

NUMBERS

SATB div. a cappella

SHRUTHI RAJASEKAR

Shruthi
shruthi
rajasekar
music



Program Note

Numbers establish the foundations of our musical and daily lives. Throughout history, positional numerical systems have allowed humans to organize the world around them. The Babylonian system, for example, was sexagesimal (base 60) and did not numerically represent zero—remnants of this system can still be seen today in the way we measure time (60 seconds in a minute, 60 minutes in an hour) and circles (360 degrees). The most common system of today is the decimal system, but our world is increasingly powered by technology that, at its most fundamental level, consists of 0s and 1s. For musicians, numbers are critical in the rehearsal process especially: we use them to count time, measure melodic and rhythmic distances, and position ourselves within the context around us. Creating music—indeed, living our lives—seems unimaginable without numbers; they certainly deserve their own performance.

- Shruthi Rajasekar, 2019

Performance Notes:





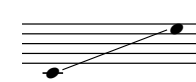
In its lyrics, this piece uses a mixture of text and digits (e.g. one and 1). There is no musical difference between these—the numerals are used for expedient reading. The first part of this piece is intended to symbolize the Babylonian system (base 60). It is represented in two ways: the music is cyclical with repetitive patterns and there are no rests across the choir—the tenors keep the clock ticking! In addition, give special attention to “59”’s throughout this part; since they announce the new rotation, they can be declamatory. The second part of the piece is our quirky decimal system, in which we take pride. Here, the rests should be loud, since zero has a commanding presence in mathematics. The numbers are also used melodically (labeling scale degrees and some chords); lean into this. The third section, representing the binary system, was designed to reflect the constant hum of our global and proximal technology:

Section III Boxes:

The aleatoric portion of section III (rehearsal mark 6) includes blank boxes. These have been included so that the singers can create their own personalized combinations of 0s and 1s. There is one box in each part; it is not expected that the boxes within a part (i.e. the boxes among the Soprano 1s) should match or in any way resemble each other. However, the "composition" of each singer should follow these parameters:

1) Use only the notes of the following scale (transposing octave, of course): 

2) Fit within the following ranges for each part:

Soprano	Alto	Tenor	Bass 1	Bass 2
				

3) All material should be syllabic, not melismatic. “One” should be represented by an 8th (quaver) note, and “zero” by a pair of 16th (semiquaver) notes.

4) Rests should not be prescribed in the box, since should take their own breaks when needed.

5) Simple phrases work best. Here are some sample boxes that singers could use or adapt:

		
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7 *Like clockwork*

S. one one one one one one one one one one one one one one

A. one one one one one one one one one one one one one one one one one

T. 1 2 3 1 2 3 1 2 3 4 1 2 3 4 1 2 1 2 3 1 2 3 1 2 3 4 1 2 3 4 1 2 1 2 3 1 2 3 1 2 3 4 1 2 3 4 1 2

B. one two three four five six seven eight nine ten eleven twelve

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10

S. one one one one 1 1 1 1 1 1 1 1 1 2 1 2 1 2 3 2

A. one one one one one one one one one one one one one one one one one

T. 1 2 3 1 2 3 1 2 3 4 1 2 3 4 1 2 1 2 3 1 2 3 2 3 4 1 2 3 4 1 2 1 2 3 1 2 3 1 2 3 4 1 2 3 4 1 2

B. thir-teen four-teen fif-teen six-teen one

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13

S.

A.

T.

B.

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16 *cresc. poco a poco*

S.

A. *cresc. poco a poco*

T. *cresc. poco a poco*

1

B. *cresc. poco a poco*

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19

S.

1

A. 2

T.

1

B. 2

22

S.

1

A. 2

T.

1

B. 2

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25

S. *one two three one two three one two one two one two one two*

1 *one one one one one one one one one one*

2 *one two three one two one two one two*

T. *1 2 3 1 2 3 1 2 3 4 1 2 1 2 3 1 2 3 4 1 2 1 2 3 1 2 3 4 1 2 1 2 3 1 2 3 4 1 2 1 2 3 4 1 2*

B. 1 *3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2*

2 *two three one two three one two three*

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28

S. *one two one two one two one two one two one two one two*

1 *1 2 3 4 1 2 3 4 1 2 3 4 5 1 2 3*

2 *one two 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 5 1 2 3*

T. *1 2 3 1 2 3 1 2 3 4 1 2 1 2 3 1 2 3 1 2 3 4 1 2 1 2 3 1 2 3 1 2 3 4 1 2 1 2 3 1 2 3 4 1 2*

B. 1 *3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 one*

2 *one two three one two*

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31 *fp* **3** 130 Quirky (2+3 + 2+3)

