

Making People Move:

Collaborative cross-domain real-time score generation and performance

Reflective Conservatoire

Guildhall School of Music and Drama, March 1st 2015

This presentation is available here: **<http://rheadley.net/presentations/ccde-s.pdf>**

v0.01

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

The image shows a page of handwritten musical notation, page 180. The notation is highly complex and abstract, featuring multiple staves and various musical symbols. At the top right, there is a large, empty oval shape. The notation includes several staves with notes, rests, and other musical symbols. A prominent feature is a large, curved line that spans across the middle of the page. Below this, there are several staves with notes and rests, some of which are circled. The notation is dense and intricate, suggesting a highly complex musical composition. At the bottom of the page, there are several empty staves.

180

Three research streams

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

Cross-domain expression and interpretation link these

Cross-domain expression?

Music is already cross-domain (as are all arts): it is formed of physical action to create patterns of music, text or graphic notations

Physical computing

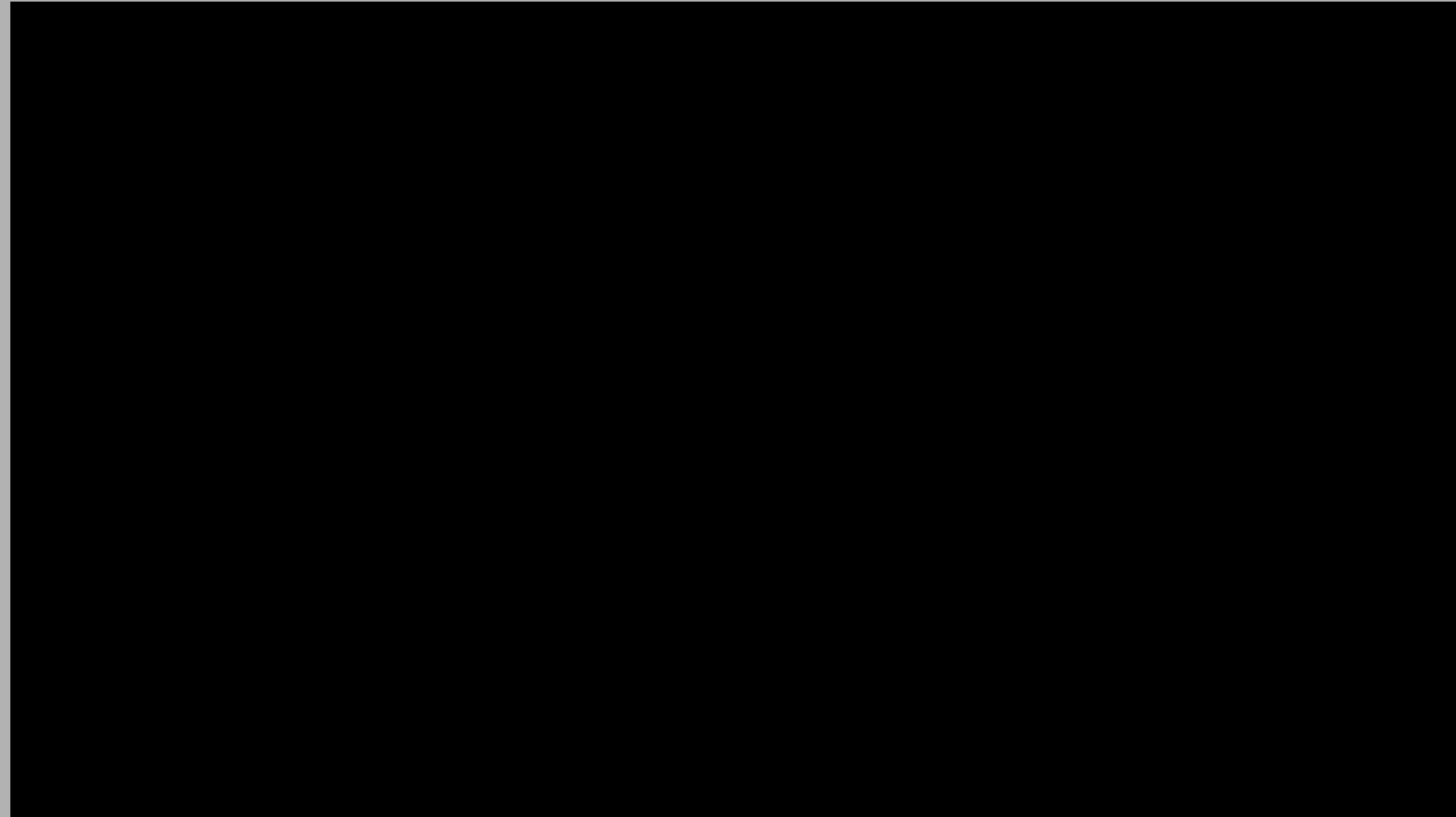
NIMEs or what?



