam

SN.D

Vibraphone TAIKO Kant

3 Temple Bells Skind

B.D.

48. The Problem with Motion in Straight Lines

Bpm ♩ = c. 60

Hesitating

Fl *With air* Irregular rythm *p*

Cl. Bb *With air* Irregular rythm *p*

Prc. 3 Temple Bells *p* TmpB. Flexatone *f*

VI *With air* *p*

Vcl *Slow vib* *With air* *p*

Cb

Akk *Inh* *Exh* *Inh* *Exh* *Inh* *Exh*

Comp A Proximity scetch providing a view of the activity ▶

Richard Wolfson: 02 - Heaven and Earth, Place and Motion:

.... The natural state of motion is not to be at rest on the surface of the earth. That's the state of motion you get to because of things like friction and air resistance and things that you bump into like the floor when the ball falls. The natural state of motion is to move in a straight line at constant speed....

48. The Problem with Motion in Straight Lines

The musical score is arranged in a system with seven staves. The instruments and their parts are as follows:

- Fl (Flute):** Treble clef, measures 24-35. Includes a first ending triangle at measure 31 labeled "1. Moving" with a dynamic of *mf*.
- Cl. Bb (Clarinet in Bb):** Treble clef, measures 24-35. Includes a first ending triangle at measure 31 labeled "1. Moving" with a dynamic of *mf* and the instruction "Slapzunge".
- Prc. (Percussion):** Multiple staves. Includes a Bongo part starting at measure 31 with a dynamic of *mf* and a Temple B. part starting at measure 34 with a dynamic of *mf*.
- VI (Viola):** Treble clef, measures 24-35. Includes a first ending triangle at measure 31 labeled "1. Moving" with a dynamic of *mf*.
- Vcl (Violoncello):** Bass clef, measures 24-35. Includes a first ending triangle at measure 31 labeled "1. Moving" with a dynamic of *mf*.
- Cb (Contrabass):** Bass clef, measures 24-35. Includes a first ending triangle at measure 31 labeled "1. Moving" with dynamics of *p* and *mf*.
- Akk (Accordion):** Treble and Bass clefs, measures 24-35. Includes instructions "Inh" and "Exh" at measures 24 and 25 respectively. Includes a first ending triangle at measure 31 labeled "1. Moving" with a dynamic of *f*.
- Comp (Comps):** Empty staff.

Additional markings include "B.D." (Basso Continuo) at measure 31 and "Wwblck." (Wahlblock) at measure 32.

Marker 1.
1:00

48. The Problem with Motion in Straight Lines

The musical score is arranged in a system with the following parts from top to bottom:

- Fl (Flute):** Treble clef, starting with a sixteenth-note run at measure 36. A *mf* dynamic marking is present at measure 40.
- Cl. Bb (Clarinet in Bb):** Treble clef, featuring quintuplets at measures 37 and 38, and a triplet at measure 41.
- Prc. (Percussion):** Two staves. The upper staff includes markings for *Wwblck.* (woodblock), *Bongo*, *Tam-tam*, and *Mallet*. The lower staff shows a simple bass line.
- VI (Violin):** Treble clef, with a triplet at measure 41.
- Vcl (Viola):** Bass clef, with a triplet at measure 41.
- Cb (Cello):** Bass clef, with a triplet at measure 41 and a sextuplet at measure 41.
- Akk (Double Bass):** Two staves (treble and bass clefs) showing a simple harmonic accompaniment.
- Comp (Computer):** A single staff with a *Computer start* marking at 01:16.

Measure numbers 36, 37, 38, 39, 40, and 41 are indicated at the beginning of their respective measures. Triangle markers with the number 2 and 39 are placed above measures 39, 40, and 41. A box labeled "Marker 2. 01:16" is located at the bottom of the page.

