

Gilberto Agostinho

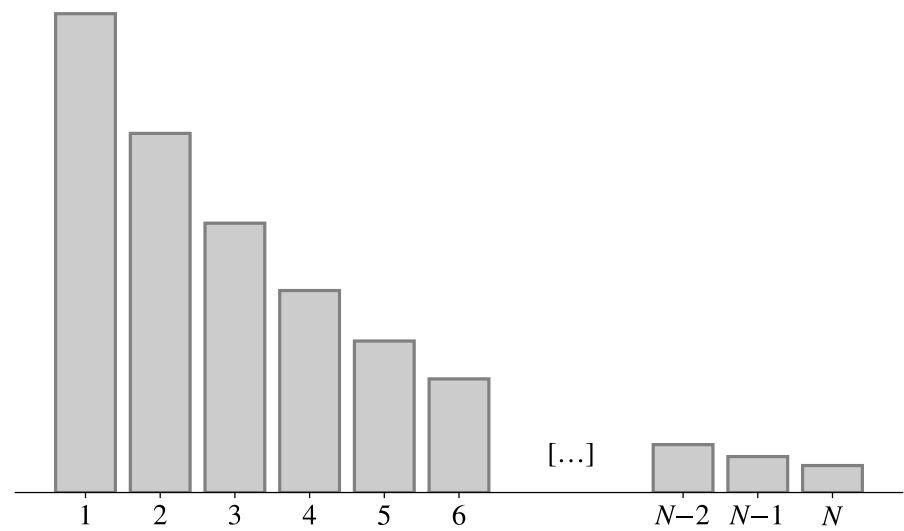
Cartography #4

for flute, viola, and harp

2017, revised 2020

Full Score

All pieces in this series were composed using the following distribution:



$$P(n) = (3/4)^k \times P(n - k)$$

Cartography #4, for flute, viola, and harp

Mapping and rules – first movement

tempi	
set size	$N = 5$
transformation period	no transformation.
set	$[\text{♩} = 48, \text{♩} = 54, \text{♩} = 60, \text{♩} = 66, \text{♩} = 72]$
pitches	
set size	$N = 8$
transformation period	$16 \times \text{♩}$
transformation mechanism	$[a, b, c, d, e, f, g, h] \rightarrow [b, c, d, e, f, g, h, i]$, with $i \bmod 12 = (h \bmod 12) - 1$, and i at a uniformly randomly selected octave transposition between a changing range (see range mechanism below). The set must respect the rule that there must be at least two pitches available for the defined range of the flute and viola (C5 to C6).
range mechanism	$C5-B6 \rightarrow C3-B6 \rightarrow C4-B6 \rightarrow C3-B6 \rightarrow C1-B6 \rightarrow C5-B6$, changing every 8 cycles.
selection mechanism	pitches outside the range of an instrument are ignored during the selection process.
initial set	$[C6, B5, B\flat5, A5, A\flat5, G5, F\sharp5, F5]$
durations (flute and viola)	
set size	$N = 5$
transformation period	no transformation.
set	$[4, 5, 6, 7, 8]$

constraints
• number of duration and pitch transformations: 40. • tempi are selected every second bar. • harp durations are fixed throughout the movement, each note lasts for a quaver followed by a quaver rest • the movement begins with all instruments playing at the same time. • the range of the flute is defined as C5 to C6. • the range of the viola is defined as C5 to C6. • the range of the harp is defined as A♭1 to A6. • all notes above and including F5 in the harp are played with octave harmonics. • all instruments play at a very quiet dynamic level of <i>pp</i> throughout the movement. • a note is replaced with a rest whenever the flute part had uninterrupted music for over 3 bars. • every 10 cycles, the instruments rests for a bar and a half. • the last note of the flute and the viola will have it duration extend as to last for the whole last measure. • tempo set to $\text{♩} = 60$

Mapping and rules – second movement

pitches	
set size	$N = 8$
transformation period	$16 \times \text{♪}$
transformation mechanism	$[a, b, c, d, e, f, g, h] \rightarrow [b, c, d, e, f, g, h, i]$, with $i \bmod 12 = (h \bmod 12) + 1$, and i at a uniformly randomly selected octave transposition between a changing range (see range mechanism below). The set must respect the rule that there must be at least two pitches available for the defined range of the flute and viola (C4 to C5).
range mechanism	$C4-B4 \rightarrow C3-B4 \rightarrow C2-B4 \rightarrow C2-B6 \rightarrow C1-B6 \rightarrow C1-B6$, changing every 5 cycles.
selection mechanism	pitches outside the range of an instrument are ignored during the selection process.
initial set	$[Gb3, A3, Bb3, B3, C4, C\sharp4, D4, Eb4]$

durations (harp)	
set size	$N = 4$
transformation period	$16 \times \text{♪}$
transformation mechanism	first, a value n is selected from the set $[1, 2, 3, 4, 5, 6, 7, 8]$. Then a set durations for the harp is defined as $[n, n + 1, n + 2, n + 3]$.
initial set	randomly selected using the mechanism described above.