Laetitia Sonami Lady's Gloves



Laetitia Sonami Lady's Gloves (local video file)



Marije Baalman Wezen-Gewording (2013)

Gewording (Becoming) is the first performance version where the link between physical and sonic gesture is explored during a live performance, combining movement of the body and live coding.



Marije Baalman Wezen-Gewording (2013) (local video file)



Imogen Heap Me the Machine (2014)

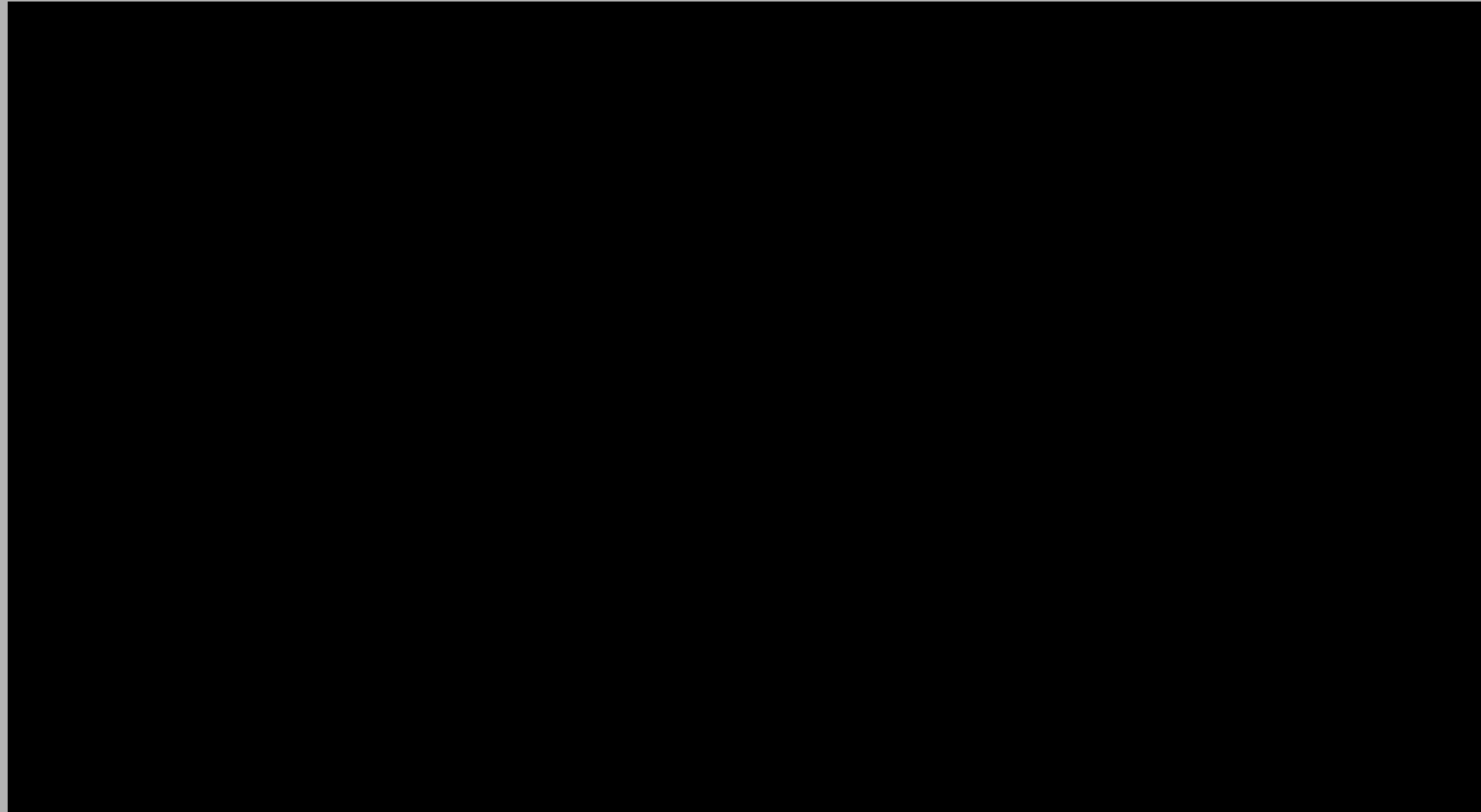


Imogen Heap Me the Machine (2014) (local video file)