48. The Problem with Motion in Straight Lines

The musical score is arranged in a system with the following parts and markings:

- Fl (Flute):** Measures 42-51. *mf* dynamic. Includes triplets in measures 45 and 46.
- Cl. Bb (Clarinet/Bassoon):** Measures 42-51. *mf* dynamic. Includes triplets in measures 45 and 46.
- Prc. (Percussion):** Measures 42-51. Includes *Temple B.* in measure 45, *Wwblck.* in measure 48, and *SN.D* in measure 51. *p* dynamic.
- VI (Violin):** Measures 42-51. *sfz* dynamic. Includes *Pont.* and *Ord* markings in measure 43.
- Vcl (Violoncello):** Measures 42-51. *mf* dynamic. Includes *jete'* in measure 42, *Pont.* and *4th eco* in measure 44, and triplets in measures 45 and 46.
- Cb (Contrabass):** Measures 42-51. *mf* dynamic. Includes *pizz.* in measure 42, *Pont.* and *4th eco* in measure 44, *f* dynamic in measure 48, and *mp* dynamic in measure 50. A circled *[?]* is present in measure 51.
- Akk (Accordion):** Measures 42-51. *mp* dynamic in measures 42-44, *mp* in measure 47, *f* in measure 48, and *mf* in measure 50.
- Comp (Computer):** Measures 42-51. Includes a long horizontal line with an arrow pointing right.

48. The Problem with Motion in Straight Lines

The musical score is arranged in a system with the following parts from top to bottom:

- Fl (Flute):** Treble clef, measures 52-57. Includes a slur over measures 53-54 and a dynamic marking of *mf* at measure 57.
- Cl. Bb (Clarinet Bb):** Treble clef, measures 52-57. Includes a slur over measures 53-54 and a dynamic marking of *sf* at measure 57.
- Prc. (Percussion):** Two staves. Includes a *Bongo* part starting at measure 54 and a *Vibraphone* part starting at measure 57 with a dynamic marking of *p*.
- VI (Violin):** Treble clef, measures 52-57. Includes triplets and a dynamic marking of *f* at measure 57.
- Vcl (Viola):** Bass clef, measures 52-57. Includes a *Pont.* (Pizzicato) marking at measure 55 and triplets.
- Cb (Contrabass):** Bass clef, measures 52-57. Includes a *pizz.* marking at measure 53, a section of notes in boxes with question marks from measure 52 to 53, and a dynamic marking of *f* at measure 57.
- Akk (Accordion):** Treble and Bass clefs, measures 52-57. Includes a triplet in the treble staff at measure 53 and a dynamic marking of *mf* at measure 57.
- Comp (Compressor):** A single staff with an arrow pointing right, indicating a compressor effect.

Marker 3:
01:52

48. The Problem with Motion in Straight Lines

This musical score is for the piece "48. The Problem with Motion in Straight Lines". It is arranged for a chamber ensemble consisting of Flute (Fl), Clarinet in Bb (Cl. Bb), Percussion (Prc.), Viola (Vi), Violoncello (Vcl), Contrabass (Cb), Accordion (Akk), and Compressor (Comp). The score spans measures 58 to 63. The Flute and Clarinet parts feature intricate melodic lines with triplets and slurs. The Percussion part includes a section labeled "Vibraphone" starting in measure 63. The Viola, Violoncello, and Contrabass parts provide harmonic support with sustained notes and slurs. The Accordion part includes a dynamic marking of *mf* in measure 62. The Compressor part is marked with a square symbol in measure 58.

48. The Problem with Motion in Straight Lines

The musical score is arranged in a system with the following parts from top to bottom:

- Fl (Flute):** Measures 64-70. Features a 4-measure rest starting at measure 67.
- Cl. Bb (Clarinet/Bassoon):** Measures 64-70. Includes slurs, triplets, and dynamic markings such as *sfz*, *sf*, and *mf*. A 4-measure rest is present at measure 67.
- Prc. (Percussion):** Measures 64-70. Includes parts for *TAIKO*, *Brake dr.*, *kant slag*, *SN.D*, and *B.D.* (Bass Drum). A 4-measure rest is present at measure 67.
- VI (Violin):** Measures 64-70. Features a 4-measure rest starting at measure 67.
- Vcl (Viola):** Measures 64-70. Includes a 4-measure rest starting at measure 67.
- Cb (Cello):** Measures 64-70. Features a 4-measure rest starting at measure 67.
- Akk (Keyboard):** Measures 64-70. Includes a 4-measure rest starting at measure 67.
- Comp (Computer):** A single measure rest at the beginning of the system.

