Making people move:
composing, mapping and interpreting using live generation of augmented musical scores

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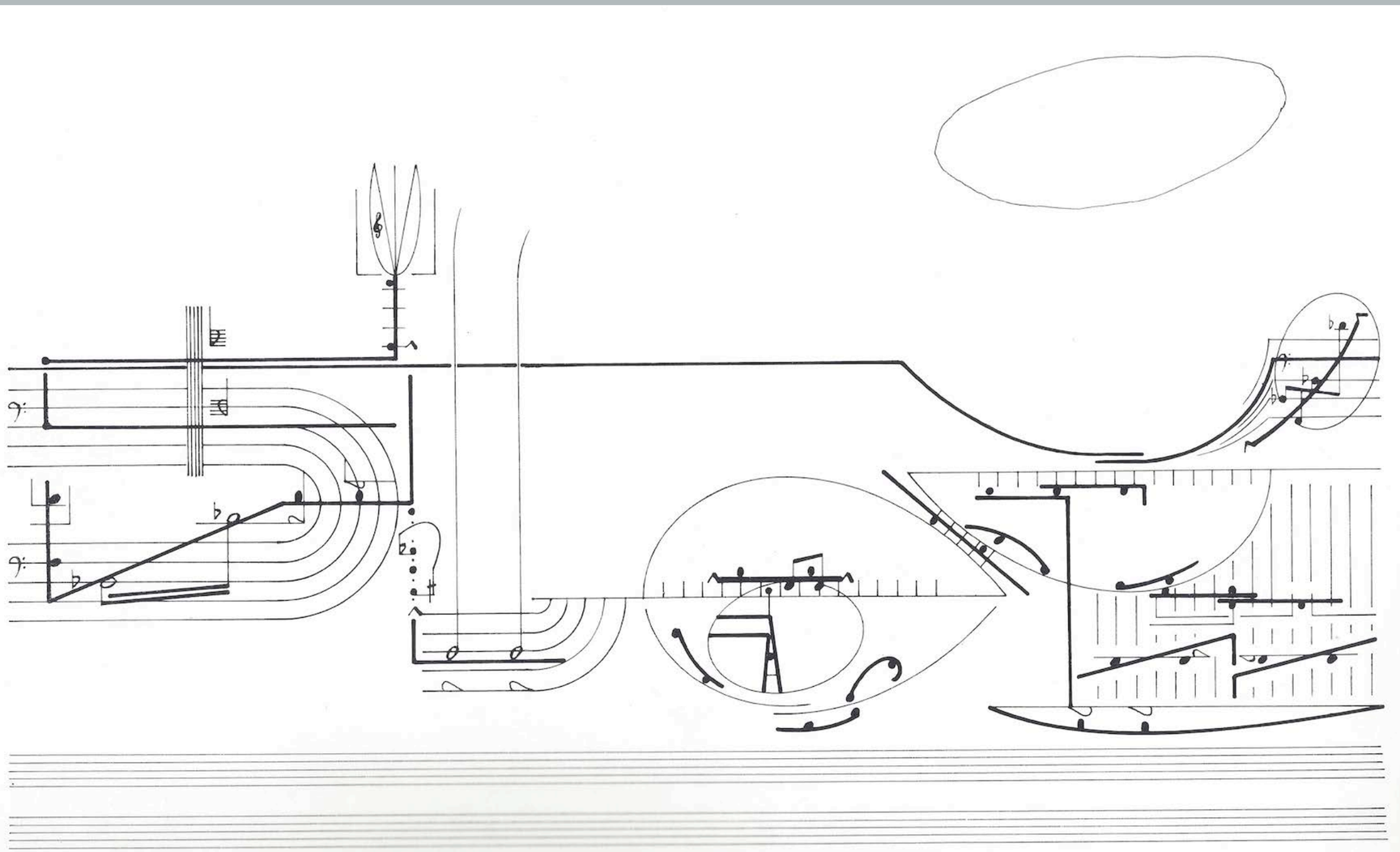
Notation is a way of making people move. If you lack others, like aggression or persuasion. The notation should do it. This is the most rewarding aspect of work on a notation. Trouble is: Just as you find your sounds are too alien, intended 'for a different culture', you make the same discovery about your beautiful notation: no-one is willing to understand it. No-one moves.

