

Mark Micchelli

Études

(Book 1)

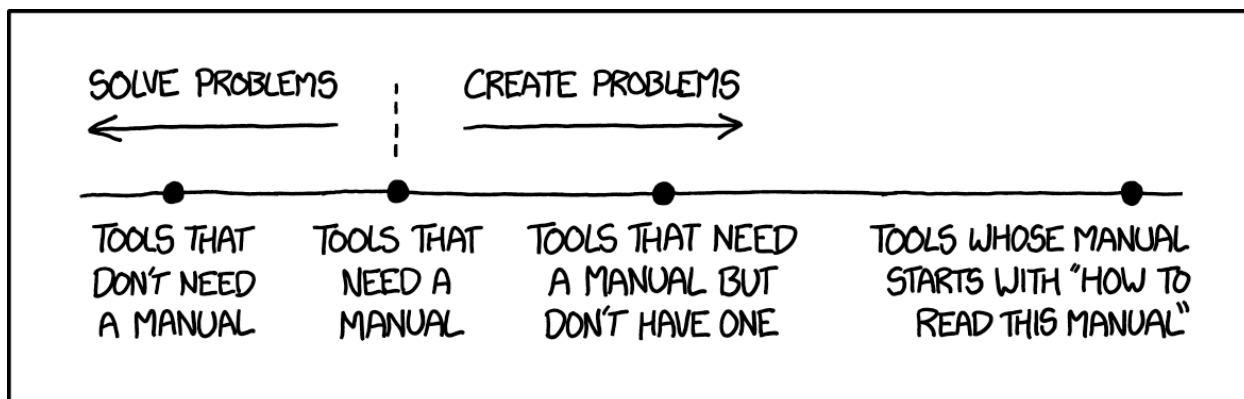
for solo piano

(2019-2021)

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How to Use This Book



Randall Munroe - <https://xkcd.com/1343/>
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Études can be a mixed bag. Some, like Czerny's, are truly just exercises for beginners, and they bored me almost to the point of quitting piano when I was a child. Others, like Chopin's or Debussy's, are only exercises in the sense that they're wickedly difficult to play, and they represent undisputed masterworks of the solo piano repertoire.

These études are in-between. Some—like **Étude No. 2** or **Étude No. 8**—probably aren't masterworks or anything, but they're much more at home on a concert stage than a practice room. By contrast, **Étude No. 1**, **Étude No. 6**, and to a lesser extent, **Étude No. 3**—are exercises for practice rooms, and practice rooms alone. **Étude No. 4**, **Étude No. 5**, and **Étude No. 7** require various degrees of improvisation, and fall somewhere between practice room and concert stage depending on the performer's confidence and amount of preplanning.

Each étude features a preamble that describes what skill(s) it's meant to highlight, as well as other ways the étude may potentially be approached. Generally speaking, these études highlight three musical themes: 1) non-octavian scales based on fourths and fifths, 2) (02)-based cluster patterns, and 3) algorithmic approaches to polypulses. **Warmup No. 1** and **Warmup No. 2** are included before the études proper and address the first two of these themes directly; the algorithmic approaches to polypulses are addressed in **Étude No. 1** and **Étude No. 6**.

So how to use this book? It's a weird one: part practice manual, part concert piece collection, part music theory text (replete with citations). I guess, contra the cartoon above, just use this book however you'd like. Play it start-to-finish or jump around, read the lengthy étude preambles or discard them entirely, perform the études as written or rewrite them to suit your personal aesthetic. I hope they tickle your brain, challenge your fingers, and provide you with moments of inspiration and joy.

– Mark Micchelli, August 2022

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Warmup No. 1

Non-Octavian Scales

“Non-octavian scales” are scales that do not repeat at the octave. A more general term for this phenomenon is “interval cycle”, which denotes any series of notes that follows a repeating interval pattern. A common example of an interval cycle is the octatonic scale, which follows a repeating interval pattern of H-W. An octatonic scale is *not* a non-octavian scale, however, since it repeats at the octave (as well as, for that matter, at the m3, d5, M6, m10, etc.).

“Octavian scales” are finite in number, whereas there are infinite non-octavian scales.* This warmup focuses on a handful of non-octavian scales that repeat at the P5 and P4. The two most basic of these are the “Dasian scale” and “Guidonian scale”. The terms “Dasian” and “Guidonian” originate in medieval music theory, but have been also employed in the contemporary music theory literature by José Oliveria Martins.† The Dasian scale follows a pattern of W-W-W-H (the lydian pentachord) and repeats at the fifth, while the Guidonian scale follows a pattern of W-W-H (the major tetrachord) and repeats at the fourth. I have also included a handful of other scales that repeat at the fifth and fourth, which are slight modifications of the Dasian and Guidonian. I have given these the names “Dasian Blues,” “Dasian Diminished,” “Dasian Pentatonic,” and “Guidonian Pentatonic” after the more traditional octavian scales they resemble.‡

All of the following scales are notated in C, and span a total of six fifths (for Dasian-based scales) or six fourths (for Guidonian-based ones). I normally take this six fifth/fourth pattern and transpose to all twelve keys—with the understanding that this method of transposition actually repeats significant portions of each scale.§

* As proof: you can construct a non-octavian scale at any arbitrary interval $\geq m9$ by starting with a whole step, then adding consecutive half steps until you get to your desired bounding interval.

† For a history of Dasian notation, see Dolores Pesce, *The Affinities and Medieval Transposition* (Bloomington: Indiana University Press, 1987). For a more modern application of the theory, see José Oliveira Martins, “The Dasian and Other Affinity Spaces,” *Journal of Music Theory* 59, No. 2 (October 2015): 273-319. Finally, outside of academia, Jacob Collier has discussed the Dasian scale in an interview on YouTube, where he gives it the whimsical name “Super-Ultra-Hyper-Mega-Meta Lydian.” See June Lee, “Interview: Jacob Collier (Part 1),” April 14, 2017, <https://www.youtube.com/watch?v=DnBr070vcNE>.

‡ Though be aware there’s nothing 5-note-y about the Dasian or Guidonian Pentatonic...

§ For instance, the six-fifth Dasian scale starting on C and the one starting on G are nearly identical, since the scale starting on C turns into the scale starting on G after the first 4 notes.

Warmup No. 1

Non-Octavian Scales

Dasian at the P5

Musical notation for 'Dasian at the P5'. It consists of two staves in 4/4 time. The left staff is in bass clef and the right staff is in treble clef. The piece features a sequence of eighth notes with various accidentals (sharps and naturals) across both staves, creating a non-octavian scale.

3 Dasian at the M10

Musical notation for 'Dasian at the M10', starting at measure 3. It consists of two staves in 4/4 time. The left staff is in bass clef and the right staff is in treble clef. The notation shows a sequence of eighth notes with various accidentals, including naturals and sharps, across both staves.

6

Musical notation for measure 6. It consists of two staves in 4/4 time. The left staff is in bass clef and the right staff is in treble clef. The notation shows a sequence of eighth notes with various accidentals, including naturals and sharps, across both staves.

9 Dasian Blues at the P5

Musical notation for 'Dasian Blues at the P5'. It consists of two staves in 4/4 time. The left staff is in bass clef and the right staff is in treble clef. The piece features a sequence of eighth notes with various accidentals (sharps, naturals, and flats) across both staves.

11 Dasian Blues at the M10

Musical notation for 'Dasian Blues at the M10', starting at measure 11. It consists of two staves in 4/4 time. The left staff is in bass clef and the right staff is in treble clef. The notation shows a sequence of eighth notes with various accidentals, including naturals and sharps, across both staves.

14

Musical notation for measure 14. It consists of two staves in 4/4 time. The left staff is in bass clef and the right staff is in treble clef. The notation shows a sequence of eighth notes with various accidentals, including naturals and sharps, across both staves.

17 Dasian Diminished at the P5

Musical score for 'Dasian Diminished at the P5' in 12/16 time. The piece consists of two systems of piano accompaniment. The first system has two staves, and the second system has two staves. The music features a complex rhythmic pattern with many beamed notes and rests, characteristic of a diminished scale.

19 Dasian Diminished at the M10

Musical score for 'Dasian Diminished at the M10' in 12/16 time. The piece consists of two systems of piano accompaniment. The first system has two staves, and the second system has two staves. The music features a complex rhythmic pattern with many beamed notes and rests, characteristic of a diminished scale.

Musical score for 'Dasian Diminished at the M10' continuation in 12/16 time. The piece consists of two systems of piano accompaniment. The first system has two staves, and the second system has two staves. The music features a complex rhythmic pattern with many beamed notes and rests, characteristic of a diminished scale.

25 Dasian Pentatonic at the P5

Musical score for 'Dasian Pentatonic at the P5' in 12/16 time. The piece consists of two systems of piano accompaniment. The first system has two staves, and the second system has two staves. The music features a complex rhythmic pattern with many beamed notes and rests, characteristic of a pentatonic scale.

29 Dasian Pentatonic at the M10

Musical score for 'Dasian Pentatonic at the M10' in 12/16 time. The piece consists of two systems of piano accompaniment. The first system has two staves, and the second system has two staves. The music features a complex rhythmic pattern with many beamed notes and rests, characteristic of a pentatonic scale.

33 Guidonian at the P4

Musical score for 'Guidonian at the P4' in 12/16 time. The piece consists of two systems of piano accompaniment. The first system has two staves, and the second system has two staves. The music features a complex rhythmic pattern with many beamed notes and rests, characteristic of a Guidonian scale.

36 Guidonian Pentatonic at the P4

Musical score for 'Guidonian Pentatonic at the P4' in 12/16 time. The piece consists of two systems of piano accompaniment. The first system has two staves, and the second system has two staves. The music features a complex rhythmic pattern with many beamed notes and rests, characteristic of a Guidonian pentatonic scale.

Warmup No. 2

(02)-Based Cluster Runs

This warmup is actually based on a mishearing that I had of a particular technique Cecil Taylor frequently employs in his improvisations. Taylor's actual technique is in some ways simpler, and in others more complex than my mishearing.* That said, I found I really enjoyed the texture that resulted from playing the thing that I *thought* Taylor was playing—hence this warmup.

