

Signs and Semaphores

Cross-domain expressive mapping: making people move

Building Interdisciplinary Bridges Across Cultures

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This presentation is available here: <http://rheadley.org/presentations/signs-s.pdf>

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8th Feb 1963

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

A handwritten musical score on a single page. The score is composed of several staves and various musical notations. At the top right, there is a large, hand-drawn oval shape. Below it, the score begins with a treble clef and a key signature of one flat (B-flat). The notation includes a series of horizontal lines, some with notes and stems, and some with vertical lines. There are also several curved lines and a large circle containing a musical staff with notes. The score is written in black ink on a white background. At the bottom of the page, there are two empty staves.

Three research streams

1. algorithms (patterning)

2. physical computing

3. notation/representation

...linked by cross-domain expression and interpretation

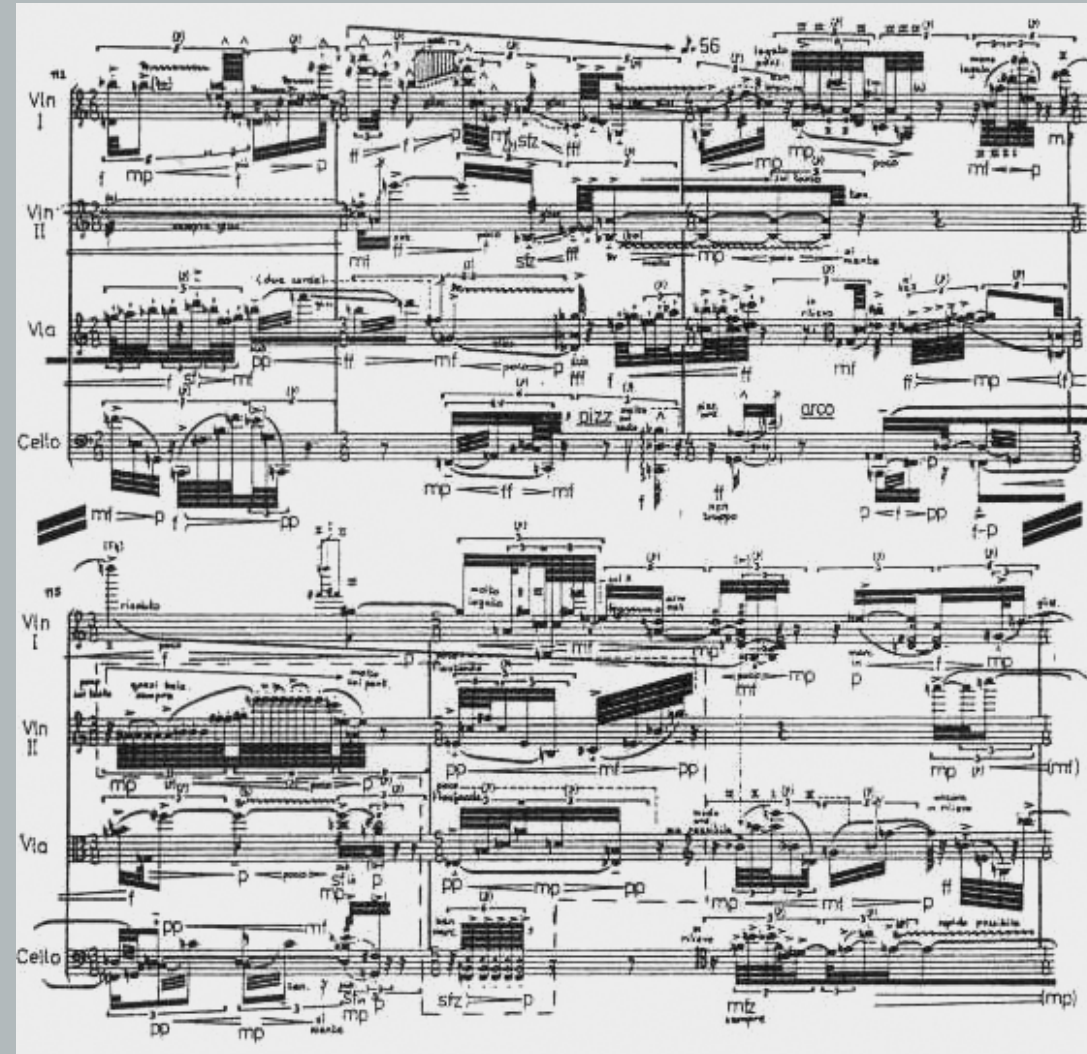
Cross-domain expression?