Cornelius Cardew, from **Treatise Handbook**, 1971



Three research streams

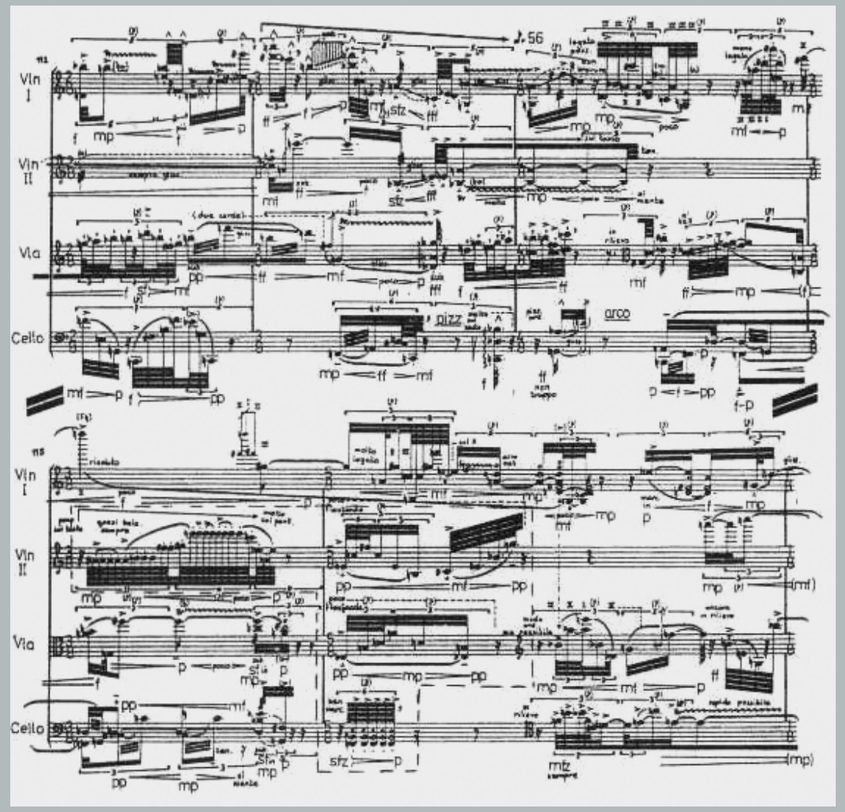
1. algorithms (patterning)
2. physical computing
3. notation/representation

...linked by cross-domain expression and interpretation

Notation/representation

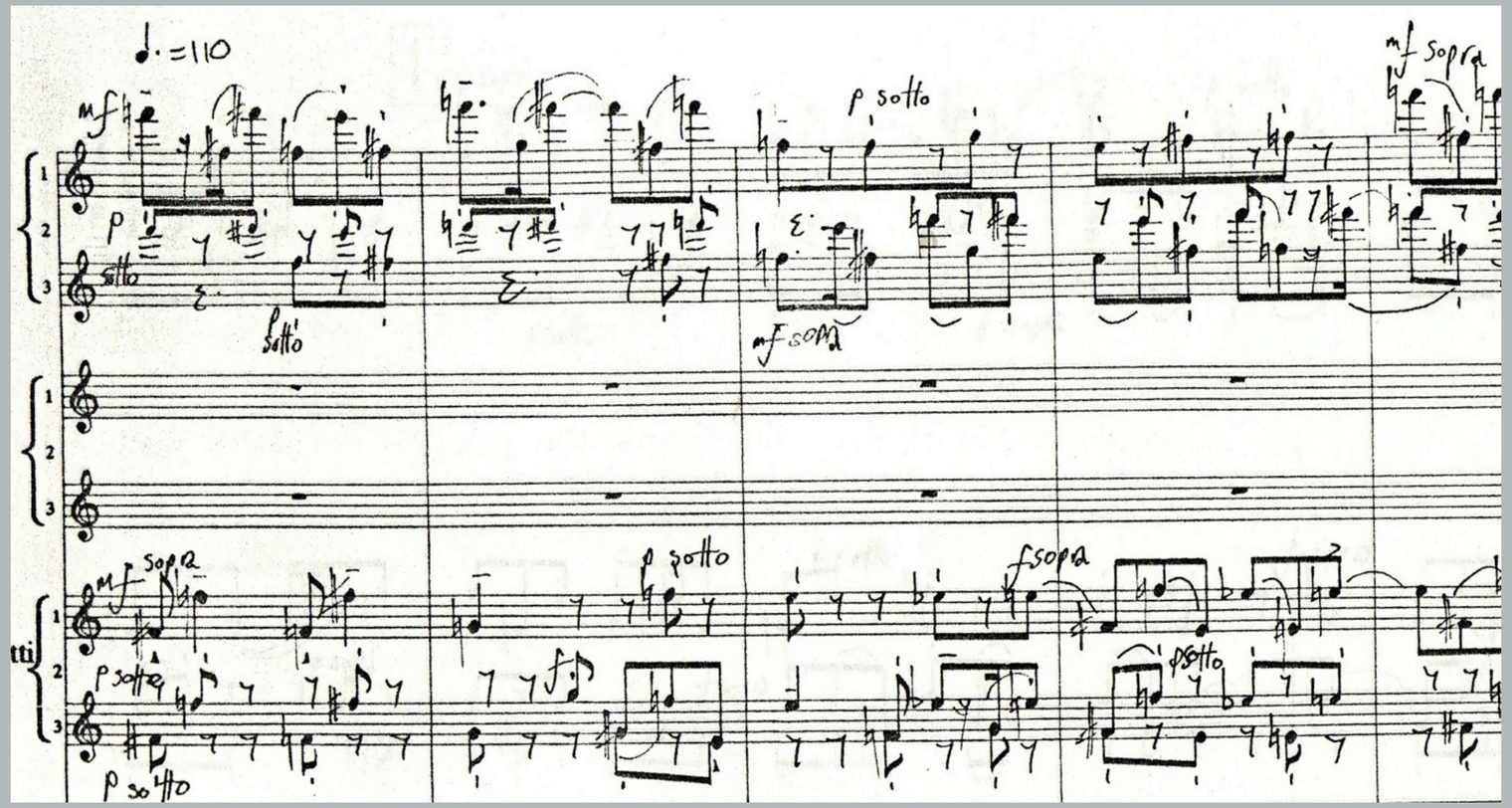
- is a complex semantic and graphic form of 'language'
- is not really suited to non-specialised environments
- presents many challenges concerning electronic implementation and display