The goal here is to play these patterns as fast as possible, while still maintaining dyad clarity. Each pattern includes a transposition—e.g., "(0268) at the P5"—that adds to the level of difficulty.

As with **Warmup No. 1**, each of these is notated in C, and spans a total of six transposed intervals (except for the last exercise, which only spans a total of four). I always practice these in all twelve keys, with the understanding that this method of practicing reproduces significant portions of each cluster run.

* See **Étude No. 4**, and/or Mark Micchelli, "Sound Structures and Naked Fire Gestures in Cecil Taylor's Solo Piano Music," *Music Theory Online* 28, no. 3 (September 2022), <https://mtosmt.org/issues/mto.22.28.3/mto.22.28.3.micchelli.html>.

Warmup No. 2

(02)-Based Cluster Runs

0235 at the A4

5

0257 at the A4

9

0246 at the P5

13

0268 at the P5

17

21

0257 at the m6

25 0257 at the M6

Musical notation for measures 25-28. Measure 25 is a whole rest. Measures 26-28 show a sequence of chords: C major, F major, and C major. The notation includes treble and bass clefs with various note values and accidentals.

29 M6-separated 0257s at the m7

Musical notation for measures 29-32. Measure 29 is a whole rest. Measures 30-32 show a sequence of chords: C major, F major, and C major. The notation includes treble and bass clefs with various note values and accidentals.

33

Musical notation for measures 33-35. Measure 33 is a whole rest. Measures 34-35 show a sequence of chords: C major, F major, and C major. The notation includes treble and bass clefs with various note values and accidentals.

Étude No. 1

Counting Meditation

This étude contains all of the 2-voice polyrhythms, from 1 through 8 inclusive. Perhaps overly pedantically, I prefer "polypulse" over "polyrhythm" because, really, isn't that the more accurate term?

My ordering of the 2-voice polypulses is formulaic and uninteresting:

1 over 1, 2 over 1, 3 over 1, ..., 8 over 1;
1 over 2, 2 over 2, 3 over 2, ..., 8 over 2;
 ...
1 over 8, 2 over 8, 3 over 8, ..., 8 over 8.

This ordering is for convenience of navigation only. The real purpose of this étude is to practice 1) jumping smoothly from any polypulse to any other, 2) switching which pulse is the "beat" vs. the "rhythm," and 3) metric-modulating accordingly. As such, to play the étude straight through is only one of countless interpretations; more interesting would be to craft your own path through the polypulses, either beforehand or on-the-fly.

On the following pages, you'll find two versions of the étude. The first, called "Counting Meditation," features repeated chords expanding outwards from the note C. I usually play this version straight through as part of a warmup. The second, featuring the drier title "Polypulse Catalog, Pt. 1 (2-Voice; 1:1 Through 8:8)," is more bare-bones, featuring just a single voice on B with the second voice implied by the time signature. This second version is designed to show the polypulses most clearly for ease of practicing/improvising.

For more polypulse practice, see **Étude No. 6**.

Étude No. 1

Counting Meditation

Duration: 4m45s

Mark Micchelli

$\text{♩} = 60$

accent outer voices throughout

mp sempre

40

Musical score for measures 40-43. Treble clef has a continuous eighth-note accompaniment. Bass clef has chords and a descending eighth-note line.

44

Musical score for measures 44-47. Treble clef has eighth-note patterns with fingerings 5 and 7. Bass clef has chords and eighth-note patterns with fingerings 5 and 7.

48

Musical score for measures 48-51. Treble clef has eighth-note patterns with fingerings 3 and 5. Bass clef has chords and eighth-note patterns with fingerings 3 and 5.

52

Musical score for measures 52-54. Treble clef has eighth-note patterns with fingerings 5, 6, and 3. Bass clef has chords and eighth-note patterns with fingerings 5, 6, and 3.

55

Musical score for measures 55-58. Treble clef has chords and eighth-note patterns. Bass clef has chords and eighth-note patterns.

59

Musical score for measures 59-61. Treble clef has eighth-note patterns with fingerings 3 and 5. Bass clef has chords and eighth-note patterns with fingerings 3 and 5.

62

Musical score for measures 62-65. Treble clef has eighth-note patterns with fingerings 3 and 7. Bass clef has chords and eighth-note patterns with fingerings 3 and 7.

Étude No. 1

Appendix: Polypulse Catalog, Pt. 1 (2-Voice; 1:1 Through 8:8)

$\text{♩} = 60$
1:1 through 8:1

1:2 through 8:2

13

1:3 through 8:3

21

1:4 through 8:4

28

1:5 through 8:5

34

39

1:6 through 8:6

44

48

1:7 through 8:7

53

56

1:8 through 8:8

61

Étude No. 2

Hocket Science

This étude develops a pseudo-hocketing technique that I've seen in a handful of other pieces, but never heard given a name. In short, each hand takes a turn progressing through a predetermined cycle of notes, but each hand's cycle is of a different length. An early example of this is the construction of Steve Reich's "Piano Phase," where the pianist's right hand plays through a 2-note cycle 3 times, while their left hand plays through a 3-note cycle 2 times:

♩. = ca. 72
 Repeat each bar approximately number of times indicated
 entsprechend der angegebenen Anzahl.

1 (x1-2) 2 (x1-2)

r.h.
 l.h.
 mf non legato
 l.h.
 fade in

Steve Reich, "Piano Phase," bar 1

I call this a "pseudo-hocketing" technique because a true hocket would require multiple musicians. Here, on the other hand, the pianist merely simulates the hocket by assigning a different cycle to each hand.

Along with **Étude No. 8**, **Étude No. 2** is the perhaps the most straightforward étude in this book—just read the score from start to finish! However, should you want to practice the hocketing technique further, you can create variations on mm. 29-35: playing thirds or fifths rather than single notes, using fists instead of fingers, etc.

Étude No. 2

Hocket Science

Mark Micchelli

Duration: 4m15s

♩ = 104

4 8

sfz p *f* *p sub.*

Red.

11 10 10

13 10 15

14 15 16

15 10 16

16 16 16

19 4 8 rit. 4 8

29 ♩ = 144

Musical notation for measures 29-30. The piece is in 6/4 time. Measure 29 starts with a dynamic marking of *f sub.* The right hand features a sequence of eighth notes with various accidentals (sharps and naturals). The left hand plays a steady eighth-note accompaniment.

Musical notation for measures 31-32. Measure 31 begins with a key signature change to one sharp (F#). The right hand continues with eighth-note patterns, while the left hand maintains the eighth-note accompaniment.

Musical notation for measures 21-24. This system shows measures 21, 22, 23, and 24. The right hand has eighth-note patterns with several accidentals. The left hand continues with the eighth-note accompaniment.

32

Musical notation for measures 25-28. Measures 25, 26, 27, and 28 are shown. The right hand features eighth-note patterns with accents (>) and various accidentals. The left hand continues with the eighth-note accompaniment.

Musical notation for measures 29-32. Measures 29, 30, 31, and 32 are shown. The right hand continues with eighth-note patterns and accents. The left hand maintains the eighth-note accompaniment.

33

Musical notation for measures 33-36. Measures 33, 34, 35, and 36 are shown. The right hand features eighth-note patterns with accents and accidentals. The left hand continues with the eighth-note accompaniment.

Musical notation for measures 37-40. Measures 37, 38, 39, and 40 are shown. The right hand continues with eighth-note patterns and accents. The left hand maintains the eighth-note accompaniment.

Measures 10-19, bass clef, 4/4 time signature. The music consists of a continuous eighth-note pattern in both hands. Measure 10 starts with a key signature of one sharp (F#). Measure 11 has two sharps (F#, C#). Measure 12 has three sharps (F#, C#, G#). Measure 13 has two sharps (F#, C#). Measure 14 has one sharp (F#). Measure 15 has no sharps or flats. Measure 16 has one flat (Bb). Measure 17 has two flats (Bb, Eb). Measure 18 has three flats (Bb, Eb, Ab). Measure 19 has four flats (Bb, Eb, Ab, Db). The piece ends with a double bar line and repeat dots.

Measures 20-33, bass clef, 4/4 time signature. The music continues with the eighth-note pattern. Measure 20 has one sharp (F#). Measure 21 has two sharps (F#, C#). Measure 22 has three sharps (F#, C#, G#). Measure 23 has two sharps (F#, C#). Measure 24 has one sharp (F#). Measure 25 has no sharps or flats. Measure 26 has one flat (Bb). Measure 27 has two flats (Bb, Eb). Measure 28 has three flats (Bb, Eb, Ab). Measure 29 has four flats (Bb, Eb, Ab, Db). Measure 30 has five flats (Bb, Eb, Ab, Db, Gb). Measure 31 has six flats (Bb, Eb, Ab, Db, Gb, Cb). Measure 32 has seven flats (Bb, Eb, Ab, Db, Gb, Cb, Fb). Measure 33 has eight flats (Bb, Eb, Ab, Db, Gb, Cb, Fb, Bb). The piece ends with a double bar line and repeat dots.

Measures 34-37, bass clef, 4/4 time signature. The music continues with the eighth-note pattern. Measure 34 has one sharp (F#). Measure 35 has two sharps (F#, C#). Measure 36 has three sharps (F#, C#, G#). Measure 37 has two sharps (F#, C#). The piece ends with a double bar line and repeat dots. There are 'X' marks above the final notes in both staves. A dynamic marking of *sfz* is placed above the final notes. A fermata is placed over the final notes, with a line extending to the right labeled "Sost. ped." and "8vb" below it.

38 **Tempo I** (♩ = 104), but with more rubato

Measures 38-42, grand staff, 7/16 time signature. The music starts with a dynamic marking of *mp*. The right hand plays a series of eighth notes, and the left hand plays a series of chords. Measure 38 has one sharp (F#). Measure 39 has two sharps (F#, C#). Measure 40 has three sharps (F#, C#, G#). Measure 41 has two sharps (F#, C#). Measure 42 has one sharp (F#). The piece ends with a double bar line and repeat dots. There are 'X' marks above the final notes in both staves. A dynamic marking of *sfz* is placed above the final notes.