TEDxBRISTOL 2011 - CREATIVITY SESSION - IMOGEN HEAP

see particularly 7:45+ (violin bow)



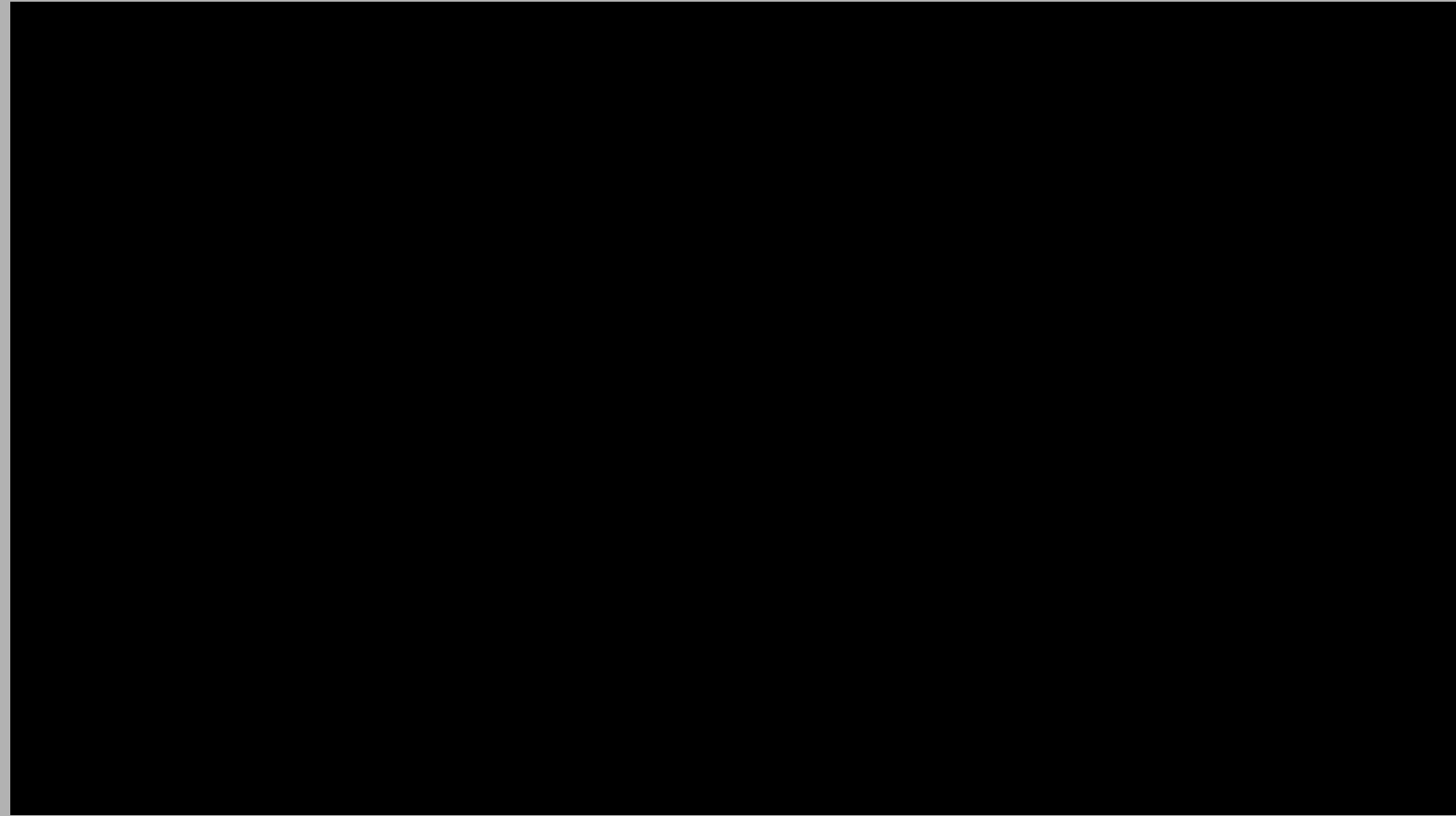
TEDxBRISTOL 2011 - CREATIVITY SESSION - IMOGEN HEAP

see particularly 7:45+ (violin bow) (local video file)