Complexity



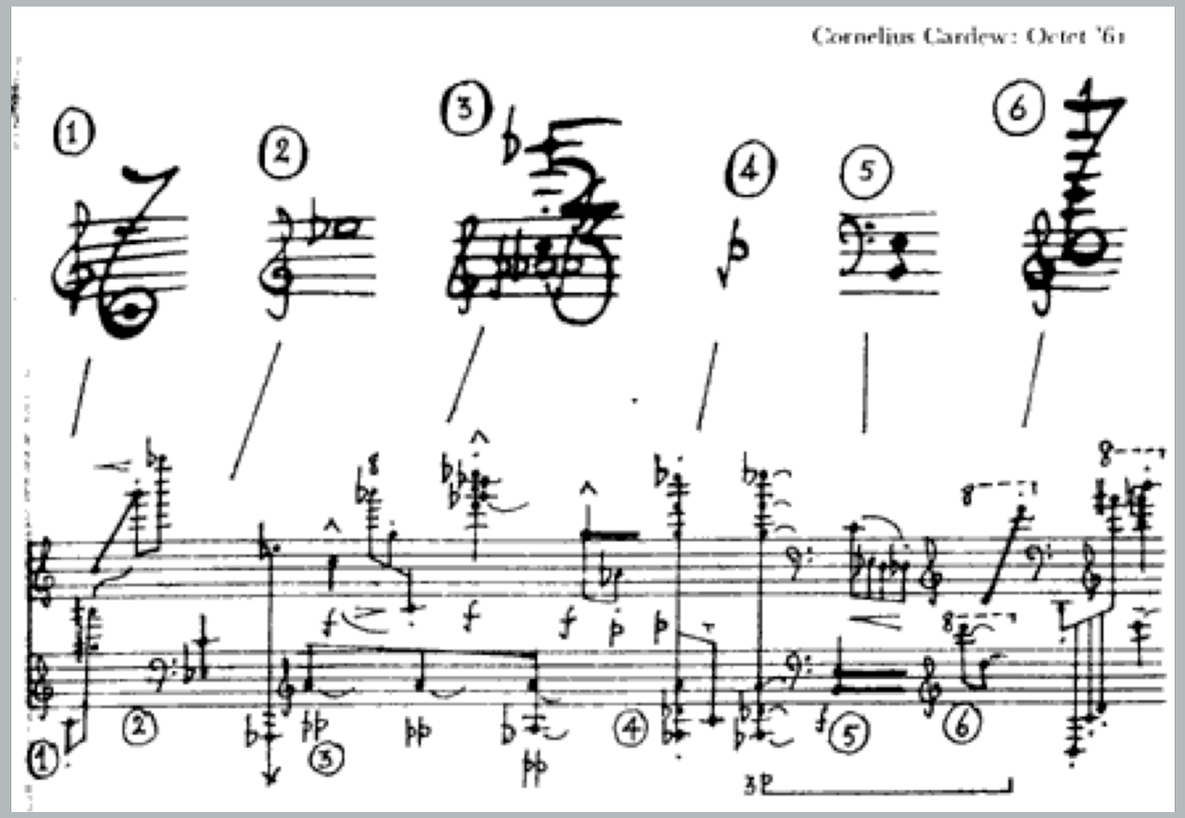
Ferneyhough **Second String Quartet** (1980)