durations (flute and viola)	
set size	$N = 8$
transformation period	no transformation.
set	$[1, 2, 3, 4, 5, 6, 7, 8]$

constraints
• number of duration and pitch transformations: 30. • the movement begins with all instruments playing at the same time. • the range of the flute is defined as C4 to C5. • the range of the viola is defined as C4 to C5. • the range of the harp is defined as Ab1 to A6. • all notes above and including F5 in the harp are played with octave harmonics. • all instruments play at a very quiet dynamic level of pp throughout the movement. • the viola plays <i>sul pont. trem.</i> throughout this movement. • a note is replaced with a rest whenever the flute part had uninterrupted music for over 3 bars. • every 10 cycles, the instruments rests for a bar and a half. • the last note of the flute and the viola will have it duration extend as to last for the whole last measure. • tempo set to $\text{♪} = 76$

Mapping and rules – third movement

pitches		constraints	
set size	$N = 6$		
transformation period	$16 \times \text{♪}$		
transformation mechanism	$[a, b, c, d, e, \emptyset] \rightarrow [b, c, d, e, f, \emptyset]$, with $f \bmod 12 = (e \bmod 12) - 1$, and f at a uniformly randomly selected octave transposition. The element in the last index, $\emptyset$, represents rests and does not change. The set must respect the rule that there must be at least two pitches available for the defined range of the flute and viola; they both have a range of B♭6–B♭7 for the first 15 cycles and a range of C4–C5 (flute) and C3–C4 (viola) for the last 15 ones.		
selection mechanism	pitches outside the range of an instrument are ignored during the selection process.		
initial set	$[G6, F\sharp6, F6, E6, E\flat6, \emptyset]$, where $\emptyset$ represents rests.		
16 th set	$[D4, C\sharp4, C4, B3, B\flat3, \emptyset]$, where $\emptyset$ represents rests. This set overrides the previous container at the start of the 16 th cycle.		
durations			
set size	$N = 5$		
transformation period	no transformation.		
set	$[4, 5, 6, 7, 8]$		
			• number of duration and pitch transformations: 30. • the movement begins with all instruments playing at the same time. • the range of the flute is defined as B♭6 to B♭7 for the first 15 cycles, then as C4 to C5 for the last 15 ones. • the range of the viola is defined as B♭6 to B♭7 for the first 15 cycles, then as C3 to C4 for the last 15 ones. • the range of the harp is defined as A♭1 to A6. • all notes above and including F5 in the harp are played with octave harmonics. All notes above and including C6 in the flute are played as harmonics. All notes the viola above and including F5 are played as artificial harmonics. • all instruments play at a very quiet dynamic level of <i>pp</i> throughout the movement. • the viola plays <i>sul tasto</i> during the last 15 cycles. • a note is replaced with a rest whenever the flute part had uninterrupted music for over 3 bars. • every 15 cycles, the instruments rests for a bar and a half. • the last note of the flute and the viola will have it duration extend as to last for the whole last measure.

General performance notes

- all instruments should play at a very quiet dynamic level.
- tremolos are always unmeasured.
- the flute and viola part should sound as legato as possible
- the harpist should never damp any of the strings so that they are left vibrating as long as possible.

This score was automatically generated by a computer program. The only manual alterations made to it are:

- added *laissez vibrer* ties to the first notes of the harp in each movement.
- added harp pedalling indications.
- used enharmonic equivalent pitches in a couple of places in order to make the pedalling simpler.
- added pedal glissando notation in first movement (slurs and glissando line).
- added footnote explaining glissando notation.
- added a *sul tasto* indication in the second section of the viola part in third movement

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Cartography #4

I

Gilberto Agostinho

Flute

$\text{♩} = 72$

$\text{♩} = 60$

$\text{♩} = 48$

pp

Viola

pp

simile

Harp

pp

G#, Bb

Bb

Gb

6

Fl.

$\text{♩} = 66$

Vla.

Hp.

G#, Bb

Gb

Ab

Eb, Fb

F#

Eb

Eb

Eb, Fb

11

Fl.

Vla.

Hp.

$\text{♩} = 60$

$\text{♩} = 54$

F#, B $\flat$

C#, F $\flat$

C $\sharp$

C $\sharp$

16

Fl.