Kinect advert (2011)

Games players don't seem to like the Kinect One - it's too invasive, too personal



Kinect advert (2011) (local video file)

Games players don't seem to like the Kinect One - it's too invasive,
too personal

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 two violins (Vin I and II), a viola (Via), and a cello (Cello). The score is densely packed with musical notation, including various dynamics (mp, ff, mf, p, pp, sfz), articulations (accents, slurs), and performance instructions (arco, pizz). The notation is highly detailed, with many notes, rests, and dynamic markings, illustrating the complexity of the score.

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 three staves, with a tempo marking of $\text{♩} = 110$. The music is in a key with one sharp (F#) and a common time signature. The notation includes various dynamics such as *mf*, *p*, *f*, *mf sopra*, and *p sotto*, along with performance instructions like *sotto* and *f sopra*. The score is divided into two systems, with the first system containing measures 1-4 and the second system containing measures 5-8. The notation is dense and includes many accidentals and slurs.

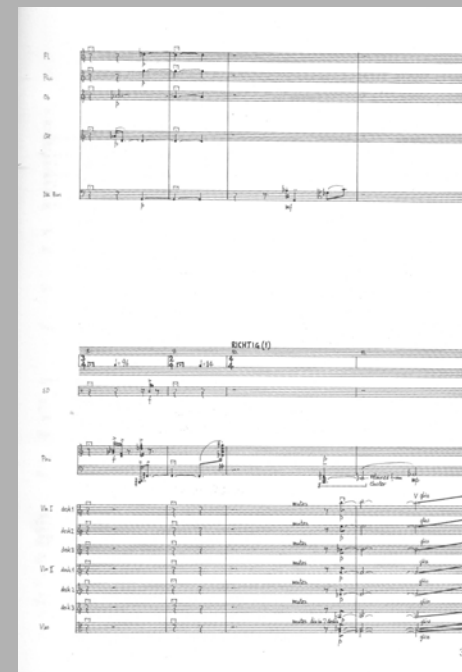
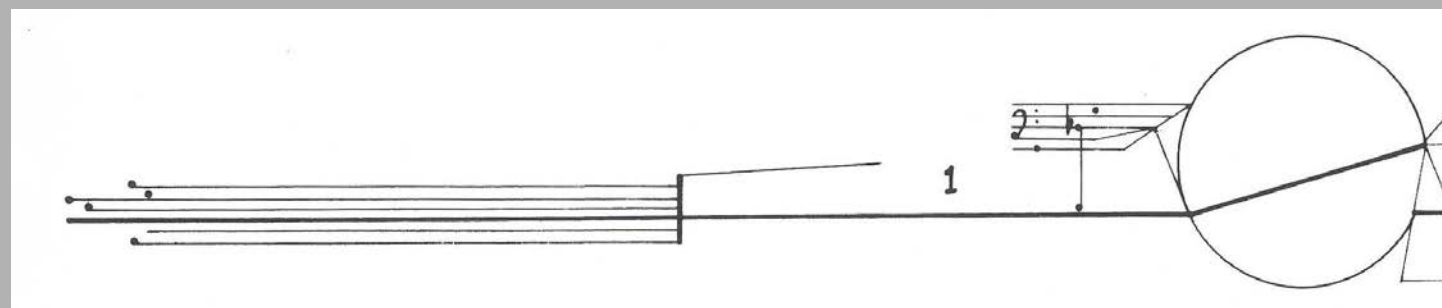
Richard Hoadley **Four Archetypes** (1995)