Rehearsal markers are indicated by triangles with the number '4.' above them, corresponding to the 4-measure rests in the Fl, Cl. Bb, Prc., VI, Vcl, and Akk parts.

Marker 4:
02:12

48. The Problem with Motion in Straight Lines

The musical score is arranged in a system with seven staves. The instruments and their parts are as follows:

- Fl (Flute):** Measures 71-83. Features sixteenth-note runs in measures 74, 75, and 76. Includes dynamic markings *mf* and *p*. A slur with a '3' is present in measure 81.
- Cl. Bb (Clarinet in Bb):** Measures 71-83. Includes dynamic markings *mf* and *p*. A slur with a '3' is present in measure 81. A performance instruction *Slapzunge* is noted above measure 76.
- Prc. (Percussion):** Measures 71-83. Includes *Vibraphone* and *SN.D* parts. *B.D.* (Bass Drum) is indicated in measures 74 and 76. Performance instructions *W.chm* and *Soft* are present in measures 79 and 80. *Wwblek.* is noted above measure 81.
- VI (Violin):** Measures 71-83. Includes a slur with a '3' in measure 73.
- Vcl (Viola):** Measures 71-83. Includes a slur with a '3' in measure 73 and a dynamic marking *fviolente* in measure 76.
- Cb (Cello):** Measures 71-83. Includes a slur with a '3' in measure 73 and a dynamic marking *p* in measure 80.
- Akk (Accordion):** Measures 71-83. Includes a slur with a '3' in measure 73 and a dynamic marking *pp* in measure 79. A performance instruction *unmeasured* is present above measure 79.
- Comp (Computer):** A single line with a box labeled 'Computer stops.' in measure 79.

Rehearsal markers 6 and 7 are indicated by triangles above measures 79 and 83, respectively.

Dyb baslyd →

Marker 5:
02:30

Marker 6:
02:36

48. The Problem with Motion in Straight Lines

Flute (Fl.) part: Measures 84-91. Includes dynamics *f*, *mf*, and *f*. Features triplets and a 7-measure rest.

Clarinet in Bb (Cl. Bb) part: Measure 84. Includes dynamic *sf* and the instruction "Slapzunge".

Percussion (Prc.) part: Measures 84-91. Includes dynamics *f* and *mf*. Features various rhythmic patterns and rests.

Violin (Vl.) part: Measures 84-91. Includes dynamics *f*, *mf*, *sfz*, and *f*. Features a *Sul Pont* instruction.

Viola (Vcl.) part: Measures 84-91. Includes dynamic *f*.

Cello (Cb.) part: Measures 84-91. Includes dynamics *f* and *mf*. Features triplets and a 3-measure rest.

Double Bass (Akk.) part: Measures 84-91. Includes dynamic *f*.

Computer (Comp) part: Measure 84. Includes the instruction "Computer start" and the time "02:05".

Marker 7:
02:46

48. The Problem with Motion in Straight Lines

This musical score is for the piece "48. The Problem with Motion in Straight Lines". It is arranged for a chamber ensemble consisting of Flute (Flz.), Clarinet in Bb (Cl. Bb), Percussion (Prc.), Viola (VI), Violoncello (Vcl), Contrabass (Cb), and Accordion (Akk). The score covers measures 92 to 100. The Flute and Clarinet parts feature melodic lines with dynamic markings of *mf* and *f*. The Percussion part includes complex rhythmic patterns with triplets and a section marked "Scrape w/ metalbeater" and "Hit w/ metalbeater". The Viola part has specific fingerings (I, II, III) and dynamics (*f*), with markings for "8va Ord" and "Sul Ponticello". The Violoncello part has a dynamic marking of *mf*. The Contrabass part features a quintuplet in measure 92 and dynamics of *mp* and *f*. The Accordion part has a dynamic marking of *f* and includes a 7-measure rest in measure 96. The score concludes with a 6-measure rest in measure 100 for the Accordion.