S. 1 2 3 4 1 2 3 4 1 fif-ty-nine

A. 4 5 1 2 3 4 fif-ty-nine one five sev-en one five sev-en 3 4 2 3 4 2

2 4 5 1 2 3 fif-ty-nine one five sev-en one five sev-en 3 4 2 3 4 2

T. 1 2 3 1 2 3 1 2 3 4 1 2 3 4 1 2 one five sev-en one five sev-en two two

B. 1 one two three fif-ty-nine one five sev-en four one five sev-en four one five

2 — fif-ty-nine one five sev-en four one five sev-en four one five

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37 *mp* Pompous (♩ = ♩)

S. 3 4 5 7 6 5 3 4 5 7 6 5 3 4 5 8 5 4

A. — 3 4 2 3 4 2 3 4 2 3 4 2 three one

T. three two five five four five one five sev-en sev-en sev'n five

B. sev-en four one five sev-en four one five sev-en four four two

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Quirkier

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44

S. *mp* 3 4 5 7_ 6 5 3 4 5 7_ 6 5

A. *sfz mp* sev'n one five sev-en 3 4 2 3 4 2 3 4 2 3 4 2

T. *sfz mp* four five two four two two two three two five five four five

B. *sfz mp* five one five sev-en four one five sev-en four one five sev-en four

Imperious but less certain 4 The Quirkiest

51

S. *mf f* three four five one one five sev-en one five

A. *f* 3 4 2 3 4 2 sev-en one five two 3 4 2 3 4 2

T. *mf f* one five sev'n sev'n sev'n one five sev-en five sev'n sev-en five five

B. *mf f* one five four three two one five sev-en one five sev-en one five

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For perusal only. Do not copy. Proud, but really floundering *dim.*

60

S. sev - en sev - en two one five_ sev - en two_ three one_ five four sev'n -

A. 3 4 5 7_ 6 5 5 5 4 6 3 4 2 3 4 2 three one sev'n -

T. four five 3 4 2 3 4 2 3 4 5 7_ 6 5 one_ one_ sev'n five

B. sev - en four one five sev - en four one five four three sev'n

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67 5 ♩ = 102

S. *p intense* -nn ze-ro ze-ro one ze-ro ze-ro ze-ro one

1 *pp* - nn

2 *pp* nn nn

T. *p earnest* ze-ro one ze-ro

B. nn

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74

S. ze-ro one ze-ro ze-ro ze-ro one ze-ro one ze-ro ze-ro one

1.

A. 2. *nn*

T. ze-ro one ze-ro one ze-ro one ze-ro one ze-ro one ze-ro one

B. *p almost tender* ze-ro ze-ro ze-ro

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79

S. one one one ze-ro ze-ro one ze-ro ze-ro one ze-ro ze-ro one ze-ro ze-ro one ze-ro

1.

A. 2. one ze-ro

T. ze-ro one ze-ro ze-ro one ze-ro ze-ro one ze-ro ze-ro one ze-ro ze-ro one ze-ro ze-ro one

B. ze-ro ze-ro

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6 All of our machines and devices humming along (♩ = 102)

~0:20

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82

1. *p* *cresc.* *f* *** *> mp*
ze-ro ze-ro one ze-ro ze-ro one one

2. *p* *cresc.* *f* *** *> mp*
ze-ro one one ze-ro one one

A. *f* *** *> mp*

1. *mp* *cresc.* *f* *** *> mp*
ze-ro ze-ro one one one one

2. *mp* *cresc.* *f* *** *> mp*
ze-ro ze-ro one one one ze-ro one one

B. *f* *** *> mp*
one

(free boxes using these pitches only)

* free choice box - see performance notes

84 ~0:35 dim. *p* ~0:45

1. *dim.* *p*
one ze-ro one ze-ro one ze-ro one ze-ro

2. *dim.* *p*
ze-ro ze-ro one ze-ro one ze-ro one ze-ro one

A. 1. *dim.* *p*
ze-ro ze-ro ze-ro one one ze-ro one one ze-ro one

2. *dim.* *p*
one ze-ro ze-ro one ze-ro

T. 1. *dim.* *p*
ze-ro ze-ro one ze-ro one one ze-ro one ze-ro one

2. *dim.* *p*
ze-ro ze-ro one ze-ro one ze-ro

B. *dim.* *p*

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* Repeat boxes "in time" (observe tempo, but without time signature); continue box until 1) a new box is introduced or 2) the line stops, in which case the part should rest. Individually, singers can take breaks after boxes (before repeating) and/or break in the middle of a box (before continuing). Be sure to break "in time". Time stamps (~0:45, i.e. ~45 seconds indicate time elapsed since beginning of page; these can be cued by conductor. For instructions on "blank" boxes, see Performance Note.

