

Six Pieces with Cognitive Constraints

I. Stillness

For Solo Piano
(2021)

Kenrick Ho

Preface:

The *Six Pieces with Cognitive Constraints* are inspired by Fred Lerdahl's work in musical cognition. All six compositions were generated by a Max patch that was specifically designed to satisfy the list of 17 constraints in Lerdahl's essay titled *Cognitive Constraints on Compositional Systems*. These constraints provide the basis for constructing a highly organised hierarchical structure for the Max patch to work with. The work as a whole explores how Lerdahl's idea of 'musical grammar' can be coded into a music generation program, and each individual piece is dedicated to pushing the boundaries of a particular aspect of cognitive constraint.

Performance Notes:

The pitches as notated should be played with rubato according to the spatial distance of given noteheads. Throughout the entirety of the piece, there are commas to indicate separation between phrases. Each comma should last at least 5 seconds in duration. The sustain pedal should be held all the way through each phrase and released after the comma, leaving no moments of silence in between phrases. The tempo marking of ♩ = 40 is for reference only, and it is up to the performer to decide how slowly the piece will be played.

c.a. 10'00"

Six Pieces with Cognitive Constraints:

3

I. Stillness

For Solo Piano

Grave ♩ = c.a. 40

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1 Change pedal after every comma

Piano *P rubato*

Ped. _____

2

Pno.

3

Pno.

4

Pno.

5

Pno.

6

Pno.

7

Pno.

8

Pno.

9

9

Pno.

10

10

Pno.

11

11

Pno.

12

12

Pno.

13

13

Pno.

14

14

Pno.

15

15

Pno.

16

Piano accompaniment for the first system. The music is written for piano (Pno.) on a grand staff with treble and bass clefs. The key signature has one flat (B-flat). The tempo is marked 'Allegretto' and the time signature is 3/4. The first system contains measures 1 through 8. The melody in the treble clef consists of eighth and quarter notes, while the bass clef provides a simple harmonic accompaniment with chords and single notes.

Piano accompaniment for the first system. The right hand (treble clef) begins with a quarter rest, followed by a series of eighth and sixteenth notes, including a triplet of eighth notes (G4, A4, B4) and a triplet of sixteenth notes (B4, A4, G4). The left hand (bass clef) plays a steady eighth-note accompaniment, starting on G3 and moving up and down the scale.

Piano accompaniment for measures 18-21. The score is written for piano (Pno.) on a grand staff. Measure 18 starts with a treble clef and a key signature of one sharp (F#). The melody in the treble clef consists of a series of eighth and sixteenth notes, while the bass clef provides a simple harmonic accompaniment. The key signature changes to one flat (Bb) in measure 19, and the melody continues with a similar rhythmic pattern. The accompaniment remains simple, with a few chords and single notes. The key signature changes back to one sharp (F#) in measure 20, and the melody continues with a similar rhythmic pattern. The accompaniment remains simple, with a few chords and single notes. The key signature changes to one flat (Bb) in measure 21, and the melody continues with a similar rhythmic pattern. The accompaniment remains simple, with a few chords and single notes.

Piano accompaniment for measure 19. The right hand (treble clef) plays a sequence of notes: G4, A4, B4, C5, B4, A4, G4, F#4. The left hand (bass clef) plays a sequence of notes: E3, D3, C3, B2, A2, G2, F2, E2. The measure is marked with a '19' above the staff.

The first system of the piano accompaniment, labeled 'Pno.' and numbered '20'. It features a treble and bass staff. The treble staff begins with a treble clef and a key signature of one flat (B-flat). The bass staff begins with a bass clef and a key signature of one flat (B-flat). The music consists of a series of chords and single notes, primarily in the right hand, with some accompaniment in the left hand. The notes are: Treble: G4, F#4, E4, D4, C4, B3, A3, G3, F#3, E3, D3, C3. Bass: G2, F#2, E2, D2, C2, B1, A1, G1, F#1, E1, D1, C1.

Piano accompaniment for the first system. The right hand (treble clef) plays a melody of quarter notes: D4 (F#), E4, D4, C#4, B3, A3, G3, F#3, E3, D3. The left hand (bass clef) plays a bass line with chords and single notes: D3 (F#), C#3, B2, A2, G2, F#2, E2, D2, C#2, B1, A1, G1, F#1, E1, D1. The key signature is one sharp (F#) and the time signature is 4/4.

Musical score for Piano (Pno.). The score is written on a grand staff with a treble and bass clef. The key signature is one sharp (F#). The tempo is marked 'Andante'. The score begins with a measure containing a whole note chord (F#4, A4, C5) and a whole note chord (F#3, A3, C4). The melody in the treble clef starts with a whole note (F#4) and a whole note (A4). The bass line in the bass clef starts with a whole note (F#3) and a whole note (A3). The score continues with various chords and single notes, including a final measure with a whole note chord (F#4, A4, C5) and a whole note chord (F#3, A3, C4).

24

Pno.

25

Pno.

C

Detailed description: This system contains measures 24 and 25. Measure 24 starts with a treble clef and a key signature of one flat. The right hand has a half note G4, a quarter note A4, a quarter note B4, and a half note C5. The left hand has a half note F3, a quarter note G3, a quarter note A3, and a half note B3. Measure 25 continues with the right hand having a half note D5, a quarter note E5, a quarter note F5, and a half note G5. The left hand has a half note C4, a quarter note D4, a quarter note E4, and a half note F4. A box labeled 'C' is placed below the first measure of this system.

26

Pno.

Detailed description: This system contains measure 26. The right hand has a half note G4, a quarter note A4, a quarter note B4, and a half note C5. The left hand has a half note F3, a quarter note G3, a quarter note A3, and a half note B3.

27

Pno.

Detailed description: This system contains measure 27. The right hand has a half note D5, a quarter note E5, a quarter note F5, and a half note G5. The left hand has a half note C4, a quarter note D4, a quarter note E4, and a half note F4.

28

Pno.

Detailed description: This system contains measure 28. The right hand has a half note G4, a quarter note A4, a quarter note B4, and a half note C5. The left hand has a half note F3, a quarter note G3, a quarter note A3, and a half note B3.

29

Pno.

Detailed description: This system contains measure 29. The right hand has a half note D5, a quarter note E5, a quarter note F5, and a half note G5. The left hand has a half note C4, a quarter note D4, a quarter note E4, and a half note F4.

30

Pno.

Detailed description: This system contains measure 30. The right hand has a half note G4, a quarter note A4, a quarter note B4, and a half note C5. The left hand has a half note F3, a quarter note G3, a quarter note A3, and a half note B3.

31

Pno.

Detailed description: This system contains measure 31. The right hand has a half note D5, a quarter note E5, a quarter note F5, and a half note G5. The left hand has a half note C4, a quarter note D4, a quarter note E4, and a half note F4.

32

Pno.

33

D

Pno.

34

Pno.

35

Pno.

36

Pno.

37

Pno.

38

Pno.

39

Pno.

40

Pno.

41

41

Pno.

E

42

42

Pno.

43

43

Pno.

44

44

Pno.

45