Dancing

Fl 101 *mf* 102 103 104 105 106 107 108 109

Cl. Bb 101 *mf* 102 103 104 105 106 107 108 109

Prc. 101 *mf* 102 103 104 105 106 107 108 109
Kant
Skind
Metal *Mallet*

Vi 101 *Dancing* 102 103 104 105 106 107 108 109

Vcl 101 102 103 104 105 106 107 108 109

Cb 101 *mf* 102 103 104 105 106 107 108 109

Akk 101 *mf* 102 103 104 105 106 107 108 109

Comp

48. The Problem with Motion in Straight Lines

This musical score is for the piece "48. The Problem with Motion in Straight Lines". It is a multi-staff score for a chamber ensemble. The instruments included are Flute (Fl), Clarinet/Bassoon (Cl. Bb), Percussion (Prc.), Violin (VI), Viola (Vcl), Violoncello (Cb), and Keyboard (Akk). The score spans measures 110 to 117. The Flute part features intricate melodic lines with triplets and slurs. The Clarinet/Bassoon part has a more rhythmic, triplet-based pattern. The Percussion part is highly active, featuring complex rhythmic patterns with triplets and sixteenth notes. The Violin part is mostly silent, with only a few notes in measure 117. The Viola part has a melodic line with triplets and slurs. The Violoncello part has a melodic line with triplets and slurs, including a section marked "Sul Pont" in measure 111. The Keyboard part has a complex accompaniment with triplets and slurs. The score is written in a key signature of one flat and a 4/4 time signature.

48. The Problem with Motion in Straight Lines

The musical score is arranged in a system with the following parts from top to bottom:

- Fl (Flute):** Treble clef, measures 118-126. Includes triplets, a dynamic marking of *p*, and a crescendo to *f*. A triangle marker with the number 8 is above measure 120.
- Cl. Bb (Clarinet in Bb):** Treble clef, measures 118-126. Includes a dynamic marking of *p*. A triangle marker with the number 8 is above measure 120. Performance instructions include "Slapzunge" and "NB! klang E" with a dynamic marking of *sf*.
- Prc. (Percussion):** Two staves, measures 118-126. Includes a dynamic marking of *p* and the instruction "poco ped.". A triangle marker with the number 8 is above measure 120.
- VI (Violin):** Treble clef, measures 118-126. Includes a dynamic marking of *mp* and a crescendo to *f*. A triangle marker with the number 8 is above measure 120.
- Vcl (Viola):** Bass clef, measures 118-126. Includes a triangle marker with the number 8 above measure 120.
- Cb (Contrabass):** Bass clef, measures 118-126. Includes the instruction "in eco" and a dynamic marking of *p*. A triangle marker with the number 8 is above measure 120.
- Akk (Accordion):** Treble and Bass clefs, measures 118-126. Includes a dynamic marking of *p*. A triangle marker with the number 8 is above measure 120.
- Comp (Computer):** A single staff at the bottom with a bar line.

At the bottom of the page, there is a horizontal line with an arrow pointing right, labeled "Dyb baslyd".

Marker 8:
03:58

48. The Problem with Motion in Straight Lines

This musical score is for the piece "The Problem with Motion in Straight Lines" and covers measures 127 to 135. The instrumentation includes Flute (Fl.), Clarinet Bb (Cl. Bb), Percussion (Prc.), Viola (VI), Violoncello (Vcl), Contrabass (Cb), and Keyboard (Akk). The Flute part features melodic lines with trills (Flz.) and dynamic markings of *f* and *p*. The Clarinet Bb part provides a steady accompaniment with dynamics of *mf* and *p*. The Percussion part includes a snare drum and a bass drum, with dynamics of *mf* and *p*. The Viola part has dynamics of *mf* and *mp*. The Violoncello part has a dynamic of *mf*. The Contrabass part has dynamics of *mf* and *p*. The Keyboard part provides harmonic support with dynamics of *mf* and *p*. The score includes various musical notations such as triplets, quintuplets, and sixteenth-note runs.