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86 ~0:55

7 Gentle p

1 S. 1 1 1 1 1 1 1 1 1 1 1

2 S. one ze-ro ze-ro ze-ro 1 1 1 1 1 1 1 1 1 1

1 A. ze-ro one ze-ro one ze-ro one ze-ro one 1 1 1 1 1 1 1 1 1 one ze-ro one ze-ro one ze-ro

2 A. one ze-ro one ze-ro one ze-ro one ze-ro 1 1 1 1 1 1 1 1 1 one ze-ro one ze-ro one ze-ro

1 T. ze-ro ze-ro one 1 1 1 1 1 1 1 1 1 1 one ze-ro one ze-ro one ze-ro

2 T. 1 1 1 1 1 1 1 1 1 1 one ze-ro one ze-ro one ze-ro

B. 1 1 1 1 1 1 1 1 1 1 one ze-ro one ze-ro one ze-ro

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89

S. 1

A. 1 1 1 1 1 1 1 1 1 1 1 one ze-ro one ze-ro one ze-ro 1 1 1 1 1 1 1 1 1

T. 1 1 1 1 1 1 1 1 1 1 1 one ze-ro one ze-ro one ze-ro 1 1 1 1 1 1 1 1 1

B. 1 1 1 1 1 1 1 1 1 1 one ze-ro one ze-ro one ze-ro 1 1 1 1 1 1 1 1 1

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The machine winding down

rall.....

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92

S. *half-sung, only contour matters*
 one ze-ro one ze-ro one ze-ro 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 one ze-ro one ze-ro one

A. *half-sung, only contour matters*
 one ze-ro one ze-ro one ze-ro 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 one ze-ro one ze-ro one ze-ro

T. *half-sung, only contour matters*
 one ze-ro one ze-ro one ze-ro 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 one ze-ro one ze-ro one ze-ro

1 *half-sung, only contour matters*
 one ze-ro one ze-ro one ze-ro 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 one ze-ro one ze-ro one ze-ro

B. *half-sung, only contour matters*
 one ze-ro one ze-ro one ze-ro 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 one ze-ro one ze-ro one ze-ro

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(rall.)

95 S1 *half-sung, only contour matters*
 one ze-ro one ze-ro one ze-ro one *breathy voice, hardly audible* *dim. al niente*
 nn

A. *half-sung, only contour matters*
 one ze-ro one ze-ro one ze-ro one *breathy voice, hardly audible* *dim. al niente*
 nn

T. *half-sung, only contour matters*
 one ze-ro one ze-ro one ze-ro one ze-ro one *creaky voice, hardly audible* *dim. al niente*
 nn

1 *half-sung, only contour matters*
 one ze-ro one ze-ro one ze-ro one *breathy voice, hardly audible* *dim. al niente*
 nn

B. *half-sung, only contour matters*
 one ze-ro one ze-ro one ze-ro one ze-ro one *creaky voice, hardly audible* *dim. al niente*
 nn

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"[Shruthi] Rajasekar has allowed boldness to be her guiding light in the journey through her dense and evocative creativity... Rajasekar will continue to sail forward, into a cartography of her own delineation."
– The Seattle Times

Composer and vocalist Shruthi Rajasekar (she/her) is a McKnight Fellow, Jerome Hill Artist Fellow, Associate of the Royal Northern College of Music (ARNCM), winner of the Global Women in Music Award from the United Nations, and a Marshall Scholarship recipient. Her creative work highlights identity, community, and joy. Shruthi's music reflects her deep roots in the Carnatic (South Indian classical) and Western classical idioms, her diasporic South Asian background, and her belief in the importance of communal gathering and civic engagement. Globally, her compositions have been featured at the Royal Albert Hall (London, UK), the Cannes Film Festival (France), the National Centre for Performing Arts (Mumbai, India), Victoria Concert Hall (Singapore), and the United Nations' COP 26 (Glasgow, UK).

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