Graphic notations: Cardew

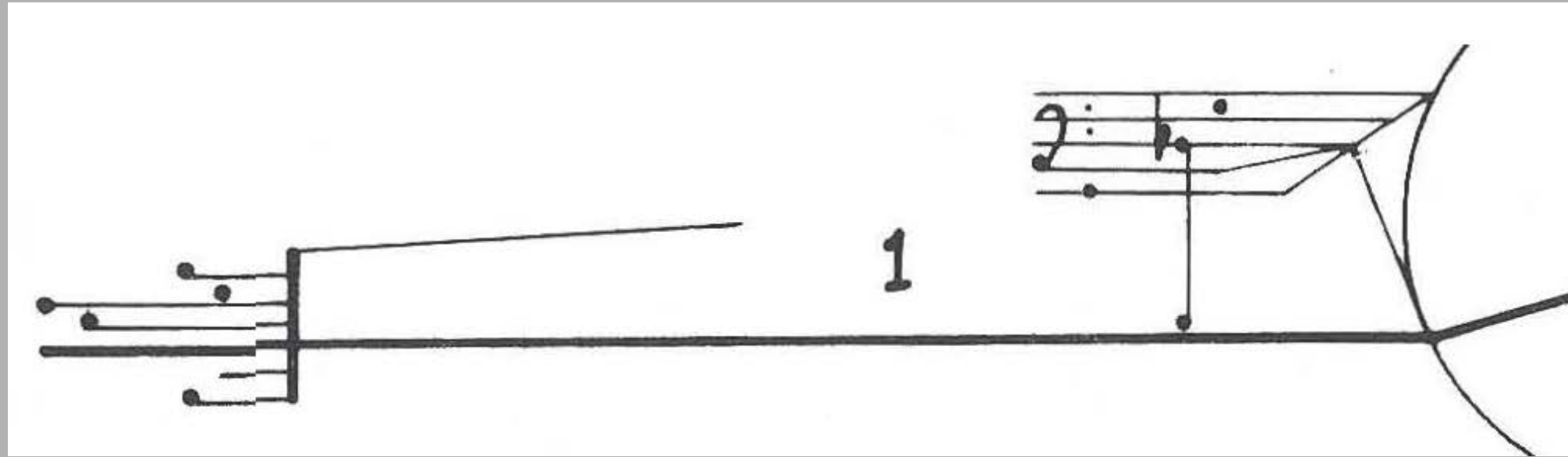


From Cardew **Octet 61** (1961)

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



Detail from Treatise and Bun 2...



alternatives...

J

poco ad lib, con licenza

Violino I

follow
route,
ad lib.

The image shows a handwritten musical score for Violino I. At the top, there is a large letter 'J' and the tempo/mood marking 'poco ad lib, con licenza'. The score consists of five staves. The first staff is a blank grand staff. The second staff contains the main melodic line with various dynamics (p, mp, f, mf) and articulations. From the second staff, multiple arrows branch out to alternative paths on the third, fourth, and fifth staves. These paths represent different performance options for the violinist. The notation includes slurs, accents, and dynamic markings. The word 'Violino I' is written on the left side of the second staff, and 'follow route, ad lib.' is written in the first measure of the second staff.