Measures 43-47, grand staff, 9/16 time signature. The music starts with a dynamic marking of *mp*. The right hand plays a series of eighth notes, and the left hand plays a series of chords. Measure 43 has one sharp (F#). Measure 44 has two sharps (F#, C#). Measure 45 has three sharps (F#, C#, G#). Measure 46 has two sharps (F#, C#). Measure 47 has one sharp (F#). The piece ends with a double bar line and repeat dots. There are 'X' marks above the final notes in both staves. A dynamic marking of *sfz* is placed above the final notes.

Measures 48-51, grand staff, 13/16 time signature. The music starts with a dynamic marking of *mp*. The right hand plays a series of eighth notes, and the left hand plays a series of chords. Measure 48 has one sharp (F#). Measure 49 has two sharps (F#, C#). Measure 50 has three sharps (F#, C#, G#). Measure 51 has two sharps (F#, C#). The piece ends with a double bar line and repeat dots. There are 'X' marks above the final notes in both staves.

Measures 52-55, grand staff, 16/16 time signature. The music starts with a dynamic marking of *sfz* in the right hand and *mp* in the left hand. The right hand plays a series of eighth notes, and the left hand plays a series of chords. Measure 52 has one sharp (F#). Measure 53 has two sharps (F#, C#). Measure 54 has three sharps (F#, C#, G#). Measure 55 has two sharps (F#, C#). The piece ends with a double bar line and repeat dots. There are 'X' marks above the final notes in both staves.

56

sfz *mf*

60

13/16 9/16 16/16 5/16

65

4 4 4 8 *f*

rit.

80 $\text{♩} = 132$

p

83

86

mp

88

16

90

Musical notation for measures 16-90. The system consists of two staves (treble and bass clef). The music features a complex rhythmic pattern with many sixteenth notes and rests. The key signature has two sharps (F# and C#). The piece concludes with a double bar line.

92

Musical notation for measures 92-184. The system consists of two staves. A dynamic marking of *f* (forte) is present at the beginning of the system. The music continues with the same complex rhythmic pattern as the previous system.

94

Musical notation for measures 94-186. The system consists of two staves. A dynamic marking of *f* (forte) is present at the end of the system. The music continues with the same complex rhythmic pattern.

96

Musical notation for measures 96-188. The system consists of two staves. Dynamic markings of *mf* (mezzo-forte) and *f* (forte) are present. The music continues with the same complex rhythmic pattern.

98

Musical notation for measures 98-190. The system consists of two staves. Dynamic markings of *mf* (mezzo-forte) and *f* (forte) are present. The music continues with the same complex rhythmic pattern.

100

Musical notation for measures 100-192. The system consists of two staves. Dynamic markings of *mf* (mezzo-forte) and *f* (forte) are present. The music continues with the same complex rhythmic pattern.

102

Musical notation for measures 102-194. The system consists of two staves. The right hand continues with the complex rhythmic pattern, while the left hand plays a series of sustained chords. Dynamic markings of *p sub.* (piano) and *f* (forte) are present.

change ped. with each chord *sim.*

104

f *p sub.*

106

ff

108

ff

110

ff

112

Tempo I (♩ = 104)

fffz *p sub.*

(∞) --- 8^{rb} ---

115

ff

117

rit. - - - - - 8

f *p*

Étude No. 3

Knockoff Nancarrow

This étude features standard boogie-woogie patterns overlaid at different speeds. There are three versions notated here—2:3, 3:4, and 4:5—but, of course, there are countless other possibilities one could work out following the same conceit. As the subtitle indicates, Conlon Nancarrow explored a number of them in his Study No. 3, aka the “Boogie-Woogie Suite.”*

My études are painfully simple compared to Nancarrow’s studies, since each follows a single pattern without variation. In fact, my études don’t even need to be notated; once you understand the central conceit, you could easily work them out for yourself without ever seeing the score. To this end, each étude is preceded by a sort of abstract roadmap: a grid showing how the right and left hands will line up as each proceeds along its own tempo. The notation of these grids borrows some set theoretic conventions: counting starts at 0 rather than 1, and 10 and 11 are replaced by T and E, respectively.

Étude No. 3 has enormous potential for variation and integration with other works. For instance, I have lifted all of 3a and parts of 3c verbatim for my version of Mary Lou Williams’s “Roll ‘Em.”† There are a number of other ways one could choose to complicate this work, whether in the practice room or on stage:

- Switch the “fast hand” and the “slow hand” (i.e., swap the left hand and right hand in the written-out versions).
- After a hand completes a “12-bar” cycle, that hand changes key.
- After a hand completes a “12-bar” cycle, it is replaced with a different boogie pattern (a bit of this variation is incorporated in the written-out versions of each étude).
- Actually improvise/solo rather than just mechanically churn through boogie patterns (I am nowhere close to being able to do this, though I imagine setting up an electronic “backing track” would probably be more manageable than trying it solo).

* My choice of numbering and subnumbering—viz.: 3a, 3b, & 3c—is an intentional homage.

† “Roll ‘Em,” by the way, is where I stole the first boogie pattern in the étude.

Étude No. 3a

Knockoff Nancarrow (2:3)

Duration: 1m30s

Mark Michelli

I	I	IV	I	V	I	I	I	IV	I	V	I	I
0	2	4	6	8	T	0	2	4	6	8	T	0
0	1	2	3	4	5	6	7	8	9	T	E	0
0	3	6	9	0	3	6	9	0	3	6	9	0
I	I	I	IV	I	I	I	IV	I	I	I	IV	I

♩ = 192

sempre staccato
(ties are only to show groupings)

Musical notation for measures 1-5. The score is in 4/4 time with a key signature of one flat (B-flat). The right hand features a complex rhythmic pattern of eighth and sixteenth notes, while the left hand plays a steady eighth-note accompaniment. Ties are used to group notes across measures.

Musical notation for measures 6-10. The right hand continues with intricate rhythmic patterns, including some sixteenth-note runs. The left hand maintains the eighth-note accompaniment. Measure 10 ends with a double bar line.

Musical notation for measures 11-15. The right hand's patterns become more varied, incorporating some longer note values. The left hand accompaniment remains consistent. Measure 15 ends with a double bar line.

Musical notation for measures 16-20. The right hand features some chords and more complex rhythmic groupings. The left hand accompaniment continues. Measure 20 ends with a double bar line.

Musical notation for measures 21-25. The right hand has some sustained chords and complex rhythmic patterns. The left hand accompaniment continues. Measure 25 ends with a double bar line.

20

26

Musical notation for measures 26-30. The system consists of a treble clef staff and a bass clef staff. The key signature has one flat (B-flat). The melody in the treble clef features a sequence of chords and moving lines, including a prominent eighth-note pattern. The bass clef provides a steady accompaniment with a consistent eighth-note rhythm.

31

Musical notation for measures 31-35. The system consists of a treble clef staff and a bass clef staff. The key signature has one flat. The treble clef continues with a melodic line of chords and moving notes, while the bass clef maintains the accompaniment pattern.

36

Musical notation for measures 36-40. The system consists of a treble clef staff and a bass clef staff. The key signature has one flat. The treble clef features a melodic line with chords and moving notes, and the bass clef provides accompaniment.

41

Musical notation for measures 41-45. The system consists of a treble clef staff and a bass clef staff. The key signature has one flat. The treble clef continues with a melodic line of chords and moving notes, and the bass clef provides accompaniment.

46

Musical notation for measures 46-50. The system consists of a treble clef staff and a bass clef staff. The key signature has one flat. The treble clef features a melodic line with chords and moving notes, and the bass clef provides accompaniment.

51

Musical notation for measures 51-55. The system consists of a treble clef staff and a bass clef staff. The key signature has one flat. The treble clef continues with a melodic line of chords and moving notes, and the bass clef provides accompaniment.

56

Musical notation for measures 56-60. The system consists of a treble clef staff and a bass clef staff. The key signature has one flat. The treble clef features a melodic line with chords and moving notes, and the bass clef provides accompaniment.

61

Musical notation for measures 61-65. The system consists of a treble clef staff and a bass clef staff. The treble staff contains a melodic line with eighth and sixteenth notes, some beamed together, and a few accidentals (sharps and flats). The bass staff contains a rhythmic accompaniment of chords, primarily dyads and triads, with some accidentals.

66

Musical notation for measures 66-70. The system consists of a treble clef staff and a bass clef staff. The treble staff continues the melodic line with similar rhythmic patterns and accidentals. The bass staff continues the chordal accompaniment.

71

Musical notation for measures 71-72. The system consists of a treble clef staff and a bass clef staff. The treble staff shows the end of the melodic phrase with a final note and a fermata. The bass staff shows the final chord of the phrase. The system ends with a double bar line.

Étude No. 3b

Knockoff Nancarrow (3:4)

Duration: 2m

Mark Michelli

I	I	I	IV	I	I	I	IV	I	I	I	IV	I
0	3	6	9	0	3	6	9	0	3	6	9	0
0	1	2	3	4	5	6	7	8	9	T	E	0
0	4	8	0	4	8	0	4	8	0	4	8	0
I	IV	V	I	IV	V	I	IV	V	I	IV	V	I

$\text{♩} = 144$

sempre staccato
(ties are only to show groupings)

26

Musical notation for measures 26-29. The system consists of a treble clef staff and a bass clef staff. The treble staff contains chords and single notes, while the bass staff contains a complex accompaniment of chords and eighth notes. The key signature has one flat (Bb).

30

Musical notation for measures 30-34. The system consists of a treble clef staff and a bass clef staff. The treble staff contains chords and single notes, while the bass staff contains a complex accompaniment of chords and eighth notes. The key signature has one flat (Bb).

35

Musical notation for measures 35-39. The system consists of a treble clef staff and a bass clef staff. The treble staff contains a melodic line with eighth notes and chords, while the bass staff contains a complex accompaniment of chords and eighth notes. The key signature has one flat (Bb).

40

Musical notation for measures 40-44. The system consists of a treble clef staff and a bass clef staff. The treble staff contains a melodic line with eighth notes and chords, while the bass staff contains a complex accompaniment of chords and eighth notes. The key signature has one flat (Bb).

45

Musical notation for measures 45-48. The system consists of a treble clef staff and a bass clef staff. The treble staff contains a melodic line with eighth notes and chords, while the bass staff contains a complex accompaniment of chords and eighth notes. The key signature has one flat (Bb).