Mea culpa



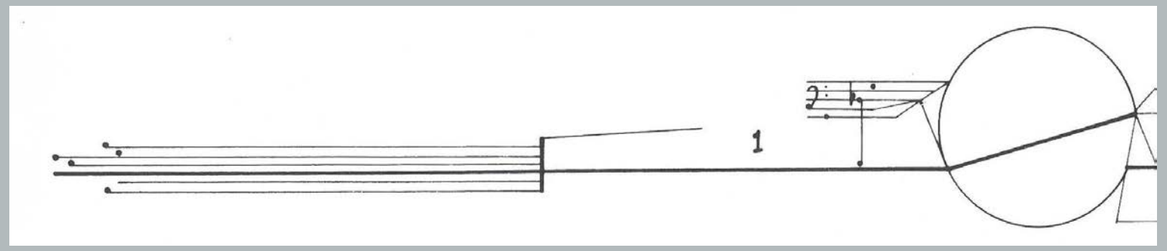
Richard Hoadley **Four Archetypes** (1995)

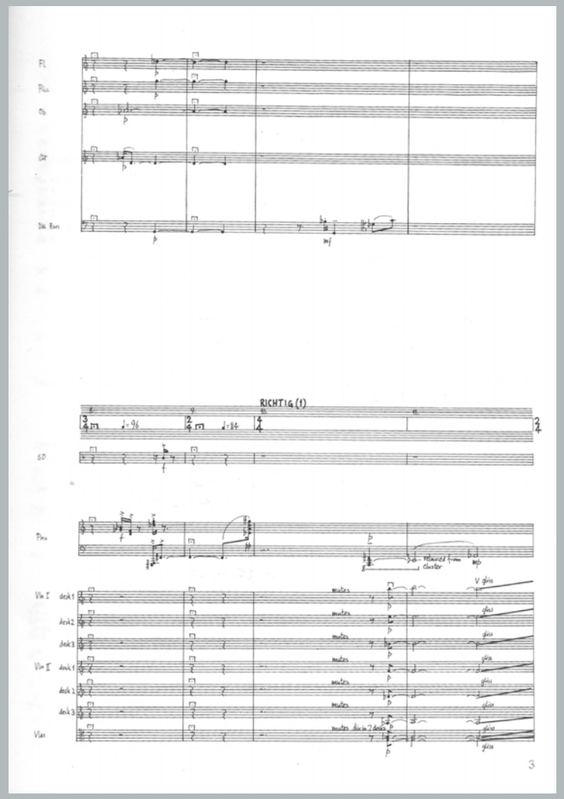
Graphic notations: Cardew