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

6 $\text{♩} = c.42$

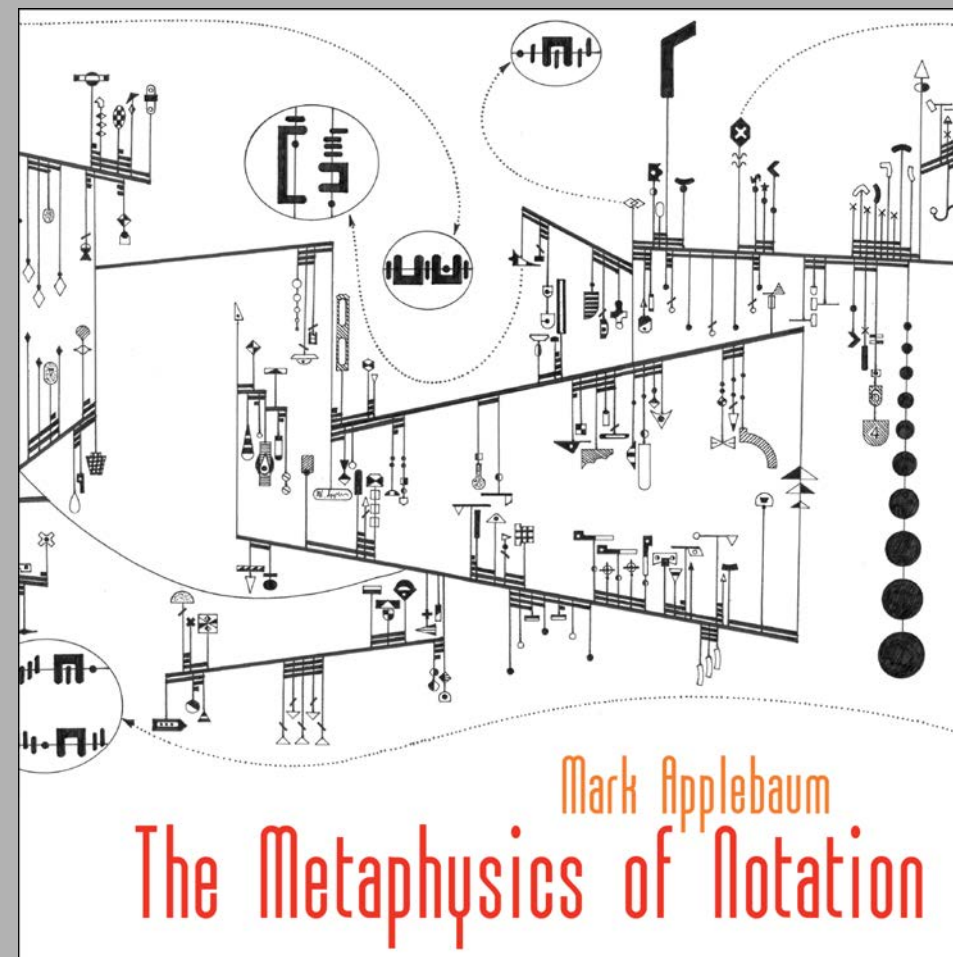
Alto Fl.

B♭ Clar.

Cor Ang.

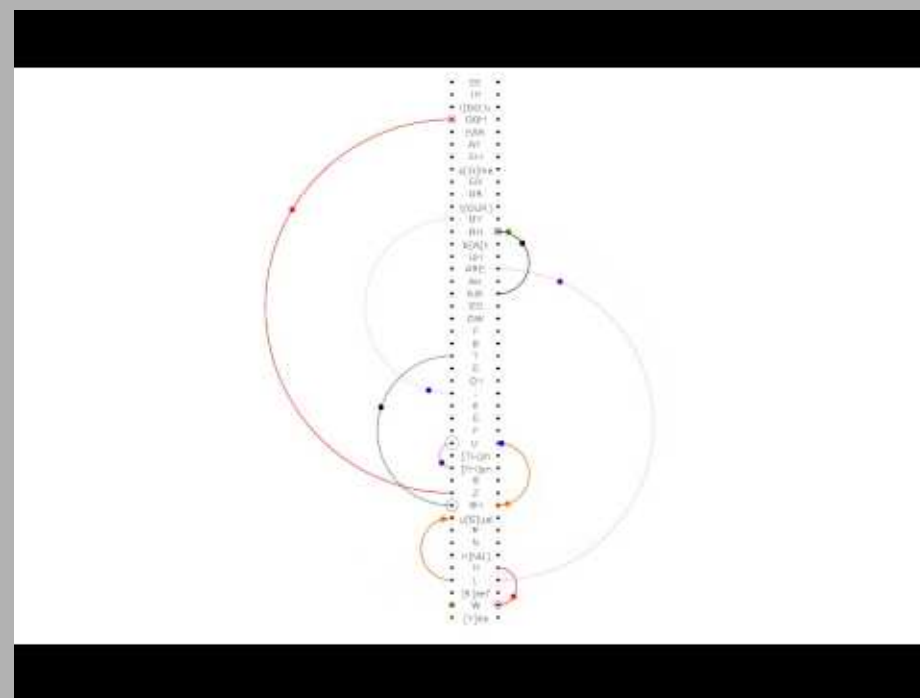
3/4

Graphic notations



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

Dynamic scores and live notation



Ryan Ross Smith - Study no. 46 [for vocalists]

Why pursue these lines of research?

- it illuminates the act of composition
- it unifies dots and signals: enriching electronic music with live performance and algorithmic patterning [Boehm quote below]
- it enables the live synchronised algorithmic generation of electroacoustic material and notation

- it links expressive domains - algorithms, physical gesture and live notation - the 'meaning' of gestures becomes a part of the creative process
- 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

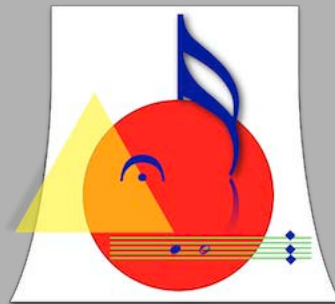
Live notation

“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> (eventually...)