Étude No. 3c

Knockoff Nancarrow - 4:5

Duration: 5m

Mark Michelli

I	IV	V	I	IV	V	I	IV	V	I	IV	V	I
0	4	8	0	4	8	0	4	8	0	4	8	0
0	1	2	3	4	5	6	7	8	9	T	E	0
0	5	T	3	8	1	6	E	4	9	2	7	0
I	IV	I	I	V	I	I	I	IV	IV	I	I	I

♩ = 96

sempre staccato
(ties are only to show groupings)

The musical score consists of six systems, each with a treble and bass staff. The piece is in 4/4 time with a tempo of 96 beats per minute. The key signature has one flat (B-flat). The notation includes various rhythmic patterns, including eighth and sixteenth notes, and rests. Ties are used to indicate groupings of notes across measures. The piece concludes with a final cadence in the sixth system.

37

Musical score for measures 37-42. The piece is in a minor key, indicated by a single flat in the key signature. The melody in the right hand features a series of eighth-note chords and dyads, while the left hand provides a steady bass line with quarter and eighth notes.

43

Musical score for measures 43-48. The right hand continues with complex chordal textures, including some sixteenth-note patterns. The left hand maintains a consistent rhythmic accompaniment.

49

Musical score for measures 49-54. The right hand shows a continuation of the melodic and harmonic themes, with some chromatic movement. The left hand's bass line remains active and supportive.

55

Musical score for measures 55-60. The right hand features a mix of eighth and sixteenth notes, creating a sense of forward motion. The left hand's accompaniment is steady and rhythmic.

61

Musical score for measures 61-66. The right hand continues with intricate chordal patterns. The left hand's bass line consists of quarter notes and dyads.

67

Musical score for measures 67-72. The right hand shows a continuation of the melodic and harmonic themes, with some chromatic movement. The left hand's accompaniment is steady and rhythmic.

73

Musical score for measures 73-78. The right hand continues with complex chordal textures, including some sixteenth-note patterns. The left hand maintains a consistent rhythmic accompaniment.

Musical score for measures 79-84. The piece is in a minor key, indicated by one flat in the key signature. The music is written for piano in a two-staff format. The right hand features a complex, rhythmic melody with many beamed eighth and sixteenth notes, often with slurs. The left hand provides a steady accompaniment with chords and single notes, primarily in a bass line.

Musical score for measures 85-90. The right hand continues with its intricate melodic pattern, showing some variation in rhythm and articulation. The left hand maintains its accompaniment, with some chords and single notes.

Musical score for measures 91-96. The right hand melody becomes more fluid, with longer note values and more frequent slurs. The left hand accompaniment remains consistent, providing a harmonic foundation.

Musical score for measures 97-102. The right hand continues with its melodic development, showing some dynamic markings. The left hand accompaniment is steady and rhythmic.

Musical score for measures 103-108. The right hand melody features some grace notes and slurs, adding to its expressive quality. The left hand accompaniment continues with its rhythmic pattern.

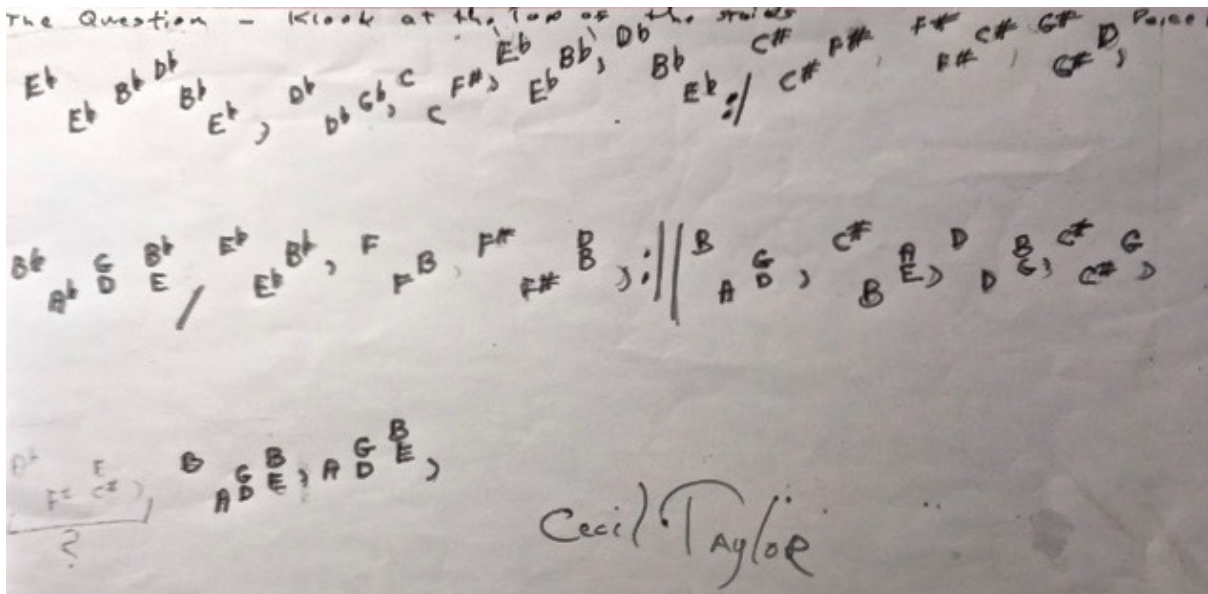
Musical score for measures 109-114. The right hand melody shows some dynamic markings and slurs. The left hand accompaniment remains consistent.

Musical score for measures 115-120. The right hand melody concludes with a final flourish and a double bar line. The left hand accompaniment ends with a final chord and a double bar line.

Étude No. 4

Reimagine the Sound

This étude was inspired by my work transcribing and analyzing the music of Cecil Taylor, specifically an untitled improvisation from the 1981 documentary *Imagine the Sound*. Taylor's notational style is highly unconventional, befitting his contention that "Western notation blocks total absorption in the 'action' playing."* He organizes his music into groups of repeated cells, which he represents as note names grouped in space along x and y axes of time and register.



Example of Cecil Taylor's notational method
(courtesy Karen Borca)

My reimagining of Taylor's improvisation follows his same cell-based formal principles, and uses a similar method of notation. Much of the melodic material is also adapted from the *Imagine the Sound* improvisation. While a guide to notation is provided on the following page, that will not be enough to get a feel for the piece. Instead, find videos of CT performing and study them. Listen for his sense of phrasing, repetition, pacing, large-scale structure. But most importantly, simply watch him move.

* Cecil Taylor, "Sound Structure of Subculture Becoming Major Breath/Naked Fire Gesture," liner notes to *Unit Structures*, Cecil Taylor, BST 84237, LP, 1966.

Guide to Notation

“Reimagine the Sound” is divided into six sections, labeled A-F. Within each section, cells are delineated by whitespace. You may start each section with any cell in the section (not necessarily the top-left-most), and from there you may jump to (or return to) any other cell within the section ad lib. The exception to this is in section B, where cells must be read left-to-right and top-to-bottom.

Melodic material may be written as note names, scale degrees, or pitch class numbers. (Scale degrees are represented as Arabic numerals with ^s, and pitch class numbers are represented Arabic numerals without ^s and with T and E replacing 10 and 11.*) Relative height corresponds to relative register. Always read left-to-right, unless the cell lies above a double-sided arrow “ \longleftrightarrow ”, in which case you may also read right-to-left. Rhythms are free unless otherwise specified.

“T” means transposition: e.g., T_7 = transpose up a perfect fifth (7 semitones); T_{-16} = transpose down a major tenth (16 semitones). “I” means inversion: e.g., I_{D4} = invert around the note D4;† $I_{E4/F4}$ = invert around the E4/F4 axis.

The “CT-esque” cluster runs mentioned in section C refer to Taylor’s extremely fast cluster passages. These are performed by playing dyads or trichords with each hand, with the left hand playing only black keys and the right hand playing only white keys.‡

The “CT-esque” bassline mentioned in section E refers to a common technique used in Taylor’s ballads, such as “After All” from *Silent Tongues* or “Pemmican” from *Garden*.§

This étude frequently references “Dasian”-based and “Guidonian”-based scales. For more information on how these non-octavian scales are constructed, see **Warmup No. 1**. Similarly, the bottom-right-most cell in section F (“free improvisation w/ hands separated at P5 or M10”) explicitly harkens back to the hand separation intervals featured within that warmup.

Section D is actually identical to **Warmup No. 2**, just represented in a more abstract way.

* I deploy “scale degrees” somewhat loosely in the score below, as I sometimes deploy the so-called “scale degrees” 9, 11, and 13 instead of 2, 4, and 6. That said, this is customary in jazz when emphasizing third relations.

† Here, as throughout this document, I am using Scientific Pitch Notation, where middle C = C4.

‡ For more information on how to perform these, see Mark Micchelli, “Sound Structures and Naked Fire Gestures in Cecil Taylor’s Solo Piano Music,” *Music Theory Online* 28, no. 3 (September 2022), <https://mtosmt.org/issues/mto.22.28.3/mto.22.28.3.micchelli.html>.

§ For more on this technique, see Mark J. Bobak, “The Music of Cecil Taylor: An Analysis of Selected Piano Solos 1973-89” (DMA diss., University of Illinois, Urbana-Champaign, 1994), 147-166 and Kaja Draksler, “Cecil Taylor: *Life As...: Structure within a free improvisation*” (Master’s thesis, Conservatorium van Amsterdam, 2013), <http://www.kajadraksler.com/Taylor.pdf>.