- Music is already cross-domain (as are all arts)
- It is formed of physical action to create patterns
- I'm not worried about what happens when those patterns are created today. As a composer, I suppose I rely on my judgement to help me decide whether I *like* a pattern or not.

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

Notation: complexity



A complex musical score for a string quartet, featuring five staves: Violin I, Violin II, Viola, Cello, and Double Bass. The score is densely packed with musical notation, including notes, rests, dynamics (e.g., *mp*, *ff*, *pp*), and performance instructions (e.g., *staccato*, *arco*, *pizz*). The notation is highly detailed, with many notes beamed together and various articulation marks, illustrating the complexity of the piece.

Ferneyhough **Second String Quartet** (1980)

Notation: Mea culpa

Handwritten musical score for "Mea culpa" by Richard Hoadley. The score is written on a system of staves, including a string quartet and vocal parts. The tempo is marked as $\text{♩} = 110$. The key signature is one sharp (F#). The score is divided into two systems. The first system includes a string quartet (1-4) and vocal parts (Soprano, Alto, Tenor, Bass). The second system includes a string quartet (1-4) and vocal parts (Soprano, Alto, Tenor, Bass). The notation includes various musical symbols such as notes, rests, and dynamic markings like *mf*, *p*, *f*, *sotto*, and *sopra*.

Richard Hoadley **Four Archetypes** (1995)

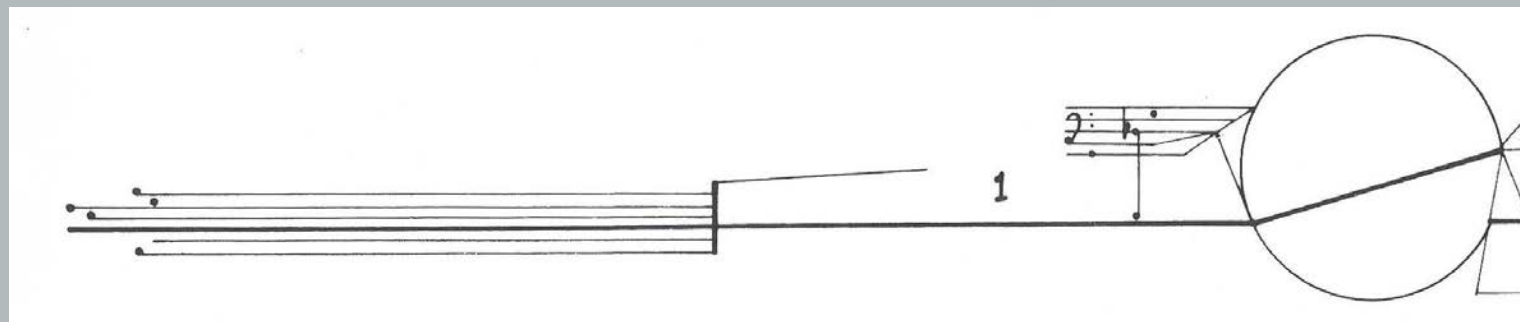
Graphic notations: Cardew

Cornelius Cardew: Octet '61

The image displays a handwritten musical score for 'Octet '61' by Cornelius Cardew. The score is organized into six numbered sections, each represented by a circled number (1-6) above a staff. Section 1 shows a treble clef staff with a single note and a fermata. Section 2 shows a treble clef staff with a single note. Section 3 shows a treble clef staff with a complex, dense graphic notation. Section 4 shows a bass clef staff with a single note. Section 5 shows a bass clef staff with a single note. Section 6 shows a treble clef staff with a complex, dense graphic notation. Below these sections is a larger, more complex musical score with multiple staves, including treble and bass clefs, and various musical notations such as notes, rests, and dynamic markings (f, p). The score is annotated with circled numbers 1 through 6, corresponding to the sections above. The notation is highly graphic and abstract, characteristic of Cardew's style.

