VARIATIONS ON A THEME BY EARLE BROWN

INTERNATIONAL COMPUTER MUSIC CONFERENCE
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THREE RESEARCH STREAMS

-> algorithms (patterning)
-> physical computing
-> notation/representation

...linked by cross-domain expression and interpretation

PERFORMANCES

Gaggle, HCI conference, Cambridge, UK, 2009

PERFORMANCES

Gaggle, Museums, interfaces, spaces, technologies, 2010

PERFORMANCES

Calder's Violin, SuperCollider Symposium, London 2012

PERFORMANCES

The Fluxus Tree, LIPAM, Leeds UK, September 2012

PERFORMANCES

Quantum Canticorum, Museum of Modern Art, Barcelona, June 2014

To display, or not to display, the notation?

WHY?

- Musical instruments
- Music performance
- Music scores

String Sextet alternatives...

MUSICAL INSTRUMENTS

are finite pieces of technology. Those who are skilled at playing have a physical form to push against, which has an aesthetic, sculptural perspective.

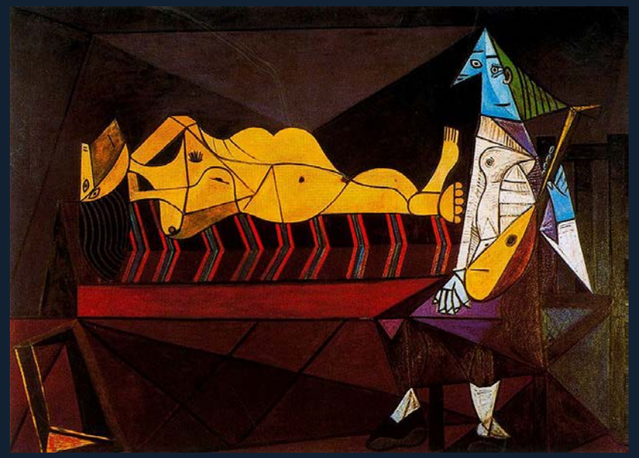
Christian Marclay Band, 2002; including "Virtuoso" (2000), "Drumkit" (1999) and 'Lip Lock" (1992)

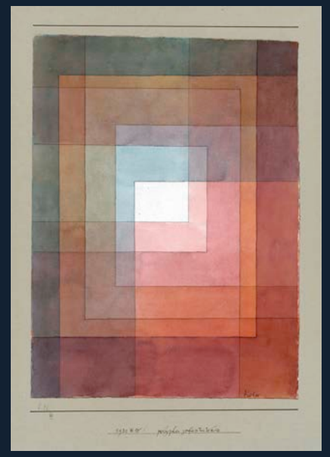
MUSIC PERFORMANCE

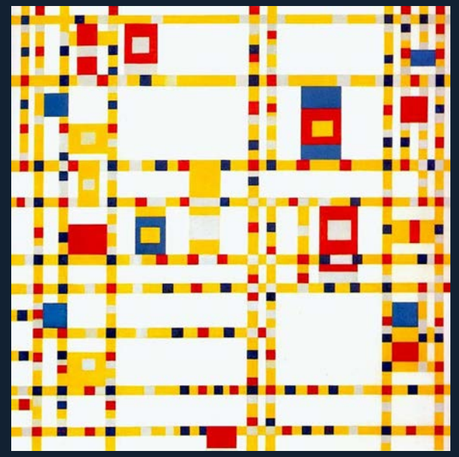
is significantly visual: musical instruments are physical, visual entities; these and other references to music are common in visual and graphic arts (for instance Picasso, Matisse, Klee, Mondrian)

Christian Marclay Band, 2002; including "Virtuoso" (2000), "Drumkit" (1999) and 'Lip Lock" (1992)

Matisse Music (1939) <- -> Picasso Serenade (1942) after Ingres Odalisque with a Slave (1840) ->