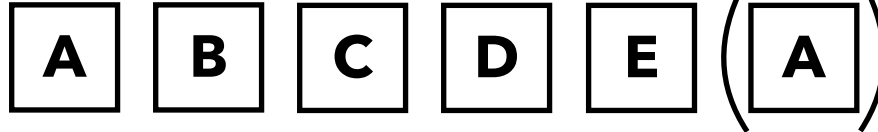
Étude No. 4

Reimagine the Sound

Duration: probably at least 4m

Mark Micchelli

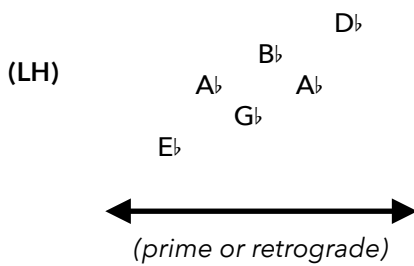
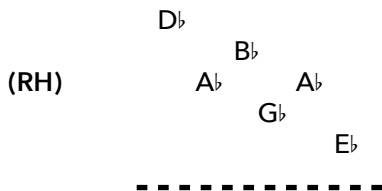
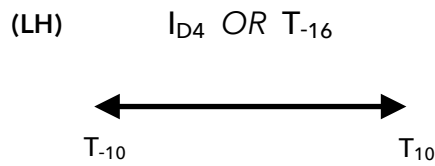
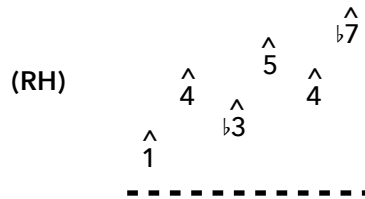
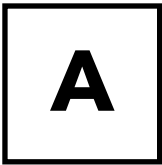
the form of this improvisation is



can be switched

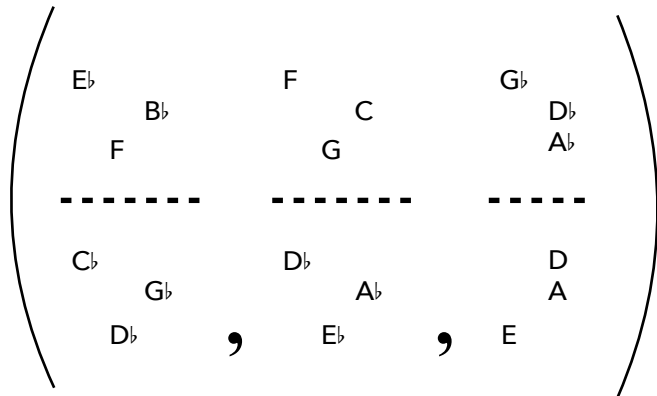
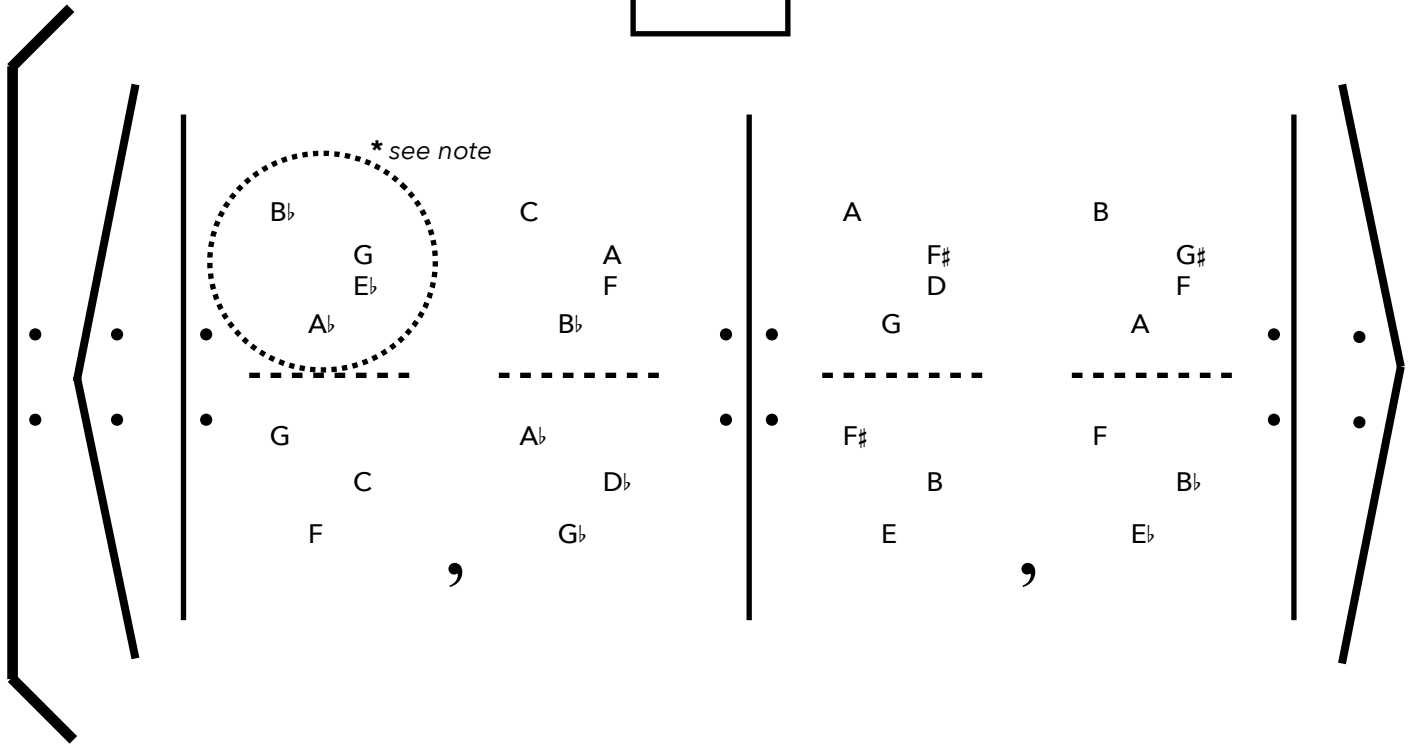
can be switched

material from **F** may appear at any point

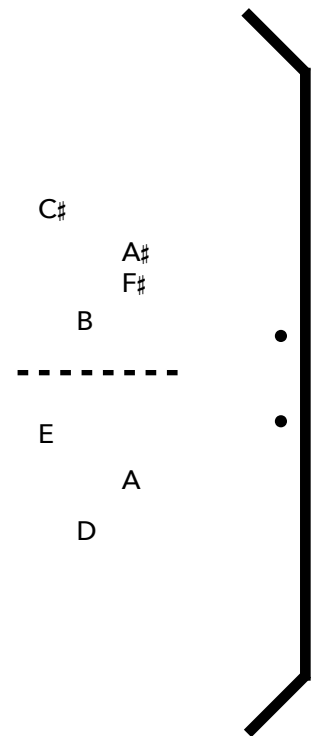
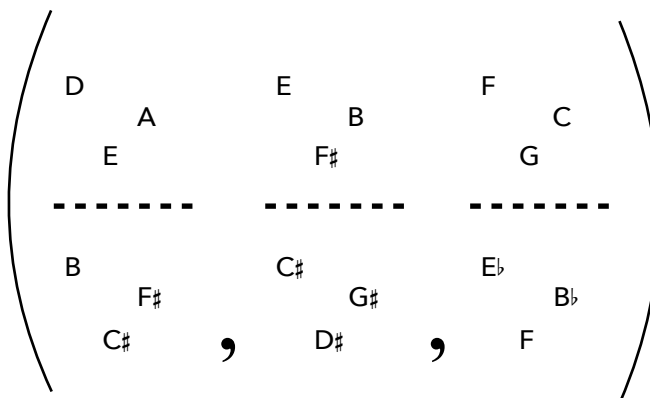


symmetrical free improvisation around I_{D4}

B

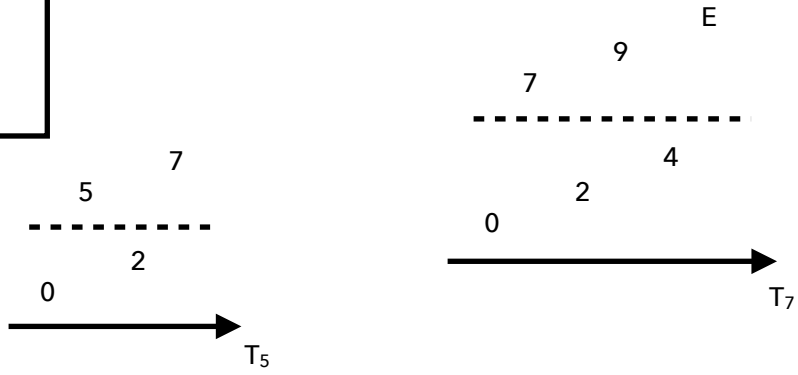


OR

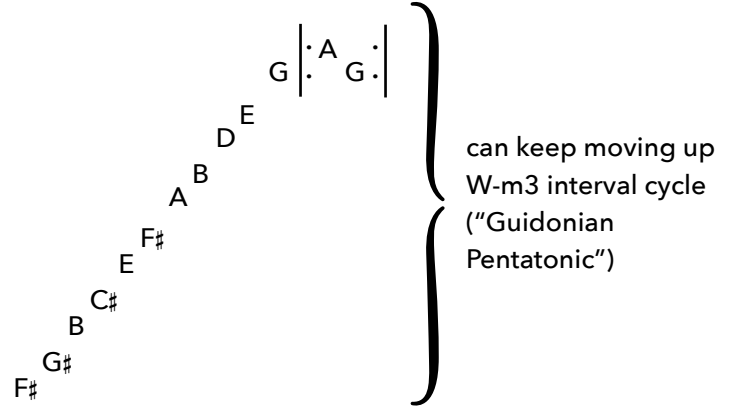
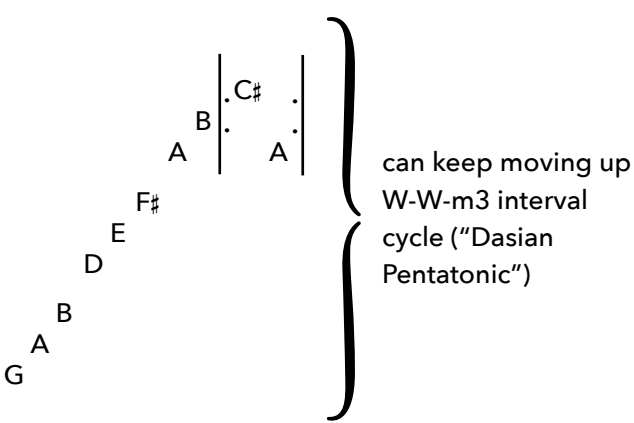