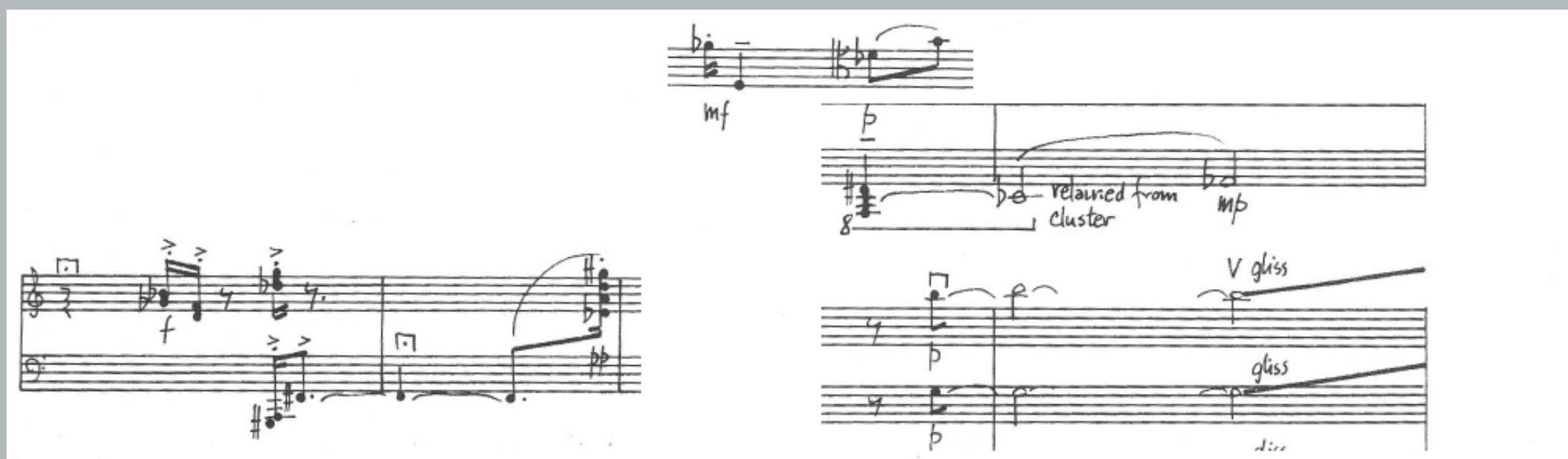
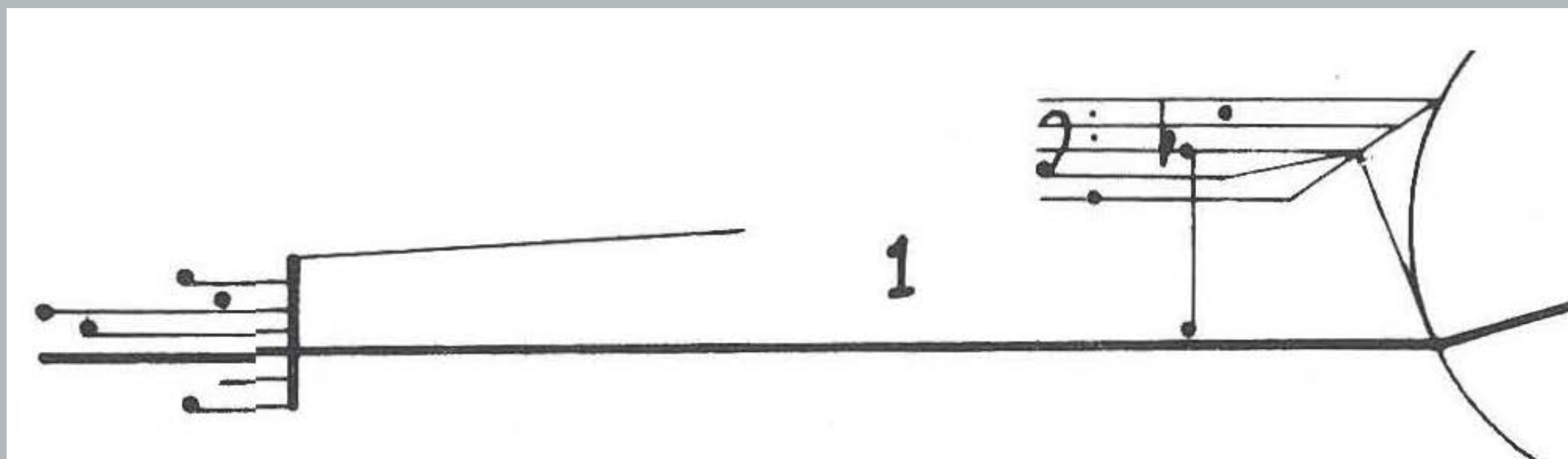
From Cardew **Octet 61** (1961)