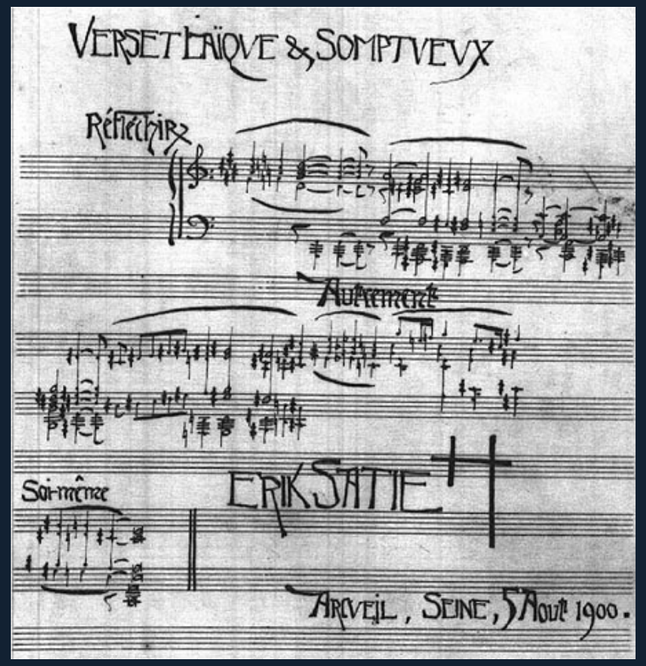


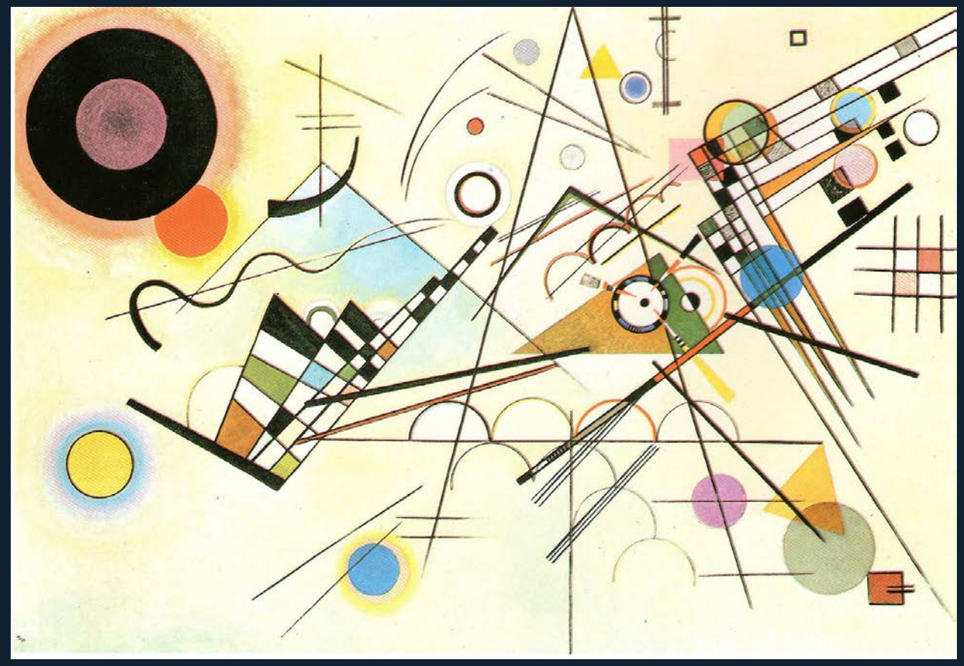


Klee Polyphon gefasstes Weiss (1930) <- -> Mondrian Broadway Boogie Woogie (1942-43)

MUSIC SCORES

are intriguing graphically (or intriguingly graphic);
many musicians and artists have exploited this:





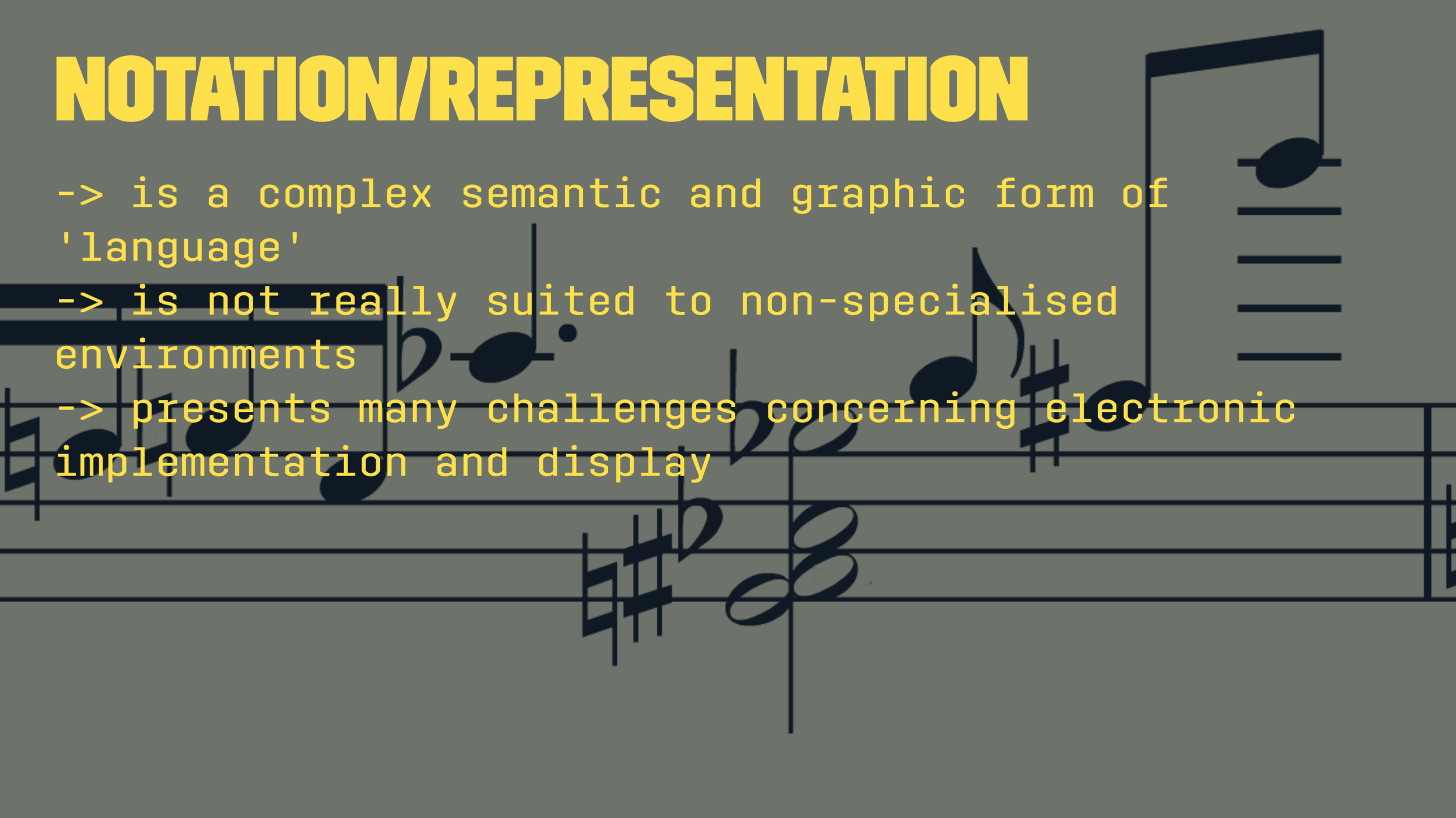
Satie Verset laïque & semptueux (Sumptous lay verse) (1900) <- -> Kandinsky Composition 8 (1923)