Performances

Gaggle, HCI conference, Cambridge, UK, 2009



Performances

Gaggle, Museums, interfaces, spaces, technologies, 2010



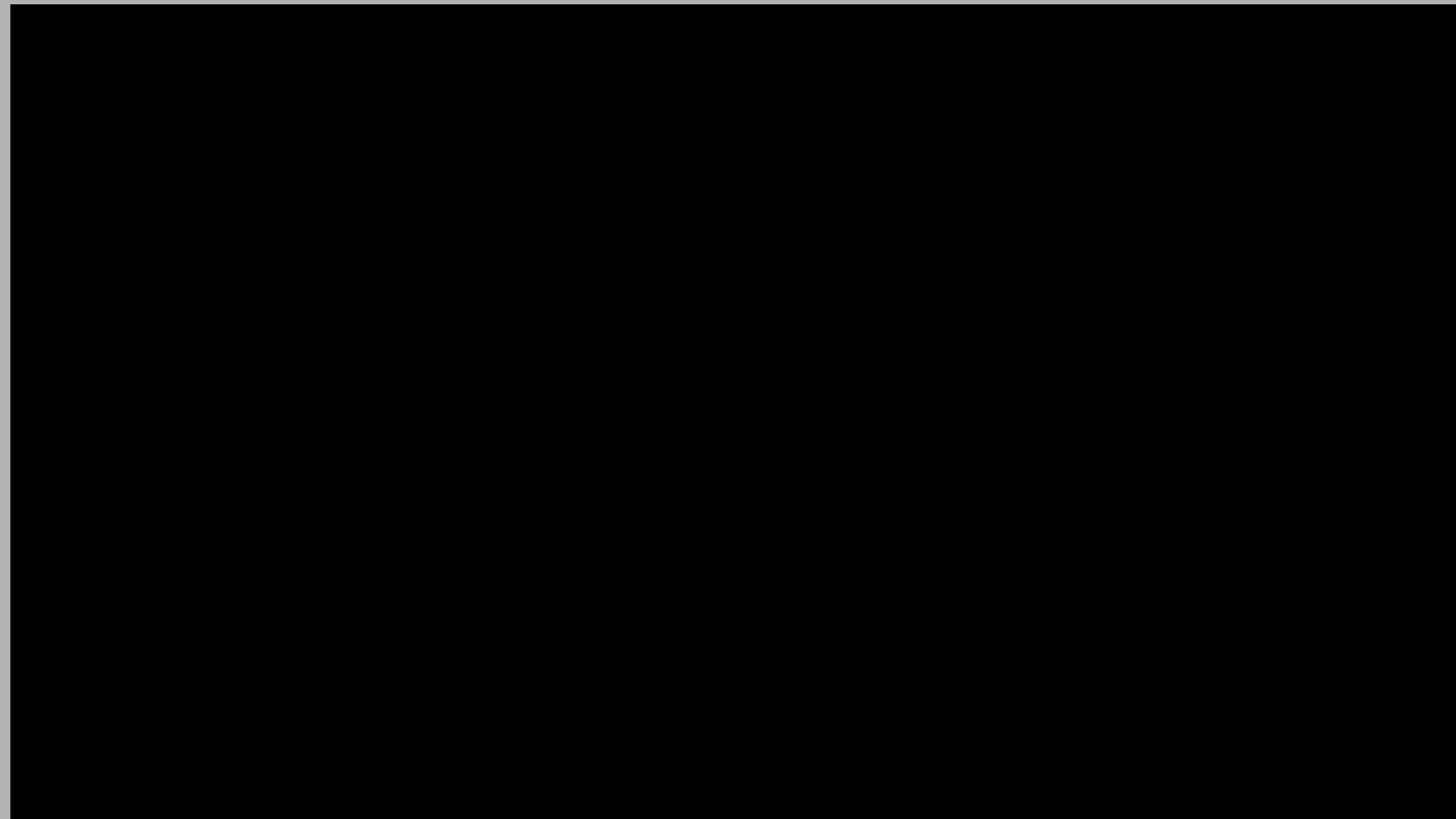
Performances

Calder's Violin, SuperCollider Symposium, London 2012



Performances

Calder's Violin, (local file) SuperCollider Symposium, London 2012



Performances