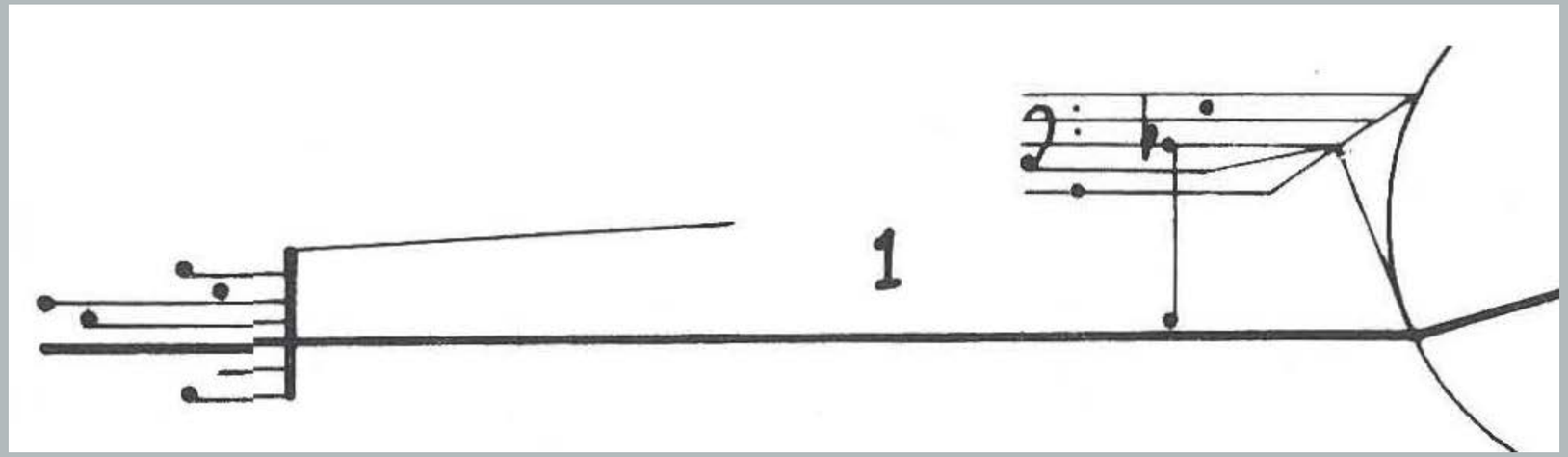
From Cardew **Octet 61** (1961)

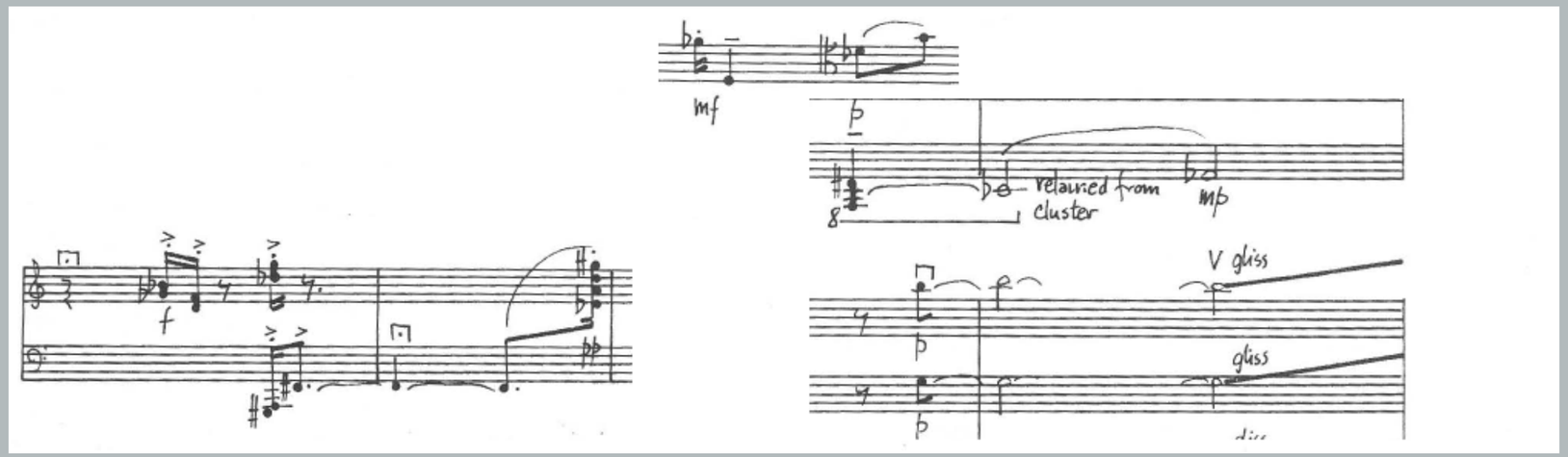
Graphic notations: Cardew Treatise **(1963) and** Bun No. 2 **(1964)**



