

# Developing Classical Music

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12

14

*pp*

*8va*

secretly agitated

16

*f*

*mf*

*8va*

**B**

18

*ff*

*mf*

*8va*

decelerating

fugato

faster (enough to flow)

21

and decelerating

24

back in tempo

*p*

*mf*

*f*

decelerating

27 **C** Tempo I

*mp*  
singing

29

31

33

35

*mp*  
decelerating

37 **D**

back in tempo

39

Musical score for measures 39 and 40. The piece is in G major (one sharp) and 4/4 time. Measure 39 features a treble clef with a series of eighth-note chords and a bass clef with a steady eighth-note accompaniment. Measure 40 continues the treble line with more complex chordal textures and a bass line that includes a trill on the final note.

41

Musical score for measures 41, 42, and 43. Measure 41 shows a treble clef with a descending eighth-note line and a bass clef with a simple accompaniment. Measure 42 includes the instruction "decelerating" and a dynamic marking "p" (piano). The treble line features a descending eighth-note line that ends with a fermata. Measure 43 concludes the piece with a final chord in both hands, marked with a fermata.

# “Composing is like programming”

- Maybe true in some ways
- Not necessarily interesting
- Most things are a little bit like other things
- (Look up “Schmonz’s Theorem” sometime)
- For me, nothing actionable

# “Programming helps with composing”

- Probably true in some ways
- Electronic music: certainly
- Rules of harmony and counterpoint: maybe
- Other rules I haven't consciously identified: nope
- Also glowing rectangles eat (some of) my brain
- For me, nothing actionable

# Minimum Viable Piece

- My first serious composition
- Old school
- Development: 75 hours
- Staging: a few hours
- Deployment: 3.5 minutes



# “Programmer tools help ship music”

- For me, **true!**
- LilyPond: a versioned DSL for notating music
- (Guile for tweaking LilyPond’s rendering behavior)
- Vim: split-window, syntax, “compile”
- Git: defend my life’s work

# “Programmer thinking helps ship music”

- For me, **true!**
- Compiler feedback: bar lines where expected
- Eye feedback: be neat, one bar per line, diffs
- Ear feedback: render to MIDI

# “Programming practices help ship music”

- I sure wish this were true
- On average, compose 1 minute in 21.5 hours?!?!
- I’m a beginner at composing
- The feedback loops are way too big

# Want a beer?

- Show me how to write music using outside-in TDD
- I will be forever grateful
- Also I bet cognitive scientists will be interested

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