* note: any RH pattern of $\begin{matrix} \hat{9} \\ \hat{7} \\ \hat{5} \\ \hat{1} \end{matrix}$ can be inverted to $\begin{matrix} \hat{7} \\ \hat{5} \\ \hat{2} \\ \hat{1} \end{matrix}$

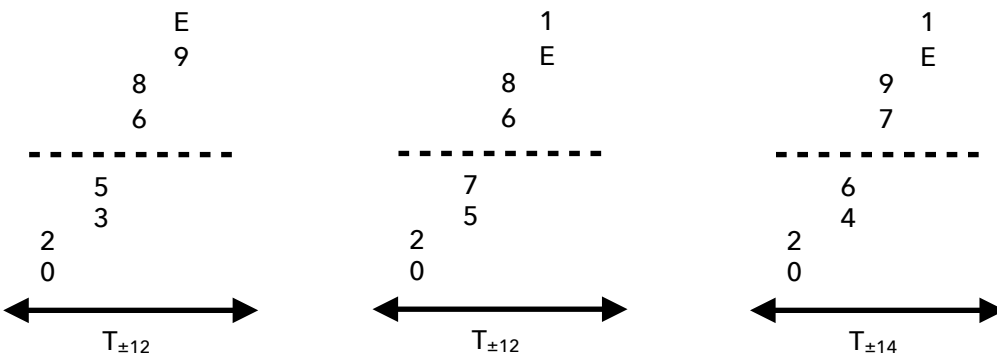
C



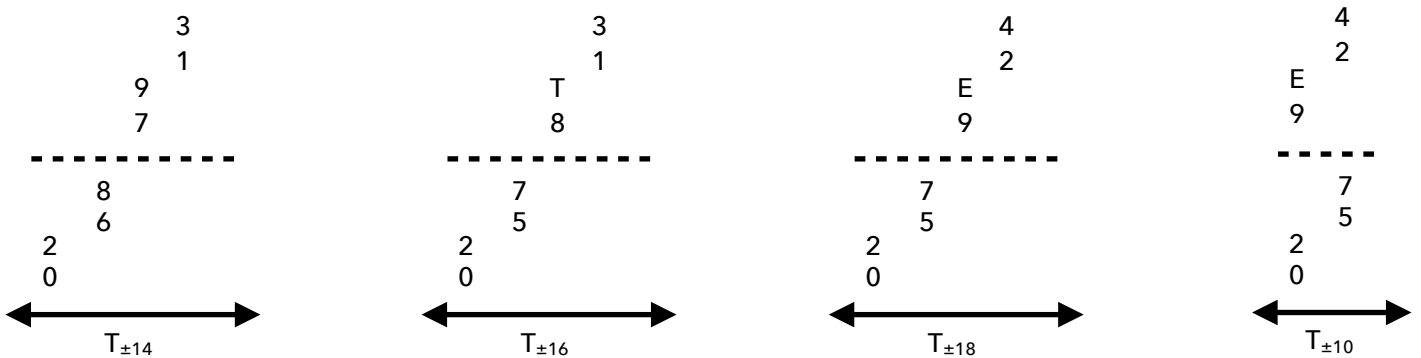
free improvisation using CT-
esque alternating RH-white-
key/LH-black-key cluster runs

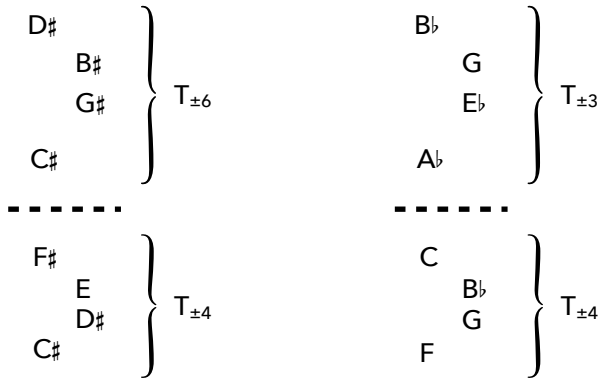


D



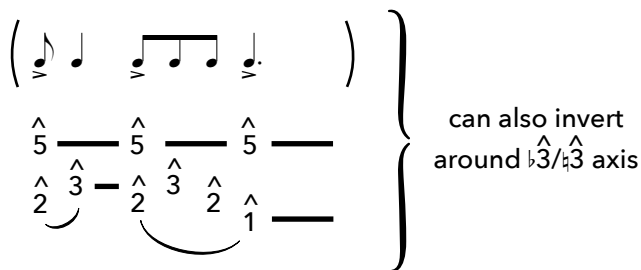
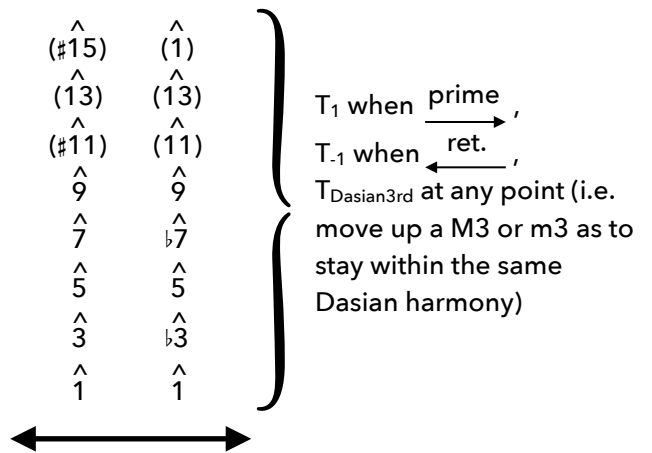
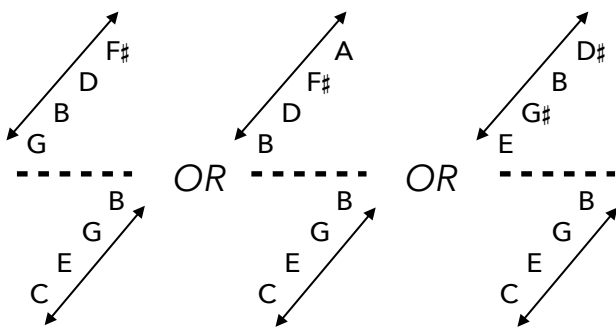
free improvisation using
(0235), (0264), (0257), and
(0268) tetrachords



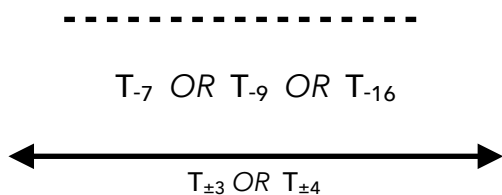


Optional: intersperse CT-esque chromatic bassline in 8ves; make generous use of sostenuto pedal

Dasian scale in 3rds w/ hands separated at the Dasian 5th, 7th, or 10th, e.g.:



free improvisation w/ hands separated at the P5 or M10



Étude No. 5

Undue Symmetry

While there are twelve inversion classes, I contend it's only important to learn to improvise with two: one that generates the intervals P1, M2, M3, d5, m6, and m7, and one that generates the intervals m2, m3, P4, P5, M6, and M7. The previous étude explored I_4 , which is a P1-based inversion class.* This étude explores I_9 , which is an m2-based inversion class. I chose I_9 for two reasons. First, it's only one note-pair off from having perfect black-key/white-key symmetry (although the same can be also said for I_{11}). Second, the E4/F4-axis divides the piano into two equal halves of 44 notes each, meaning that the lowest A and the highest C can be played simultaneously.

In addition to the near-ubiquitous I_9 , this étude features an additional challenge involving arpeggio permutation. This method of improvisation is loosely based on a technique in jazz improvisation involving permutations of varying subsets of descending 4- or 5-note scales.† I've taken a more overtly mathematical approach to this technique, enumerating every possible arpeggiation of a 4-note figure up through cardinality-7 in the Arpeggio Contour List following the main score.

Lastly, although the vast majority of this piece strictly adheres to I_9 , mm. 13-16 break this pattern. Bring special emphasis to the A5s and M3s in these final bars, as those will be the first times those intervals appear in the entire piece. (This also turns the title into an oblique pun: while throughout the piece there is an undue amount of symmetry, at m. 13, you "undo" the symmetry.)

* I chose I_4 (as opposed to I_0 , I_2 , I_6 , I_8 , or I_{10}) because the black-key/white-key pattern is fully symmetrical: whenever the right hand plays a white key, so does the left hand, and whenever the right hand plays a black key, again, so does the left hand.

† See, for instance, Mark Levine, *The Jazz Piano Book* (Petaluma, CA: Sher Music, 1989), 167-178.

Improvisation Ideas for mm. 11-12

N.B.: throughout the following improvisations, the left and right hands should remain exactly symmetrical around the E4/F4 axis.

IDEA 1: arpeggiated 4-note chords

This is the primary musical idea of the improvisation. Start by focusing on only a few chords, then gradually expand your harmonic palette.

The pattern of the arpeggios should remain constantly in flux. The primary note value is the sixteenth note, although you should occasionally switch to sixteenth-note quintuplets to add interest (as in m. 4 in the example below). Always begin the arpeggios with the outermost note, and always give that note a slight accent.

One way to think about these arpeggios is as melodic contours, where the outermost note is encoded as "3," the second-outermost as "2," the second-innermost as "1," and the innermost note as "0." In the example above, for instance, m. 1 contains the contours <31201>, <320>, and <3120>; m. 2 contains <301>, <3201>, <302>, and <3210>; and so on. To assist with this technique of constantly-varying arpeggios, you can refer to the Arpeggio Contour List following the main score, which enumerates all possible contours for all arpeggio lengths (aka "cardinalities") up through 7.

Generally speaking, each pair of successive chords should follow smooth-ish voice leading, at least at first. I tend to use the two sets of harmonic progressions below as a starting point.

IDEA 2: punctuating outer-register octaves

To harken back to the main motivic idea of the piece (as in mm. 1-4, 6-9, and 13-14), you may occasionally want to punctuate the arpeggiated 4-note chords from **IDEA 1** with outer-register octaves, as in the example below.

