

Four Pieces with Cognitive Constraints

III. Lightness

For String Quartet

(2021)

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Preface

The set of *Four Pieces with Cognitive Constraints* are inspired by Fred Lerdahl's work in music cognition. All four compositions were generated by a Max patch that was specifically designed to satisfy the 17 constraints from 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 set of works explore how Lerdahl's idea of a 'musical' grammar' can be coded into a music generation program.

Performance Notes

Lightness is in Just Intonation. All notes are to be played with natural harmonics based on Justly tuned open strings. Therefore, before playing, the open strings should be tuned to the following frequencies. Please note that the Violin 2, Viola and Cello parts require scodatura in the third string.

	String	Frequency (Hz)
Violin 1	E5	660.0
	A4	440.0
	D4	293.3
	G3	195.6
Violin 2	E5	660.0
	A4	440.0
	B $\flat$ 3	234.7
	G3	195.6
Viola	A4	440.0
	D4	293.3
	B $\flat$ 3	234.7
	C3	132.0
Cello	A3	220.0
	D3	136.7
	E $\flat$ 2	78.2
	C2	66.0

ca. 5'00"

19 10" IV

Vln. 1 *pp* *p* *pp poss.* *pp poss.* *p* *pp*

Vln. 2 *pp poss.* *pp poss.* *pp*

Vla. *p* *pp poss.* *pp poss.* *p* *pp*

Vc. *pp poss.* *pp poss.* *p* *pp*

10" 10" 10" 10" III I

27 IV

Vln. 1 *p* *pp*

Vln. 2 *pp* *p* *pp*

Vla. *p* *pp* *p* *pp* *p* *pp*

Vc. *p* *pp*

p *pp*

33 II II 10" 10" 10" 10"

Vln. 1 *pp* *p* *pp* *pp poss.*

Vln. 2 *pp* *p* *pp poss.*

Vla. *pp* *p* *pp* *p* *pp poss.*

Vc. *pp* *pp poss.*

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53

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