NOTATION/REPRESENTATION

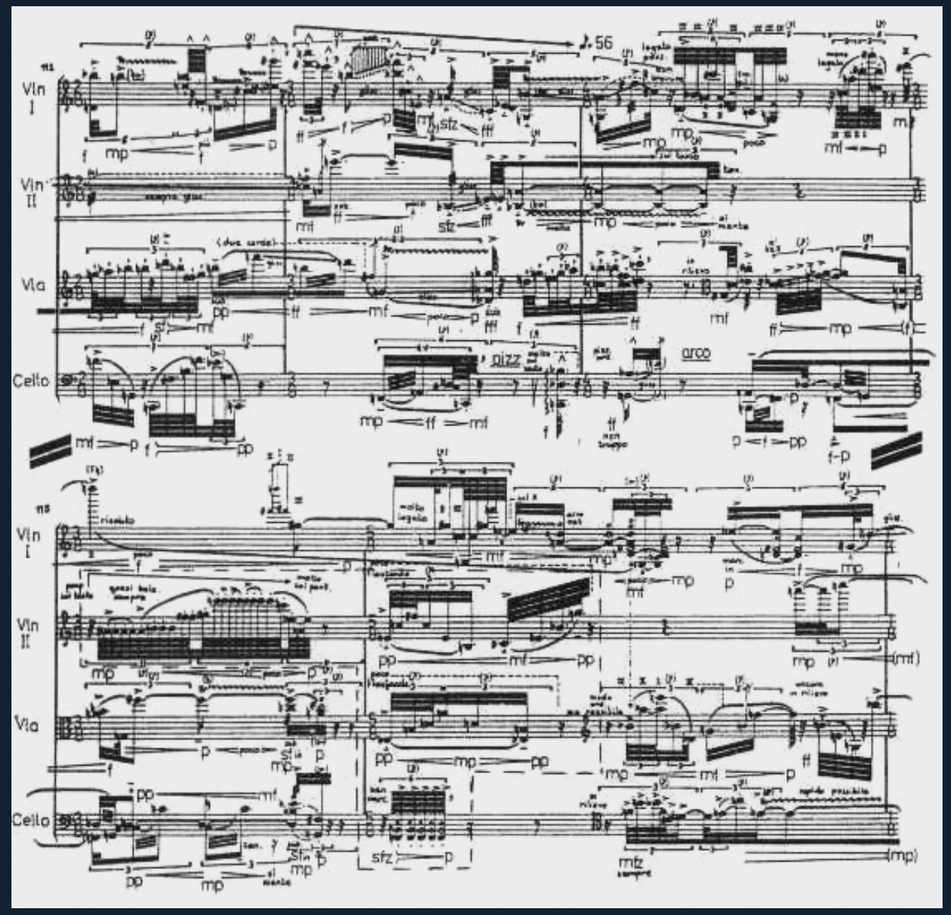
-> is a complex semantic and graphic form of 'language'