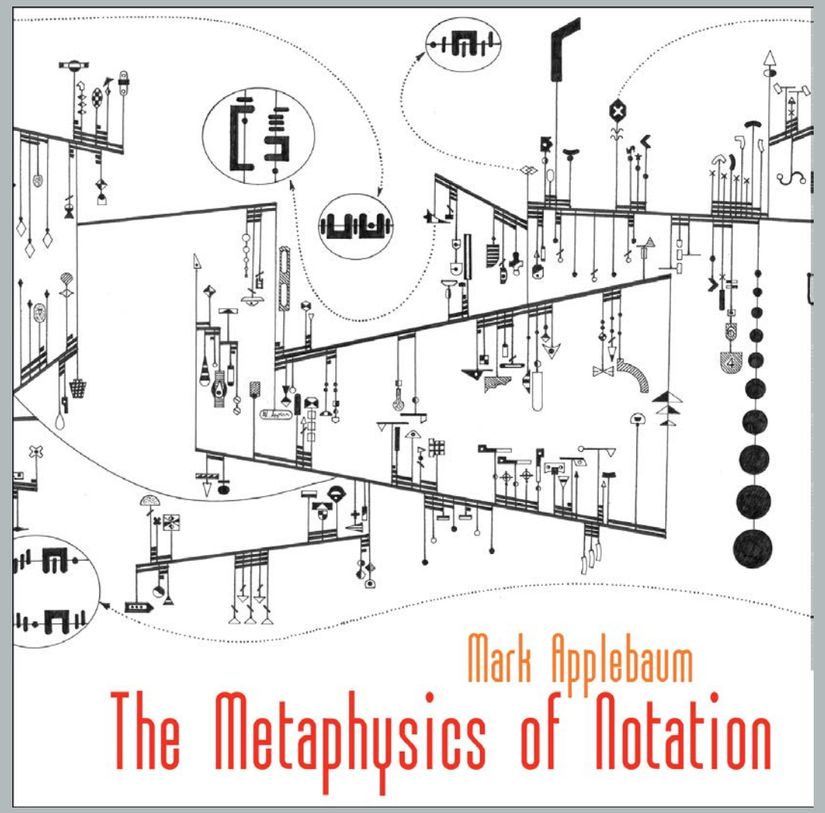


Detail from Treatise and Bun 2...





Graphic notations



From Appelbaum, **The Metaphysics of Notation** (2010)

Why pursue these lines of research?

- for me it offers the greatest chance of understanding the act of composition
- it unifies dots and signals: enriching electronic music with live performance and algorithmic patterning [quote]
- it enables the live synchronisation of algorithmic generation of both electronic and electroacoustic material and notation

- it allows the study of links between expressive domains: algorithm and physical gesture into live notation: which gestures have ‘meaning’ and which don’t
- it utilises virtuosic performance and investigates liveness in music performance and improvisation
- it allows analysis of compositional processes through automation
- ...as a consequence and to clarify, it's a technique and a tool, just as these compositions are both pieces and experiments

dots vs signals

'Music processing'...denotes the processing of music information, which is stored in its structured symbolic musical 'Gestalt'. The term 'music processing' implies a difference from the signal processing community, in that it does not deal with sound as the source material for investigation, but deals with music as score or music as timebased structure stored in a symbolic form.

Carola Boehm, Book Review, Organised Sound 7(1): 79–82, 2002

Live notation

We consider real-time music notation to be any notation, either traditional or graphic, which is created or transformed during an actual musical performance. However, the term has not been standardized, and various articles in this issue refer to real-time music notation using other terms, such as dynamic music notation, live scoring, virtual scoring, and reactive notation.

Contemporary Music Review, Vol. 29, No. 1, February 2010, p. 1, Preface: Virtual Scores and Real-Time Playing, Arthur Clay and Jason Freeman

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)

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

Quantum², Sensations Festival, Empty Shop, Meadows Shopping Centre, Chelmsford, Semptember 2013

Performances

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

To display, or not to display, the notation?

Performances

Quantum Canticorum Demonstration, Natural History Museum, London, June 2014

Peer comment and criticism

1. many comments asking about the possibilities of machine musicianship as a compelling reason for using real-time notation
2. concern over possible difficulties in keeping track of one's place in the score
3. concern over the feasibility of obtaining an 'accurate' and structured rendition due to lack of rehearsal

1. concern over the 'fetishisation' of the notation (when displayed)
2. concern over the dancer being 'caged' by the 'cone of the Kinect' (MSphobia?)
3. concern over the 'conservative' nature of the music (old fashioned modernism? a reasonable point, maybe, and there are no stylistic predicates with the technology)

(performers involved do not tend to agree with the majority of these comments, nor were views expressed at Natural History Museum)

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))

Demonstration

Just in case:

Thank you

any questions?

contact:
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this presentation is available at
http://rhoadley.net/presentations
as **ways_icmc.pdf**