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

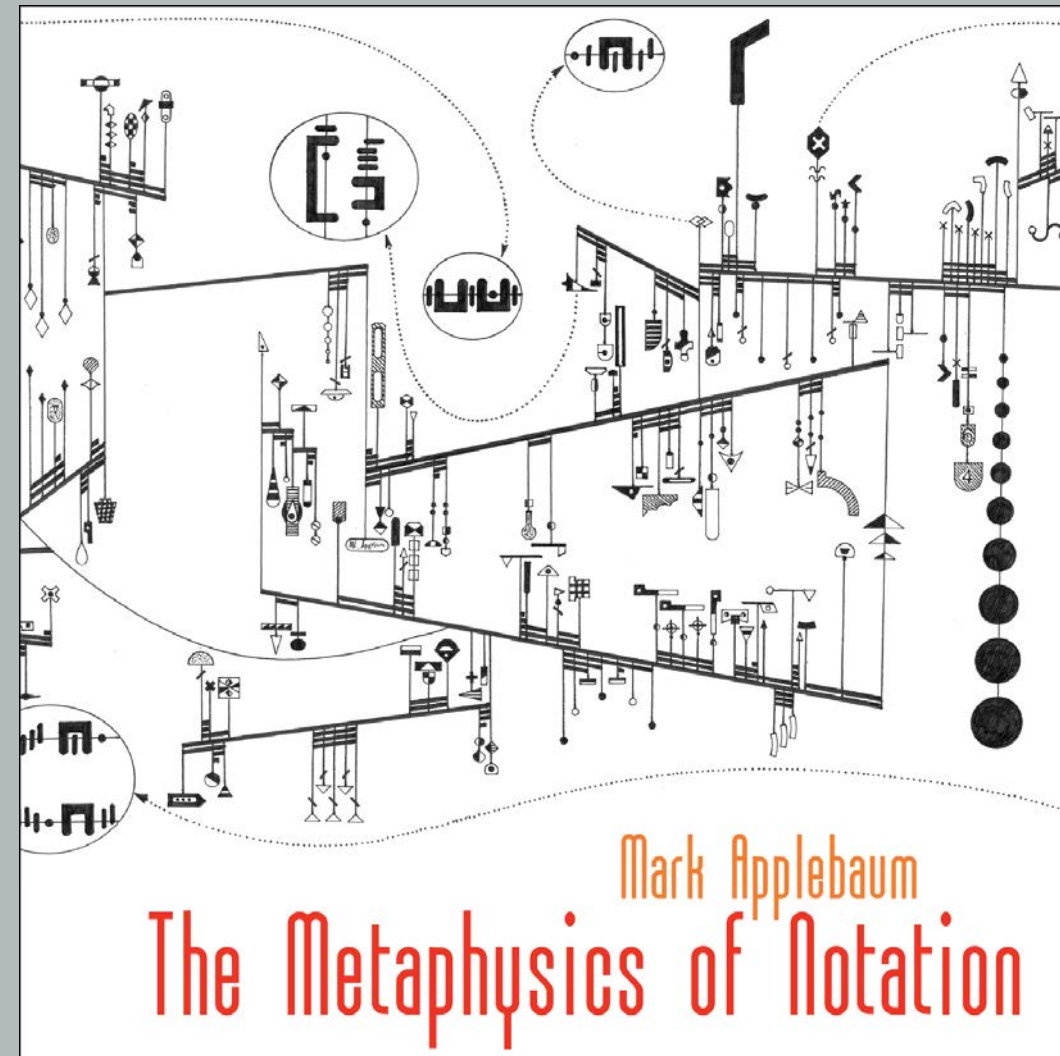


A page of a musical score for 'Bun No. 2' by John Cage. The page contains several staves of music. The notation is a mix of traditional musical notation and graphic notation. A large circle is drawn on the right side of the page, overlapping the staves. The score includes various instruments and parts, such as Flute, Clarinet, Bassoon, Trumpet, Trombone, Violin I, Violin II, Viola, and Cello. The notation is complex and abstract, with many notes and symbols.

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

and... String Sextet alternatives...

poco ad lib, con licenza

Violino I

*follow
roure,
ad lib.*

The image shows a handwritten musical score for Violino I, consisting of five staves. The score is written in treble clef and includes various musical notations such as notes, rests, and dynamic markings. The dynamics range from *p* (piano) to *f* (forte). There are several slurs and phrasing marks throughout the piece. A large letter 'J' is written at the top left of the score. The tempo and performance instruction *poco ad lib, con licenza* is written above the first staff. The first staff has a handwritten note *follow roure, ad lib.* next to a double bar line. The score is annotated with arrows pointing to specific measures, and there are some handwritten 'X' marks and '5' (possibly indicating a quintuplet or a five-measure rest) in various places. The handwriting is in black ink on a white background.

from... Birtwistle Verses for Ensembles (1968-69)

6 $\text{♩} = c.42$

Alto Fl.

B♭ Clar.

Cor Ang.