-> is not really suited to non-specialised environments

-> presents many challenges concerning electronic implementation and display

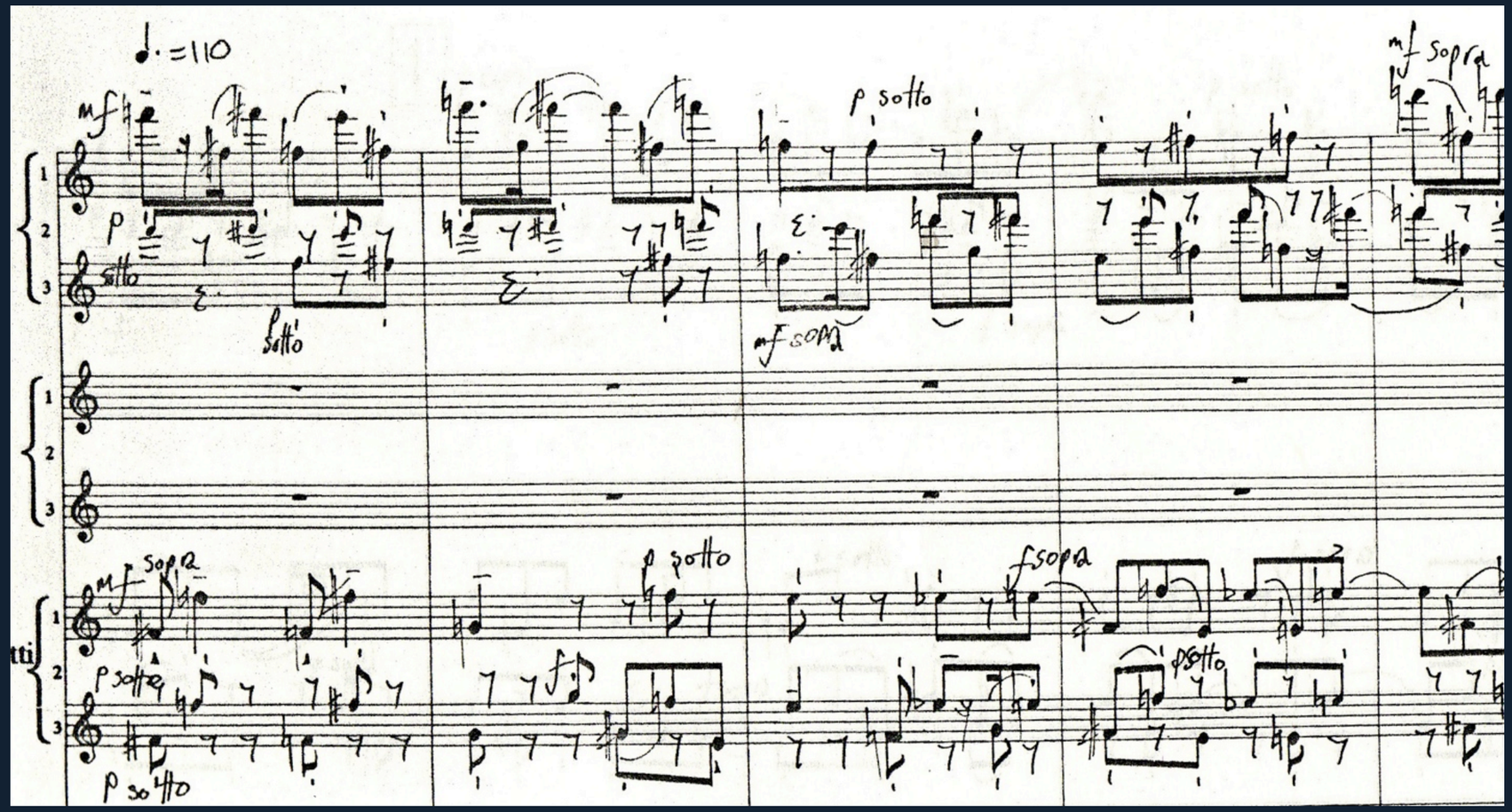


COMPLEXITY



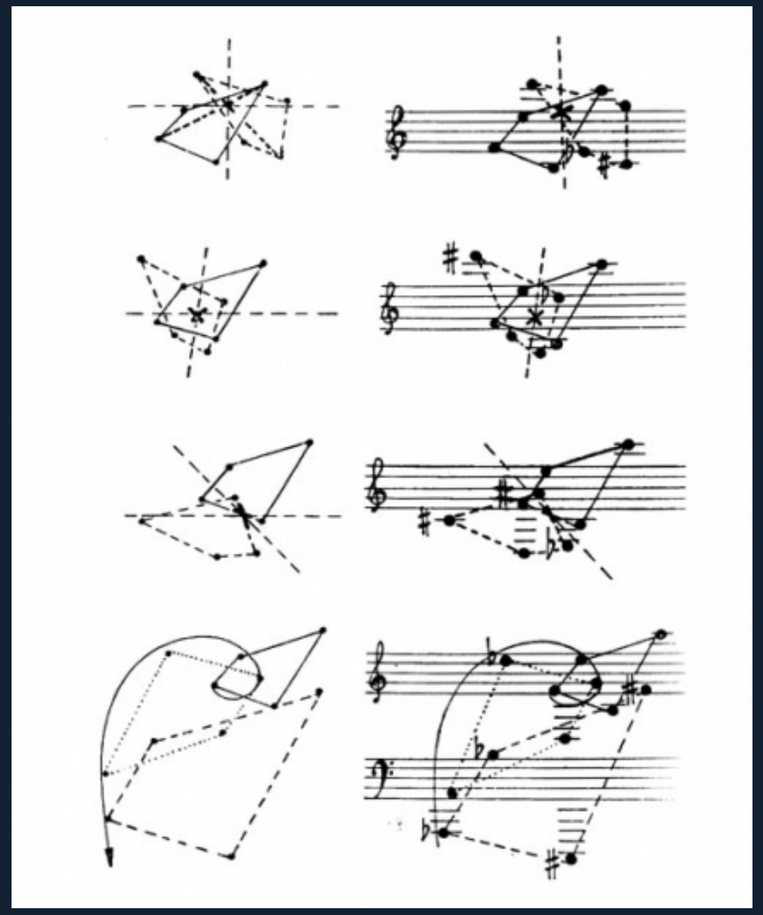
Ferneyhough Second String Quartet (1980)

AUTEM MEA CULPA



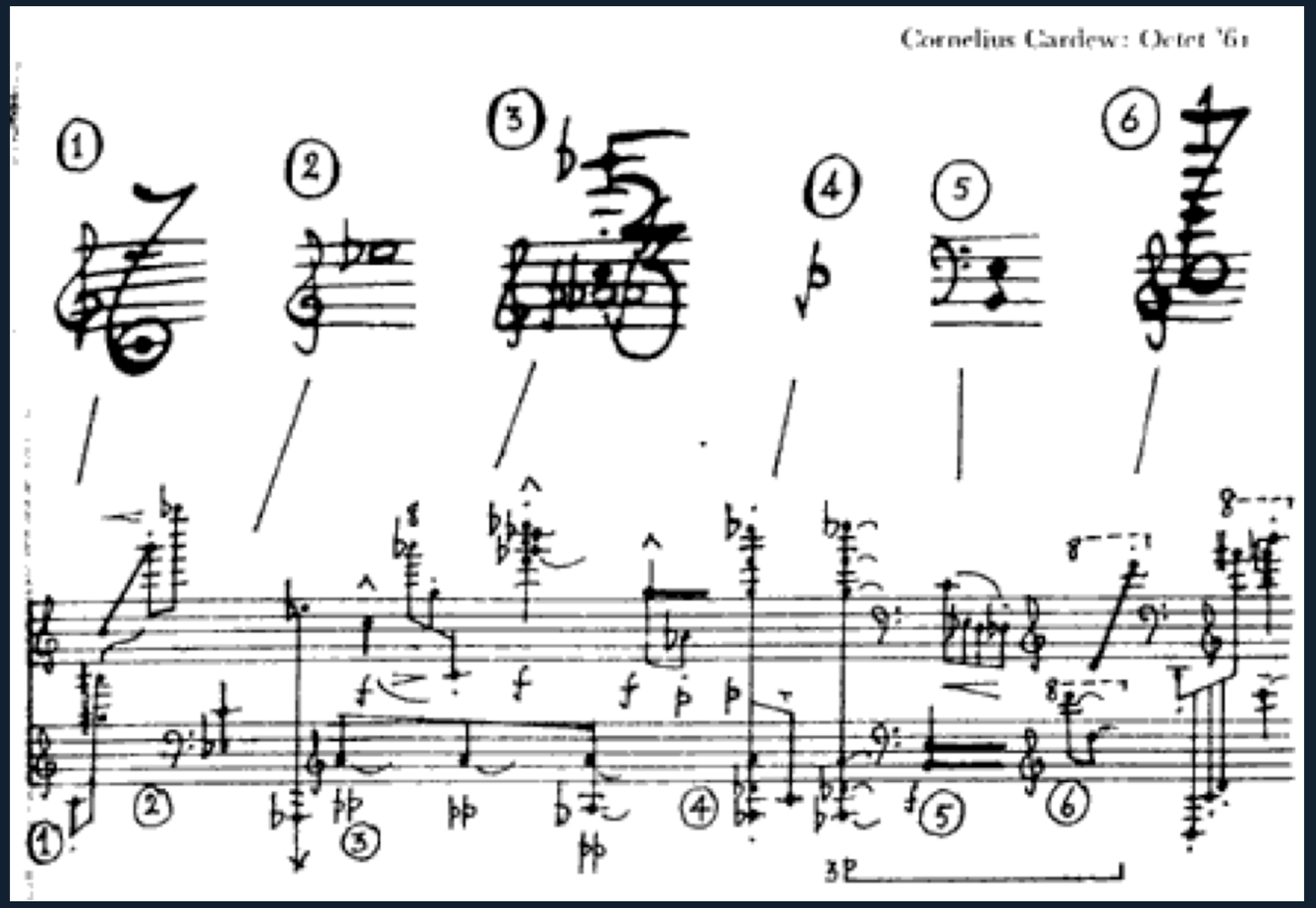
Richard Hoadley Four Archetypes (1995)