IDEA 3: outward-moving scales

As the improvisation progresses, you may want to vary the texture of the 4-note arpeggios by introducing outward-moving scales. Any scale will do; the example below uses Dasian.* This is a useful way to “reset” harmonic progressions like those at the bottom of the previous page, which tend to move inward towards the E4/F4 reflection point.

IDEA 4: outward-moving P5 patterns

As a more extreme version of **IDEA 3**, you can break up the texture of the 4-note arpeggios with outward-moving P5 patterns. These get you to the outer register of the piano much more quickly than the scales in **IDEA 3**.†

* See **Warmup No. 1**.

† These are also an oblique reference to the primary technique used in György Ligeti's "Étude 2: Cordes à vide."

Étude No. 5

Undue Symmetry

Mark Michelli

Duration: 3-4m

♩ ≈ 66, *molto rubato*

improvise symmetrically around E4/F4 (i.e., I₉); use only P4, M3, and/or m3 dyads in each hand; middle register only; mostly legato; 10-20s

8^{va} | 8^{vb} | *ff* | *p* | *pp* | *sim., ≤mp*

N.B.: cue-sized notes are meant to give a taste of the improvisation, not necessarily to be played exactly

improvise symmetrically around E4/F4 (i.e., I₉); use ≤M3 dyads or single notes in each hand; mostly middle register; more agitated; 10-20s

6 | 8^{va} | 8^{vb} | *pp* | *f* | *mf* | *sim., ≤f; end at ff*

♩ ≈ 76, *accel.*

improvise symmetrically around E4/F4 (i.e., I₉); start with IDEA 1 and IDEA 2, then gradually introduce IDEA 3 and IDEA 4 (see previous page); 45-1m30s

end improvisation by jumping between outer and middle registers increasingly quickly; 10-20s

11 | 12 | *pp sub.* | *sim., repeat dynamic shape below ad lib., ≤30s per iteration, with progressively shorter iterations* | *f* | *sim.*

♩ ≈ 104

♩ ≈ 84

13 | 14 | 8^{va} | 8^{vb} | *fff* | *pp sub.*

rit.

♩ ≈ 66

15 | 16 | *p* | *ppp*

Arpeggio Contour List

cardinality-7	cardinality-6	cardinality-5,4,3,2
<3212121>	<3102121>	<32121>
<3212120>	<3102120>	<32120>
<3212102>	<3102102>	<32102>
<3212101>	<3102101>	<32101>
<3212021>	<3102021>	<32021>
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<3120212>	<3010212>	<312>
<3120210>	<3010210>	<310>
<3120202>	<3010202>	<302>
<3120201>	<3010201>	<301>
<3120121>	<3010121>	
<3120120>	<3010120>	<32>
<3120102>	<3010102>	<31>
<3120101>	<3010101>	<30>

Étude No. 6

Étude for the Left Brain

This étude is the 3-voice version of **Étude No. 1**, continuing the idea of the “Polypulse Catalog.” However, adding the extra voice increases the total number of polypulses (literally) exponentially, meaning that it’s not exactly practical to perform all of them in a single étude. Nevertheless, I’ve painstakingly notated all of them in “Polypulse Catalog, Pt. 2 (3-Voice; 2:3:4 Through 6:7:8).” Sibelius tells me the total time to perform it is eighteen-and-a-half minutes, so needless to say, I’ve never tried making it through all the way through in one go.

More musically, “Étude for the Left Brain” presents a single three-voice polypulse, in all six of its permutations. This étude is less of a standalone entity and more of a set of instructions for étude-construction, although I also include an example resultant étude featuring a 6:7:8 polypulse.

For more polypulse practice, see **Étude No. 1**.

Instructions for Étude Construction

“Étude for the Left Brain” consists of 7 measures, repeated ad libitum. The tempo should be slow enough to hear the nuances of the polypulse in question, so each playthrough should probably take between 30s and 1m, depending on the polypulse.

Each measure uses a different distribution of fast pulse/medium pulse/slow pulse over the top voice/middle voice/bottom voice. The distribution should be as follows:

	m. 1	m. 2	m. 3	m. 4	m. 5	m. 6	m. 7
top voice	fast	fast	medium	slow	slow	medium	fast
middle voice	medium	slow	slow	fast	medium	fast	medium
bottom voice	slow	medium	fast	medium	fast	slow	slow

Note that this is *different* distribution ordering than the one given in “Polypulse Catalog, Pt. 2,” which aimed for a more combinatorially logical ordering. The ordering here is designed to bring out the voice leading of the harmonies.

Speaking of which, the 7 measures of “Étude for the Left Brain” should use the following harmonic progression. Harmonies should be more-or-less equally spread out across each measure, with the exceptions of the harmonies notated as eighth notes, which should be shorter.

The musical score consists of seven measures of music. The top voice (treble clef) features a melodic line of eighth notes: G4, A4, B4, C5, B4, A4, G4. The middle voice (bass clef) provides harmonic support with chords: G2-G4, A2-A4, B2-B4, C3-C5, B2-B4, A2-A4, G2-G4. The bottom voice (bass clef) provides harmonic support with chords: G2-G4, A2-A4, B2-B4, C3-C5, B2-B4, A2-A4, G2-G4. The score is labeled 'repeat ad lib.' at the end.

While it is theoretically possible to construct instances of “Étude for the Left Brain” without writing everything out (and what an étude for the left brain that would be!), I find it enormously helpful to write out a plan for where to change each voice in the 3-part harmony. This usually entails writing out the whole étude, as I have done in the example on the following page that uses the 6:7:8 polypulse.

Dynamics are up to the étude constructor/performer. However, make sure to bring out the voice leading by accenting the moments when a note changes within the harmonies. These accents, as well as some sample dynamic markings, are also given in the 6:7:8 example on the next page.

Oh, and perform everything with only one hand. Your pick ;)

Étude No. 6

Étude for the Left Brain [6:7:8 example]

Duration: ≈1m for each time through

Mark Michelli

$\text{♩} = 54$
with either left or right hand only
(RH can take everything up an 8ve)

The score consists of seven systems, each with a piano (RH) and bass clef (LH) staff. The key signature is one sharp (F#). The time signature is 7/4, with a 4/4 section in the first system. Dynamics range from *p* to *f*. The piece includes triplet markings, accents, and a *rit.* section. The final system includes a *p* dynamic and a *repeat ad inf.* instruction.

1 2

3

4 5

6

7 rit.

p *mp* *mf* *f* *p*

repeat ad inf.

Étude No. 6

Appendix: Polypulse Catalog, Pt. 2 (3-Voice; 2:3:4 Through 6:7:8)

♩ = 60
2:3:4

Musical notation for measures 1-6. The piece is in 4/4 time. The right hand features a melody with eighth notes and quarter notes, including triplet markings. The left hand provides a bass line with quarter notes and eighth notes, also featuring triplet markings.

7 2:3:5

Musical notation for measures 7-11. The time signature changes to 5/4. The right hand continues with a melodic line, and the left hand has a bass line with quarter notes and eighth notes, including triplet markings.

12 2:3:6

Musical notation for measures 12-18. The time signature changes to 6/4. The right hand has a melodic line with quarter notes and eighth notes. The left hand has a bass line with quarter notes and eighth notes, including triplet markings.

19 2:3:7

Musical notation for measures 19-22. The time signature changes to 7/4. The right hand has a melodic line with quarter notes and eighth notes. The left hand has a bass line with quarter notes and eighth notes, including triplet markings.

23 2:3:8

Musical notation for measures 23-26. The time signature changes to 8/4. The right hand has a melodic line with quarter notes and eighth notes. The left hand has a bass line with quarter notes and eighth notes, including triplet markings.

27

Musical notation for measures 27-30. The time signature changes to 5/4. The right hand has a melodic line with quarter notes and eighth notes. The left hand has a bass line with quarter notes and eighth notes, including triplet markings.

31 2:4:5

36 2:4:6

41 2:4:7

45

49 2:4:8

55 2:5:6

59 2:5:7

62

5 5 5 5

65

2:5:8

5 5 5 5

68

71

2:6:7

6 3 3 6

74

6 3 3 6

77

2:6:8

6 3 3 6

80

84 2:7:8

87

89 3:4:5

92

96 3:4:6

102 3:4:7

106

109 3:4:8

Musical score for measures 109-112. The piece is in 3/4 time. The right hand features a continuous eighth-note pattern in the first two measures, followed by a melodic line in the last two measures. The left hand provides a steady accompaniment with eighth notes.

113

3:5:6

Musical score for measures 113-116. The piece is in 3/4 time. Measure 113 contains a melodic phrase. Measure 114 is a repeat sign. Measures 115 and 116 feature a melodic line with triplets and sixteenth-note patterns in the right hand, and a bass line with triplets in the left hand.

117

Musical score for measures 117-120. The piece is in 3/4 time. The right hand has a melodic line with triplets and sixteenth-note patterns. The left hand has a bass line with triplets and sixteenth-note patterns.

121 3:5:7

Musical score for measures 121-124. The piece is in 3/4 time. The right hand features a melodic line with triplets and sixteenth-note patterns. The left hand has a bass line with triplets and sixteenth-note patterns.

124

Musical score for measures 124-127. The piece is in 3/4 time. The right hand has a melodic line with triplets and sixteenth-note patterns. The left hand has a bass line with triplets and sixteenth-note patterns.

127 3:5:8

Musical score for measures 127-128. The piece is in 3/4 time. The right hand has a melodic line with triplets and sixteenth-note patterns. The left hand has a bass line with triplets and sixteenth-note patterns.

129

Musical score for measures 129-132. The piece is in 3/4 time. The right hand has a melodic line with triplets and sixteenth-note patterns. The left hand has a bass line with triplets and sixteenth-note patterns.