The musical score consists of three staves, each with two parts. The top staff is for Alto Flute, the middle for B-flat Clarinet, and the bottom for Cor Anglais. The Alto Flute part begins with a series of notes, some of which are grouped by a large oval. Dynamic markings include pppp, pp, ppp, p, and fff. The B-flat Clarinet part features a complex rhythmic pattern with dynamic markings such as pp, mp, and pp. The Cor Anglais part has a melodic line with dynamic markings from p to pppp. The score includes various musical notations such as slurs, ties, and dynamic hairpins. The tempo is marked as quarter note = ca. 42. The score is numbered 6 in a circle at the top left.

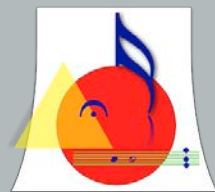
Live notation

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, September 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 (imagination over reality)
2. possible difficulties in keeping track of one's place in the score
3. the feasibility of obtaining an 'accurate' and structured rendition due to lack of rehearsal

1. the 'fetishisation' of the notation (when displayed)
2. the dancer being 'caged' by the 'cone of the Kinect' (MSphobia?)
3. 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

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

Player Piano with Philip Mead, February 2015, London
International Piano Symposium

Drawing Towards Sound with David Ryan, Guildhall/Trinity
Laban, February 2015

video recordings of past performances are at **rheadley.net/**
youtube and

Demonstration

Just in case:



Thank you

any questions?

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this presentation is available at

<http://rhoadley.net/presentations>

as **ways_icmc.pdf**