KAGEL



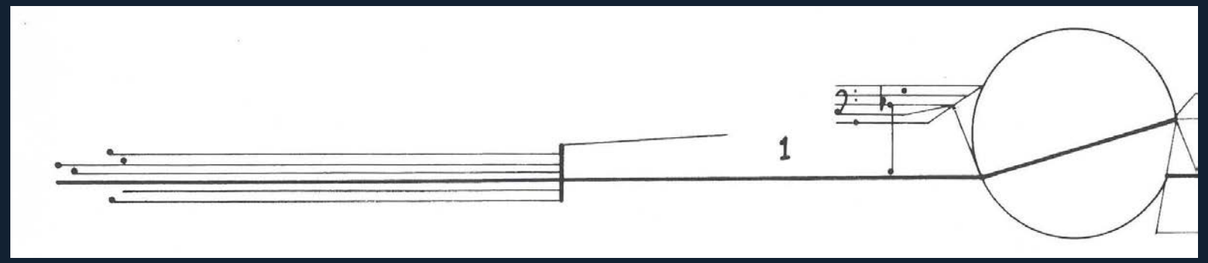
From Kagel's essay Translation-Rotation, Die Reihe - 7 (1960)

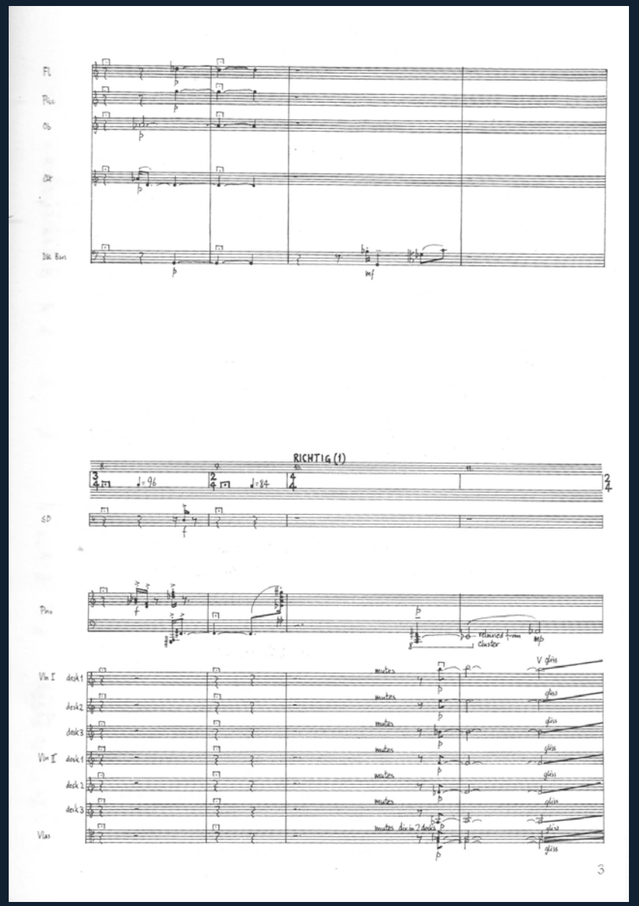
CARDEW



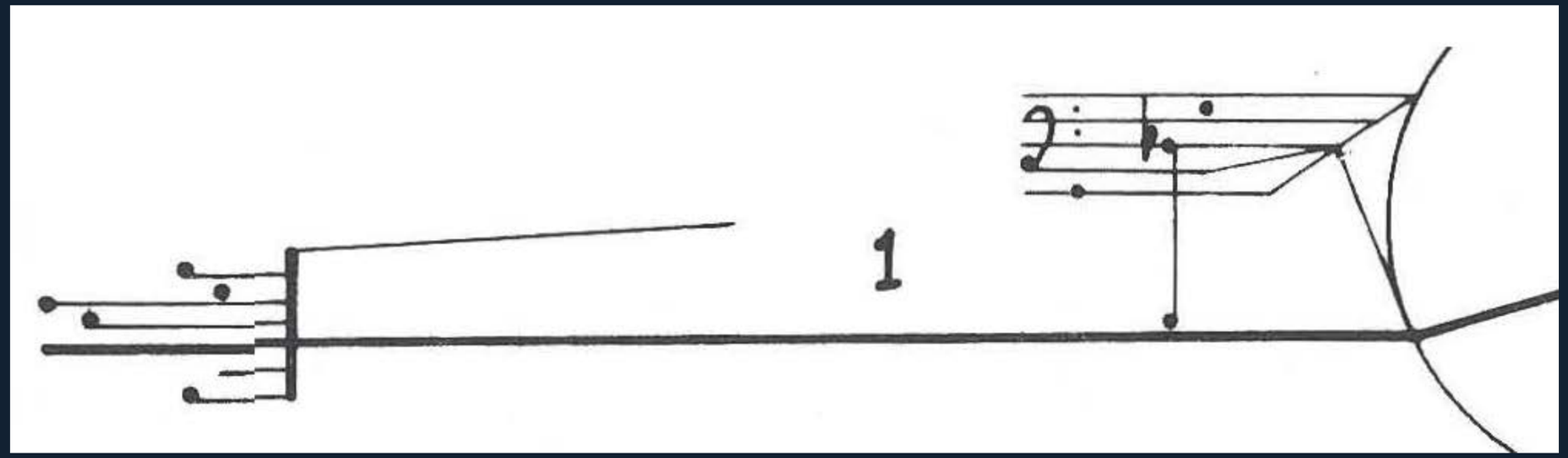
From Cardew Octet 61 (1961)