48. The Problem with Motion in Straight Lines

The musical score is arranged in a standard orchestral layout. The instruments and their parts are as follows:

- Flute (Fl):** Measures 136-145. Features a *f* dynamic and a *Slapzunge* effect at measure 144.
- Clarinet in Bb (Cl. Bb):** Measures 136-145. Features a *sf* dynamic and a *Slapzunge* effect at measure 144.
- Percussion (Prc.):** Measures 136-145. Includes *TAIKO* and *Kant* (Koto) parts. A *skind* (tam-tam) part is also present with a *f* dynamic.
- Violin (Vl):** Measures 136-145. Features a *p* dynamic and triplet markings at measures 138 and 139.
- Viola (Vcl):** Measures 136-145. Features a *p* dynamic.
- Cello (Cb):** Measures 136-145. Features a *f* dynamic, a *marcato* marking, and triplet markings at measures 144 and 145.
- Piano (Akk):** Measures 136-145. Features a *f* dynamic.
- Computer (Comp):** Includes a *Dyb baslyd* (drum sound) and *Computer stop* / *Computer start* markings.

Rehearsal markers are indicated by triangles above the staves: 9. (measures 136-137), 10. (measures 140-141), and 11. (measures 142-143).

Marker 9:
04:30

Marker 10:
04:38

Marker 11:
04:42

48. The Problem with Motion in Straight Lines

febril trill. [not even measured]

146 147 148 149 150

Fl

Cl. Bb

146 147 148 149 150

Prc.

146 147 148 149 150

VI

146 147 148 149 150

Vcl

146 147 148 149 150

Cb

Improvise with abrupt up and down strokes

146 147 148 149 150

Akk

Comp

48. The Problem with Motion in Straight Lines

This musical score is for a piece titled "48. The Problem with Motion in Straight Lines". It is arranged for a chamber ensemble consisting of Flute (Fl), Clarinet/Bassoon (Cl. Bb), Percussion (Prc.), Violin (VI), Viola (Vcl), Cello (Cb), Keyboard (Akk), and Computer (Comp). The score spans measures 151 to 156. The instrumentation includes:

- Flute (Fl):** Single staff with treble clef, playing a melodic line with eighth-note patterns.
- Clarinet/Bassoon (Cl. Bb):** Single staff with treble clef, mirroring the flute's melodic line.
- Percussion (Prc.):** Two staves (bass and tenor clefs), providing a rhythmic accompaniment with eighth notes and rests.
- Violin (VI):** Single staff with treble clef, playing a harmonic accompaniment with triplets and sustained notes.
- Viola (Vcl):** Single staff with bass clef, playing a harmonic accompaniment with sustained notes.
- Cello (Cb):** Single staff with bass clef, playing a complex, dense texture with many notes, some of which are marked with question marks.
- Keyboard (Akk):** Two staves (treble and bass clefs), playing a harmonic accompaniment with chords and moving lines.
- Computer (Comp):** A single staff with a square symbol, indicating a computer-generated or processed sound.

The score features various time signatures: 2/4, 3/4, and 4/4. Measure 153 is marked with a 3/4 time signature, while measures 154 and 155 are marked with 4/4. The piece includes several triplets and slurs. The Cello part is particularly dense and complex, with many notes marked with question marks, suggesting a challenging or experimental texture. The overall mood is rhythmic and textured, with a focus on the interaction between the melodic lines and the complex accompaniment.