Vla.

Hp.

$\text{♩} = 48$

$\text{♩} = 54$

C $\sharp$

E $\flat$, B $\flat$

22

Fl. $\text{♩} = 66$ $\text{♩} = 48$

Vla.

Hp.

B $\flat$ B $\flat$ B $\flat$ B $\flat$ G $\sharp$

28

Fl. $\text{♩} = 60$ $\text{♩} = 48$

Vla.

Hp.

G $\sharp$, B $\flat$ D $\sharp$, A $\flat$ B $\sharp$ A $\flat$ C $\sharp$, A $\flat$

34

Fl.

Vla.

Hp.

$\text{♩} = 54$ $\text{♩} = 60$

E $\flat$ E $\flat$, F $\flat$ G $\flat$ E $\flat$ E $\flat$, B $\flat$ C $\flat$, D $\sharp$

40

Fl.

Vla.

Hp.

$\text{♩} = 48$ $\text{♩} = 60$

B $\flat$ C $\sharp$ C $\flat$ B $\flat$

46

Fl. $\text{♩} = 54$ $\text{♩} = 48$

Vla.

Hp. $\text{Db}, \text{A}\sharp$ $\text{A}\flat, \text{B}\flat$ $\text{G}\flat$ $\text{C}\flat$ $\text{A}\flat$

52

Fl. $\text{♩} = 66$ $\text{♩} = 60$

Vla.

Hp. $\text{D}\sharp, \text{A}\flat$ $\text{D}\sharp\text{--D}\flat$ $\text{A}\flat$ $\text{E}\flat$

*)

*) Pedal glissando, move the pedal at the exact moment the second note starts.

58 $\text{Fl.} = 48$ $\text{Vla.} = 66$

Fl.

Vla.

Hp.

D#-D $\flat$

64 $\text{Fl.} = 54$ $\text{Vla.} = 48$

Fl.

Vla.

Hp.

A $\flat$ D#-D $\flat$ D $\flat$ -D# D#-D $\flat$ A $\flat$ G#, A $\flat$

70

Fl.

$\text{♩} = 66$

$\text{♩} = 54$

Vla.

Hp.

A#

E#, G#

G#

G#, A#

76 Fl. $\text{♩} = 60$ $\text{♩} = 48$

Vla.

Hp. $G^\sharp$ $G^\flat, B^\flat$ $A^\flat$ $A^\sharp$

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II

♩ = ca. 76

Flute

pp

Viola

pp

sul pont.

Harp

pp

simile

15

Fl.

Vla.

Hp.

E $\flat$, A $\flat$, B $\flat$

23

Fl.

Vla.

Hp.

A $\flat$, B $\flat$

C $\sharp$, E $\flat$, F $\sharp$, A $\sharp$

31

Fl.

Vla.

Hp.

Double bar line

38

Fl.

Vla.

Hp.

Double bar line

46

Fl.

Vla.

Hp.

Ab, Bb

A $\flat$, B $\flat$

E $\flat$, A $\sharp$

C $\sharp$

54

Fl.

Vla.

Hp.

C $\sharp$, F $\sharp$, G $\flat$

III

Flute

Viola

Harp

$\text{♩} = \text{ca. } 60$

pp

pp

pp

simile

$\text{D}\flat$

$\text{E}\flat$

Fl.

Vla.

Hp.

Ch, G#

Ch, Db

15

Fl.

Vla.

Hp.

E $\flat$, B $\flat$

G $\sharp$

F $\sharp$

23

Fl.

Vla.

Hp.

D $\sharp$, F $\sharp$

31

Fl.

Vla.

Hp.

sul tasto

C#, Ab

Detailed description: This system contains measures 31 through 38. The Flute part begins with a triplet of eighth notes in measure 31, followed by a series of eighth and sixteenth notes with slurs and ties. The Viola part is marked 'sul tasto' and features a descending eighth-note scale in measure 32, followed by sustained notes and a final eighth-note triplet. The Harp part consists of chords and single notes, with a specific chord of C# and Ab marked in measure 37. The system ends with a double bar line.

39

Fl.

Vla.

Hp.

Eb, Ab

Detailed description: This system contains measures 39 through 45. The Flute part continues the melodic line with various intervals and slurs. The Viola part continues the bass line with eighth-note patterns and slurs. The Harp part features chords and single notes, with a specific chord of Eb and Ab marked in measure 42. The system ends with a double bar line.

46

Fl.

Vla.

Hp.

D#, F#

Bb

D#, Eb

54

Fl.

Vla.

Hp.

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