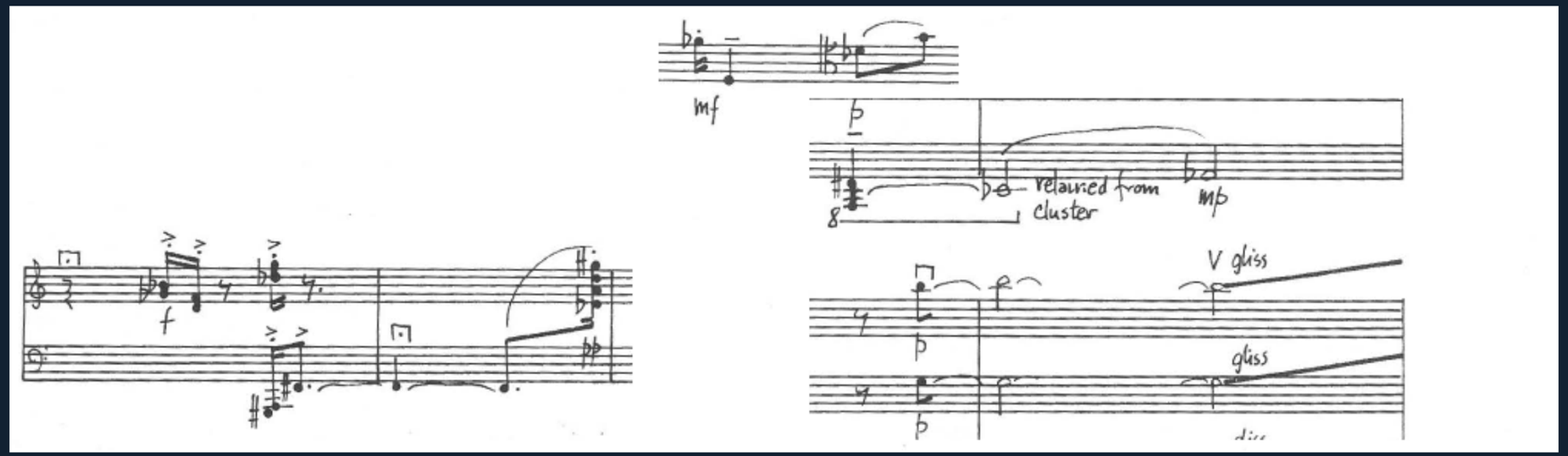
CARDEW TREATISE (1963) AND BUN NO. 2 (1964)



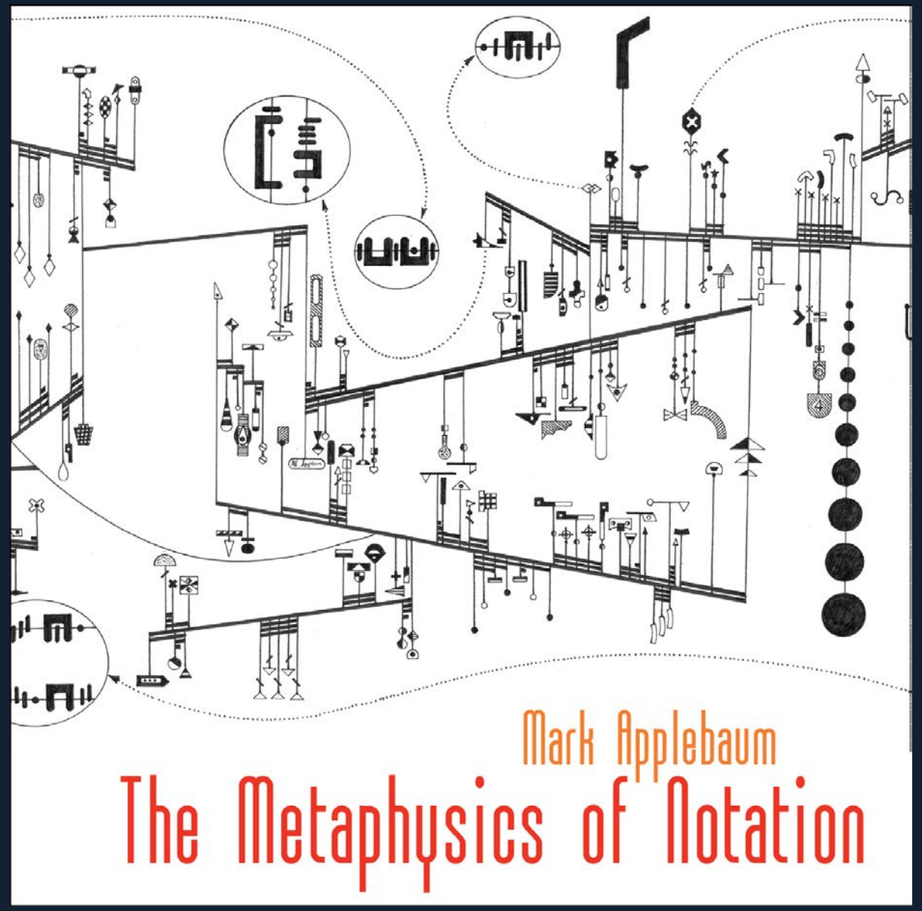


Detail from Treatise and Bun 2...





MARK APPELBAUM



From Appelbaum, The Metaphysics of Notation (2010)

RELATED FORMS

• Spectral composition: (audio to notation), such as Grisey Partiel (1975), stimulated by an analysis of a pedal low E1 (41.2 Hz) on the trombone

• Sonification/audification ("thing" to audio), such as John Eacott Floodtide (2009)

• Bob Sturm Ocean Buoy Sonification, 2003 - "Pacific Pulse is sculpted from sonifications of spectral data from fourteen buoys that extend along the entire Pacific coast of the United States."

RELATED WORK: LIVE NOTATION

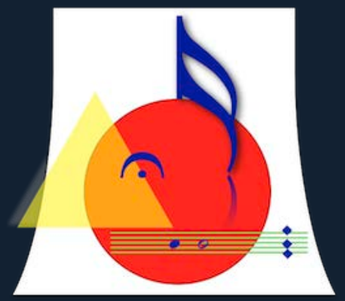
- MaxScore (Didkovsky, Hadju)
- Bach Project (Agostini, Ghisi)
- eScore (McClelland, Alcorn)
- Lilypond with extensions
- Live Notation (Eacott, Collins)

Emphases are different: quality, speed, variety of rendering, etc.

Also kinetic typography?