The musical score is arranged in a system with the following parts from top to bottom:

- Fl (Flute):** Treble clef, measures 157-161. Measure 160 features a complex rhythmic pattern of sixteenth notes.
- Cl. Bb (Clarinet in Bb):** Treble clef, measures 157-161. Measure 160 features a complex rhythmic pattern of sixteenth notes.
- Prc. (Percussion):** Two staves. The top staff is marked with *Tam-tam* and *Mallet*. Measures 157-161 show rhythmic patterns with rests.
- VI (Violin):** Treble clef, measures 157-161. Features triplets and a *8va* marking in measure 158.
- Vcl (Violoncello):** Bass clef, measures 157-161. Features a steady eighth-note accompaniment.
- Cb (Contrabass):** Bass clef, measures 157-161. Features a complex rhythmic pattern of sixteenth notes.
- Akk (Keyboard):** Treble and Bass clefs, measures 157-161. Features chordal accompaniment.
- Comp (Computer):** A single line with a *Computer stop* instruction at the end.

48. The Problem with Motion in Straight Lines

The musical score is arranged in a system with the following parts from top to bottom:

- Fl (Flute):** Treble clef, 4/4 time. Measure 162 starts with a *dolce* marking. The staff is mostly empty.
- Cl. Bb (Clarinet in B-flat):** Treble clef, 4/4 time. Measures 162-176 contain a melodic line with slurs and *p* dynamics. A *dolce* marking is present at the beginning.
- Prc. (Percussion):** Treble and Bass clefs, 4/4 time. Measure 162 includes a *Temple B.* marking and a *p* dynamic. There are some rhythmic notations in the treble clef.
- VI (Violin):** Treble clef, 4/4 time. Measures 162-176 contain a melodic line with slurs and *p* dynamics.
- Vcl (Viola):** Bass clef, 4/4 time. Measures 162-176 contain a melodic line with slurs and *p* dynamics.
- Cb (Contrabass):** Bass clef, 4/4 time. Measures 162-176 contain a melodic line with slurs and *p* dynamics.
- Akk (Keyboard):** Treble and Bass clefs, 4/4 time. The staff is empty.
- Comp (Computer):** A single bar line is present.

Marker 12:
05:18

Computer start
Marker 13:
05:46

48. The Problem with Motion in Straight Lines

The musical score is arranged in a system with eight staves. The instruments and their parts are as follows:

- Fl (Flute):** Treble clef, 4/4 time. Starts at measure 177 with a *ff* dynamic. Features a melodic line with slurs and accents. A triangle marker labeled '13.' is above measure 177, and another labeled '14. 183' is above measure 183.
- Cl. Bb (Clarinet/Bassoon):** Treble clef, 4/4 time. Starts at measure 177 with a *ff* dynamic. Features a melodic line with slurs and accents. A triangle marker labeled '13. repeat 4 X' is above measure 177, and another labeled '14. 183' is above measure 183. A *p* dynamic marking is present at the end of the staff.
- Prc. (Percussion):** Two staves, bass clef, 4/4 time. Starts at measure 177 with a *ff* dynamic. Features a rhythmic pattern of eighth notes. A triangle marker labeled '13.' is above the top staff, and another labeled '14. 183' is above the bottom staff. A *repeat 4 X* marking is below the top staff.
- VI (Violin):** Treble clef, 4/4 time. Starts at measure 177 with a *ff* dynamic. Features a melodic line with slurs and accents. A triangle marker labeled '13.' is above measure 177, and another labeled '14. 183' is above measure 183.
- Vcl (Viola):** Bass clef, 4/4 time. Starts at measure 177 with a *ff* dynamic. Features a melodic line with slurs and accents. A triangle marker labeled '13.' is above measure 177, and another labeled '14. 183' is above measure 183.
- Cb (Contrabass):** Bass clef, 4/4 time. Starts at measure 177 with a *ff* dynamic. Features a melodic line with slurs and accents. A triangle marker labeled '13.' is above measure 177, and another labeled '14. 183' is above measure 183.
- Akk (Accordion):** Treble and bass clefs, 4/4 time. Starts at measure 177 with a *ff* dynamic. Features a melodic line in the treble and a chordal accompaniment in the bass. A triangle marker labeled '13.' is above measure 177, and another labeled '14. 183' is above measure 183.
- Comp (Computer):** A single staff with a square symbol and a vertical bar line. Features a *repeat 4 X* marking and a *Computer stop Computer start* instruction.