131 3:6:7

134

137 3:6:8

140

144 3:7:8

147

149

151 4:5:6

154

157 4:5:7

159

161 4:5:8

164

167 4:6:7

170

6 3 3 6

6 3 3 6

173

4:6:8

6 3 3 6

6 3 3 6

3 3 3 3

176

3 3 3 3

3 3 3 3

180

4:7:8

3 3 3 3

3 3 3 3

183

3 3 3 3

3 3 3 3

185

3 3 3 3

3 3 3 3

187 5:6:7

3 3 3 3

5 5 5 5

3 3 3 3

189

191

193 5:6:8

195

197

199 5:7:8

201

203

Musical score for measures 203-204. The piece is in 6/8 time. Measure 203 features a treble clef with a melody of quarter notes and eighth notes, and a bass clef with a steady eighth-note accompaniment. Measure 204 continues the melody with a series of five-measure slurs in the treble and eighth-note accompaniment in the bass. Fingering numbers 5 and 3 are indicated above and below notes respectively.

205 6:7:8

Musical score for measures 205-206. Measure 205 features a treble clef with a melody of quarter notes and eighth notes, and a bass clef with a steady eighth-note accompaniment. Measure 206 continues the melody with a series of three-measure slurs in the treble and eighth-note accompaniment in the bass. Fingering numbers 3 and 5 are indicated above and below notes respectively.

207

Musical score for measures 207-208. Measure 207 features a treble clef with a melody of quarter notes and eighth notes, and a bass clef with a steady eighth-note accompaniment. Measure 208 continues the melody with a series of three-measure slurs in the treble and eighth-note accompaniment in the bass. Fingering numbers 3 and 5 are indicated above and below notes respectively.

209

Musical score for measures 209-210. Measure 209 features a treble clef with a melody of quarter notes and eighth notes, and a bass clef with a steady eighth-note accompaniment. Measure 210 continues the melody with a series of three-measure slurs in the treble and eighth-note accompaniment in the bass. Fingering numbers 3 and 5 are indicated above and below notes respectively.

Étude No. 7

Traces

The meaning of the title, "Traces," is threefold. First, there are what I'm literally calling "traces" in the score: quiet, barely-there textural figures that rest in a liminal zone between sounding and non-sounding. Second, there is the ostinato arpeggiation pattern, which traces over itself countless times in the piece. Finally, there is the fact that this étude, despite being completed in 2021, reuses musical material from two older pieces of mine. One of these pieces is from 2015, a few years after I finished undergrad. The other of these pieces is from 2004, when I was in middle school. (In fact, it was the first piece I ever wrote.) This nostalgic character permeates the étude, and in spite of the technical complexity, the piece should be performed with the character of a nursery rhyme or lullaby.

An earlier draft of this piece featured complex polypulses over Improvisation Section 1 (these are a reference to yet another older piece of mine, from 2011). While I don't believe these work musically within the context of the final version of the étude, they are nonetheless good practice, and so are included below:

The image displays a musical score for a piece titled "Traces". It features four distinct sections of complex polypulses, each with a specific rhythmic signature: "3 over 12/10/8/6", "5 over 12/10/8/6", "6 over 12/10/8/6", and "8 over 12/10/8/6". The score is written for piano and consists of five staves per section. The notation is highly detailed, showing various rhythmic values, accidentals, and fingerings (e.g., 3, 5, 6) for both hands. The overall structure is dense and technically demanding, reflecting the "complex polypulses" mentioned in the text.

Étude No. 7

Traces

Mark Michelli

Duration: 4-5m

♩ = 54, *molto rubato*

pp

p cantabile

u.c.

(u.c.)

restruck C is part of l.h. arpeggio,
but played/held with r.h.

(u.c.)

(u.c.)

(u.c.)

gradually lift u.c.

28

33

37 transition directly into Impvisation Section 1

Impvisation Section 1 (mm. 42-50)

Repeat each bar ad lib. before moving onto the next one. With your right hand, play fast-moving, skittish passages at a quiet dynamic. (Think the title—"Traces"). With your left hand, play one of the four possible arpeggiation patterns associated with each chord. The listener's focus should be on the left hand's rhythmic changes, with the right-hand "traces" providing textural accompaniment.

42 CΔ 7(add9) EbΔ 7(9) CΔ 7(add9) EbΔ 7(9) EΔ 7(11)

Play once or twice

47 $C\Delta 7(\text{add}9)$ $E\flat\Delta 7(\text{sus}4)$ $E\Delta 7(\sharp 11)$ $G\sharp 7(\text{sus}4)/F\sharp$ last time: transition directly
into Improvisation Section 2

Improvisation Section 2 (mm. 51-58)

Play the left-hand part as-is. For the right hand, improvise around the given melody. This improvisation should only barely resemble what's written; you're thinking about it in your head, but the listener probably won't be able to follow along.

Play twice or three times

last time, transition directly
into m. 59 (as written)

Improvisation Section 3 (mm. 59-62)

59 as written *ff*

8^{va}

improvise piano-spanning arpeggio (cue notes show only one possible option)

8^{va}

Repeat ad lib.

continue improvising piano-spanning arpeggios, using the given trichord hand shapes over the given bass notes;
 arpeggios may be repeated ad lib. and played in any order;
 as the improvisation progresses, increasingly pepper in measures of $\frac{1}{2}$ that feature only an ascending arpeggio (à la mm. 3, 6, 9, etc. in the opening)

61

(only option)

As Written (mm. 63-75)

last chord of Improvisation Section 3 should be B^b (can be in either $\frac{2}{2}$ or $\frac{1}{2}$)

as written (N.B. this is 8vb from previous B^b arpeggio)

62 B^b

64 *fff*

f cantabile

10 10

Improvisation Section 4 (mm. 76-78)

Keep left hand as written, while right hand plays quiet "traces" of melody from mm. 3-15. These traces are texturally similar to the traces from Improvisation Section 1, but harmonically adhere much more closely to the C major pentatonic scale. Rhythmically, pretend your right hand is like a set of wind chimes—*accel-*ing and *rit-*ing *ad lib.*

Improvisation Section 5 (mm. 79)

Shuffle among the measures below. As you dim., gradually start to omit notes. However, keep the flow of the gesture going; it should look as if you're playing a constant stream of quintuplet-eighths, but sound increasingly syncopated. Eventually, you should be omitting so many notes that the measure is mostly silent. Finally, after a few iterations of purely silent gestures, end the piece.

79

dim. poco a poco

(u.c.)

The musical score is written for piano in bass clef. It begins with a 7/10 time signature. The first system shows two staves with a 'dim. poco a poco' instruction and a '(u.c.)' label. The second system shows a sequence of measures with changing time signatures (2/2, 3/2, 4/2, 5/2, 6/2, 7/2, 8/2, 9/2, 10/2) and a quintuplet-eighth note pattern in the right hand.

Étude No. 8

Flutter Clutter

This étude is an elaboration of the (02)-based cluster runs from **Warmup No. 2**. In the first half of the étude, the cluster runs are presented as single notes played across both hands. In the second half, the cluster runs are presented as dyads played by a single hand.

As the last entry in this book of études, there are subtle references to the several of the previous études peppered throughout:

- **Étude No. 2** - mm. 22-24 reference the central alternate-hand hocketing technique
- **Étude No. 3** - mm. 25-33 reference the boogie woogie bassline
- **Étude No. 4** - lots to pick from, but the cluster runs and the I₄ ending are most notable
- **Étude No. 5** - m. 36 references the big C major arpeggio at the climax

Like **Étude No. 2**, this étude was meant to be performed as-is, from start-to-finish.

Étude No. 8

Flutter Clutter

Mark Micchelli

Duration: ≈2m

As fast as possible

r.h. *sim.*

l.h. *sfz p*

senza ped. sempre

l.h. *sim.*

2

3

4

5

6

7

60

8

9

10

r.h. melody legato;
rhythm ad lib.

11

hold until comma

(r.h.)

(release)

12

13

r.h. melody legato *sim.*;
rhythm ad lib. *sim.*

14

Musical notation for measures 14 and 15. The right hand has a long melodic line with a slur. The left hand has a complex rhythmic accompaniment with many sixteenth notes.

15

Musical notation for measures 15 and 16. The right hand continues the melodic line. The left hand accompaniment is dense and rhythmic.

16

Musical notation for measures 16 and 17. The right hand has a melodic line with a slur. The left hand accompaniment continues with sixteenth notes.

17

Musical notation for measures 17 and 18. The right hand has a melodic line with a slur. The left hand accompaniment continues with sixteenth notes.

18

Musical notation for measures 18 and 19. The right hand has a melodic line with a slur. The left hand accompaniment continues with sixteenth notes.

19

Musical notation for measures 19 and 20. The right hand has a melodic line with a slur. The left hand accompaniment continues with sixteenth notes.

20

Musical notation for measures 20 and 21. The right hand has a melodic line with a slur. The left hand accompaniment continues with sixteenth notes.

62 *8va*

21 *15ma*

22 *(15)*

23 *(15)*

24 *(15)*

r.h. only 1 3 1 3 1 3 *sim.*

25 *(15)*

26 *8va*

27

28

29

Musical score for measures 29-30. The system consists of two staves: a treble clef staff and a bass clef staff. The music is written in a key with one sharp (F#) and a common time signature. The melody in the treble staff features a sequence of chords and eighth notes, while the bass staff provides a rhythmic accompaniment with eighth notes and some rests.

30

Musical score for measures 30-31. The system consists of two staves: a treble clef staff and a bass clef staff. The music continues from the previous system, maintaining the same key and time signature. The treble staff has a melodic line with various accidentals, and the bass staff has a steady eighth-note accompaniment.

31

Musical score for measures 31-32. The system consists of two staves: a treble clef staff and a bass clef staff. The treble staff continues with a melodic line, and the bass staff has a more active accompaniment with eighth notes and some slurs.

32

Musical score for measures 32-33. The system consists of two staves: a treble clef staff and a bass clef staff. The treble staff has a melodic line with many accidentals, and the bass staff has a rhythmic accompaniment with eighth notes and slurs.

33

Freely

Musical score for measures 33-34. The system consists of two staves: a treble clef staff and a bass clef staff. The treble staff has a melodic line with many accidentals. The word "Freely" is written above the treble staff. The bass staff has a rhythmic accompaniment with eighth notes and slurs.

35

8va

Musical score for measures 35-36. The system consists of two staves: a treble clef staff and a bass clef staff. The treble staff has a melodic line with many accidentals. The word "8va" is written above the treble staff. The bass staff has a rhythmic accompaniment with eighth notes and slurs.