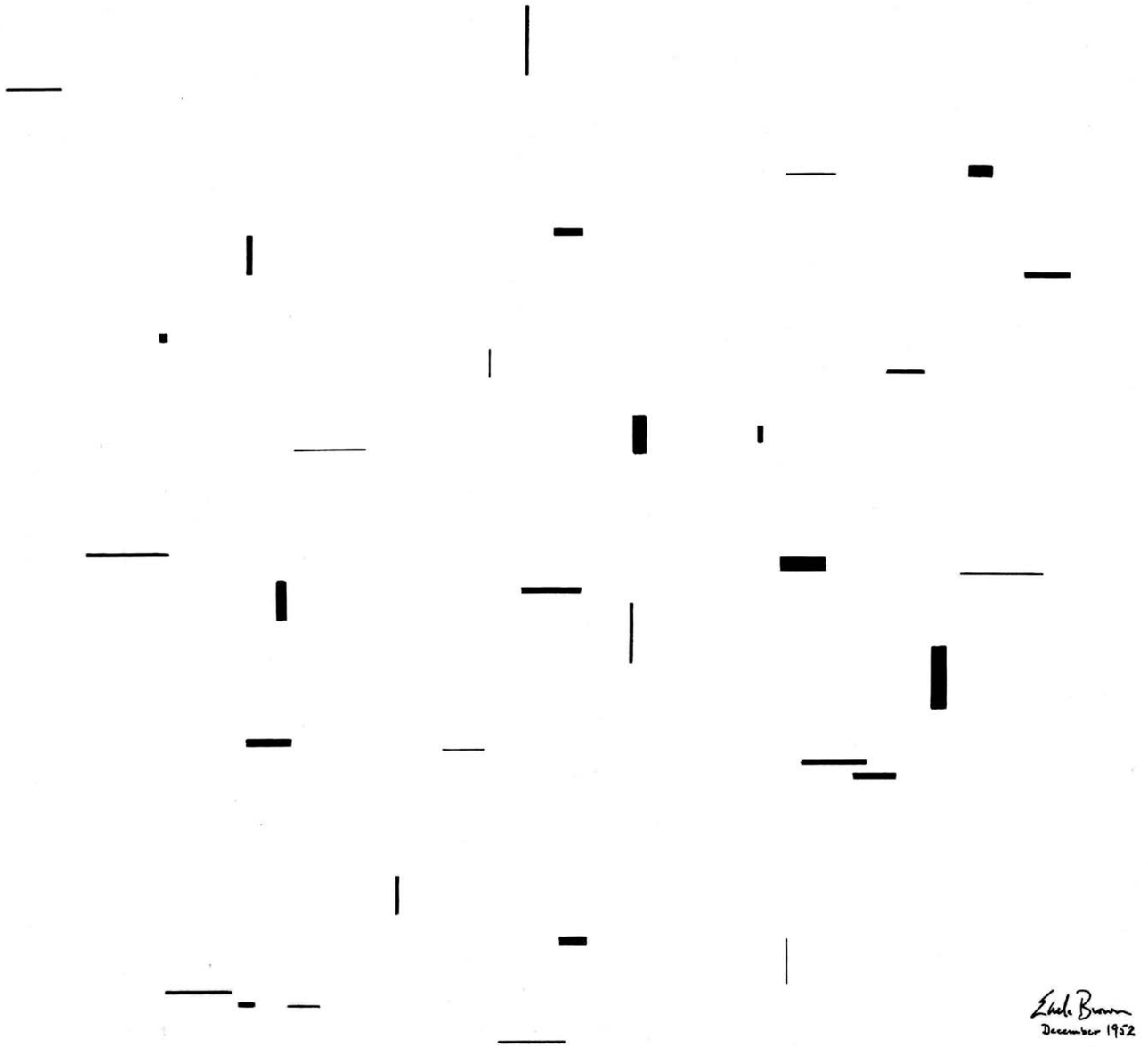
THE TOOLS...

- provide a structure for the generation of music and/or common practice notation as well as many arbitrary graphical elements
- facilitate communication between SuperCollider and INScore
- offer the beginnings of a more standard interface for physical mapping



AND ARE LOCATED...

- https://github.com/supercollider/supercollider
- http://inscore.sourceforge.net/
- http://rhoadley.net/inscore (from winter 2014)



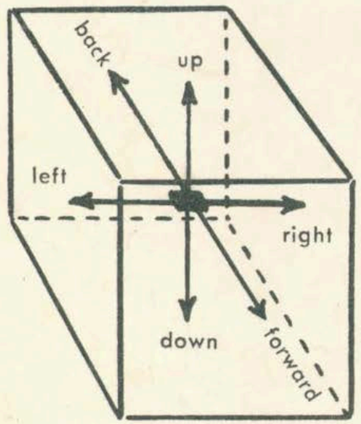
Earle Brown
December 1952

Prefatory notes

DECEMBER 1952

for one or more instruments and/or sound-producing media

The following note and sketch appear on a notebook page dated Oct. & Nov. '52, but they are the basis of the composition "December 1952" as well as being particularly relevant to "Four Systems".



space relative to conceptual mobility and transformation of events in arbitrary, unstable time

". . . to have elements exist in space . . . space as an infinitude of directions from an infinitude of points in space . . . to work (compositionally and in performance) to right, left, back, forward, up, down, and all points between . . . the score [being] a picture of this space at one instant, which must always be considered as unreal and/or transitory . . . a performer must set this all in motion (time), which is to say, realize that it is in motion and step into it . . . either sit and let it move or move through it at all speeds."

"[coefficient of] intensity and duration [is] space forward and back."

The composition may be performed in any direction from any point in the defined space for any length of time and may be performed from any of the four rotational positions in any sequence. In a performance utilizing only three dimensions as active (vertical, horizontal, and time), the thickness of the event indicates the relative intensity and/or (where applicable instrumentally) clusters. Where all four dimensions are active, the relative thickness and length of events are functions of their conceptual position on a plane perpendicular to the vertical and horizontal plane of the score. In the latter case all of the characteristics of sound and their relationships to each other are subject to continual transformation and modification. It is primarily intended that performances be made directly from this graphic "implication" (one for each performer) and that no further preliminary defining of the events, other than an agreement as to total performance time, take place. Further defining of the events is not prohibited however, provided that the imposed determinate-system is implicit in the score and in these notes.

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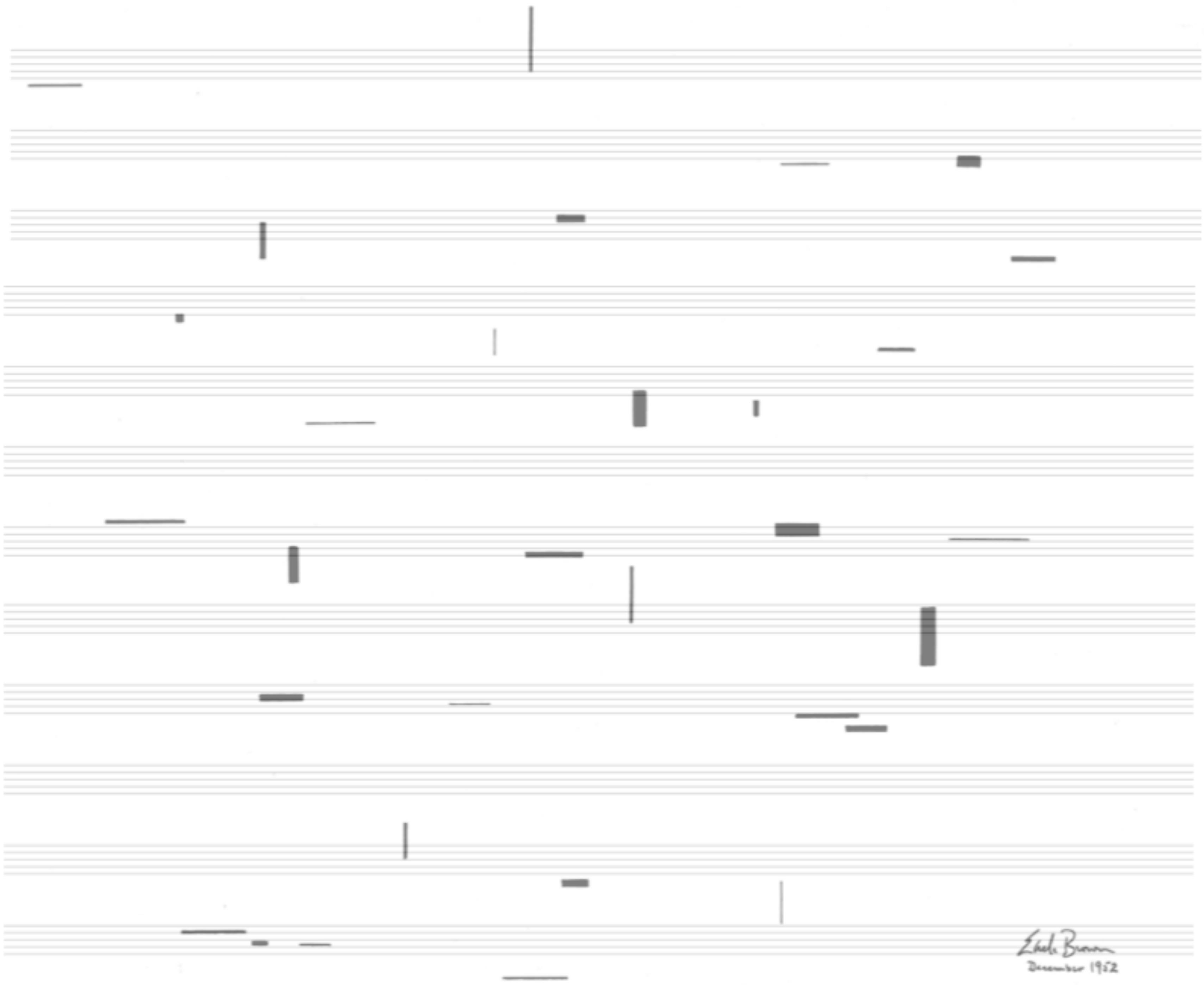
• version of December 1952 in which the notation was created by superimposing the objects onto staves. This system does the same (sort of), but without so much effort each time



EARLE BROWN

- I'm neither a musicologist, nor an Earle Brown scholar; this project is an interesting opportunity to investigate use of these ideas in a musicological setting

- elicits (contradictory) opinions on cross-domain links, the nature of the score and its relationship to performance

- the work provides insights into notation, performance and performers: how does detailed notation effect the performance? How is it different from fully improvised performances? How might it aid coordination of many musicians?

Earle Brown himself presents a rather ambivalent opinion

EARLE BROWN 'ON DECEMBER 1952'

BROWN, E., ON DECEMBER 1952, AMERICAN MUSIC VOL 26 NO 1, SPRING 2008

“ Under the influence of Calder, I considered this ... a score that was mobile ... that had more than one potential of form and performance realization
(page 1) ”

“ ...this was an attempt at correlating my own conception with an extremely rapid way of "composing", which was, I have said, almost like improvising myself - in other words, realizing a graphic drawing... (page 2) ”

“ the notebook has ... sketches of ... scores I thought of that would allow for multiple realizations of a sonic image and ... deal with new notational possibilities ... as well as [more] spontaneity in the performance. (page 2) ”

“ ...I have a sketch for a physical object, a three-dimensional box in which there would be motorized elements - horizontal and vertical, as the elements in December are on the paper... It would be a box which would sit on top of the piano ... so that the vertical and horizontal elements would ... [cross] in front of and behind each other, and [obscure] each other... The performer [would play] very spontaneously, but still very closely connected to the physical movement of these objects.... [I] hoped that I could construct a motorized box of elements that also would continually change their relationships... I never did realize this idea ... not ... being ... that interested in constructing it. ”

❝ There were many other ideas in this notebook, similar to this. One...was to be a large sphere made up of triangulated strips. Each one of those strips seemed to me wide enough to write music. This sphere would float in water and the performer, by gently blowing on it, would make it revolve and turn. ... [E]ach thing that appeared on the face of the sphere directly in front of the performer would be what he played at that moment. There would be completely composed material on those strips that made up the sphere. But each time, each performance, different elements would appear. ❞

LOST IN TRANSLATION?

- The score is designed to be what it is: leave it alone!
- The importance of automation in enabling more complex behaviour at higher levels, as in performance.
- Is this a software system - a tool - or a composition?
- What about interpretation?
- Improvisation vs. notation: is there a difference?

- Live notation: is it too difficult to play?
- x, y and z maps to pitch, duration, amplitude, chordal complexity, timbre? Is this all too simplistic?
- technicalities: how best to implement rotation and display the resulting 'live' notation.
- How do I feel about losing control: what about if I 'come across' a particularly beautiful version. Can I save it?

DEMONSTRATION

- (INScore/SC)
- Variations
- Improvising variations
- (Rotations)

NEXT STEPS

- implement rotation and 'live' interpretation
- shapes and colours
- local and global structures
- live performance
- suggestions?

FORTHCOMING PERFORMANCES

Calder's Violin (ICMC)

December Variations (ICMC)

Demo: Quantum Canticorum (ICMC)

Quantum Canticorum (Monday 20th October Liverpool Hope University, UK)

Semaphore (Sunday 26th October, Cambridge UK Festival of Ideas)

THANK YOU

any questions?

contact:
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