The Fluxus Tree, LIPAM, Leeds UK, September 2012



Performances

The Fluxus Tree, (local file) LIPAM, Leeds UK, September 2012



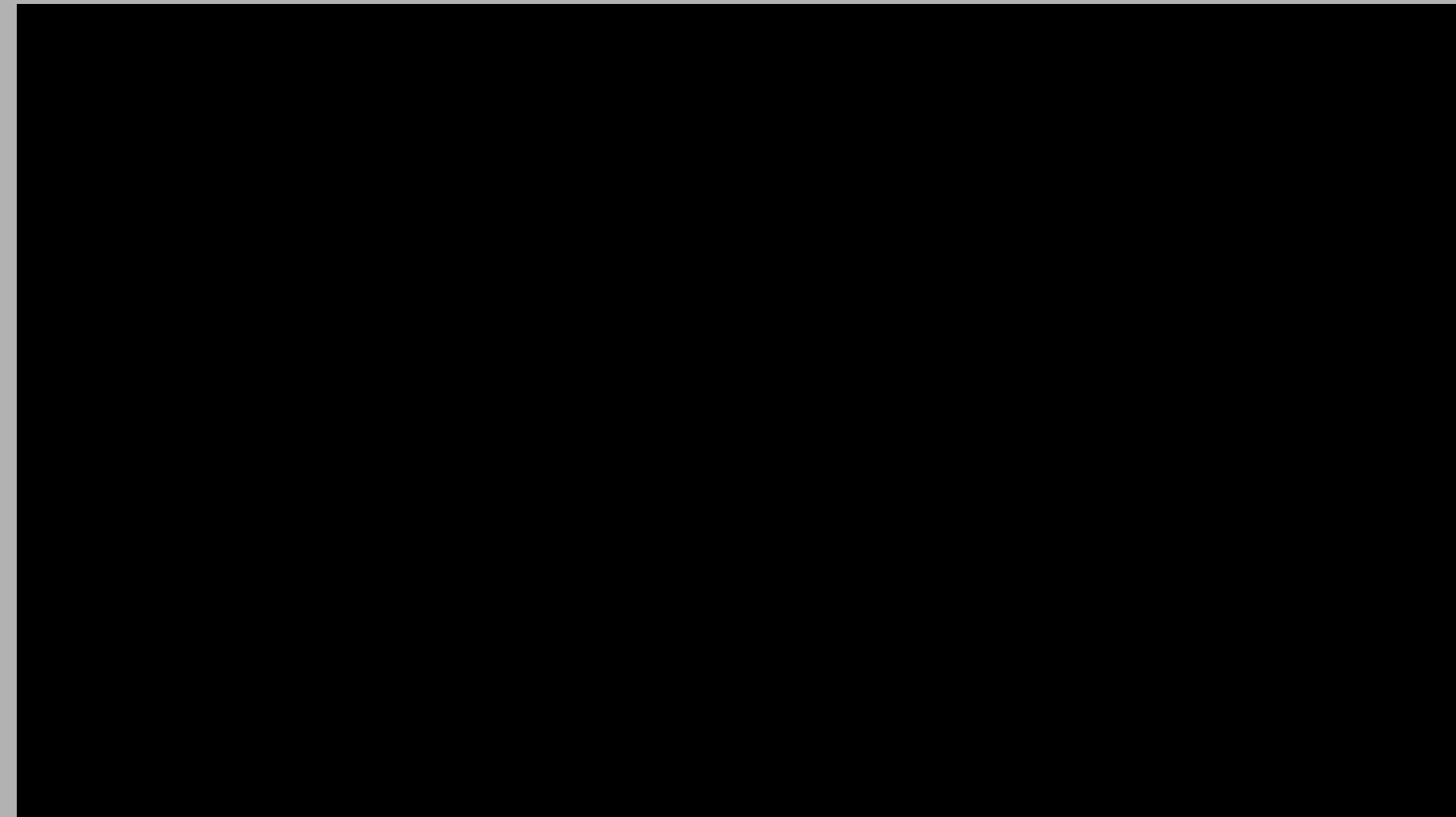
Performances

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



Performances

Quantum Canticorum, (local video file) Museum of Modern Art,
Barcelona, June 2014



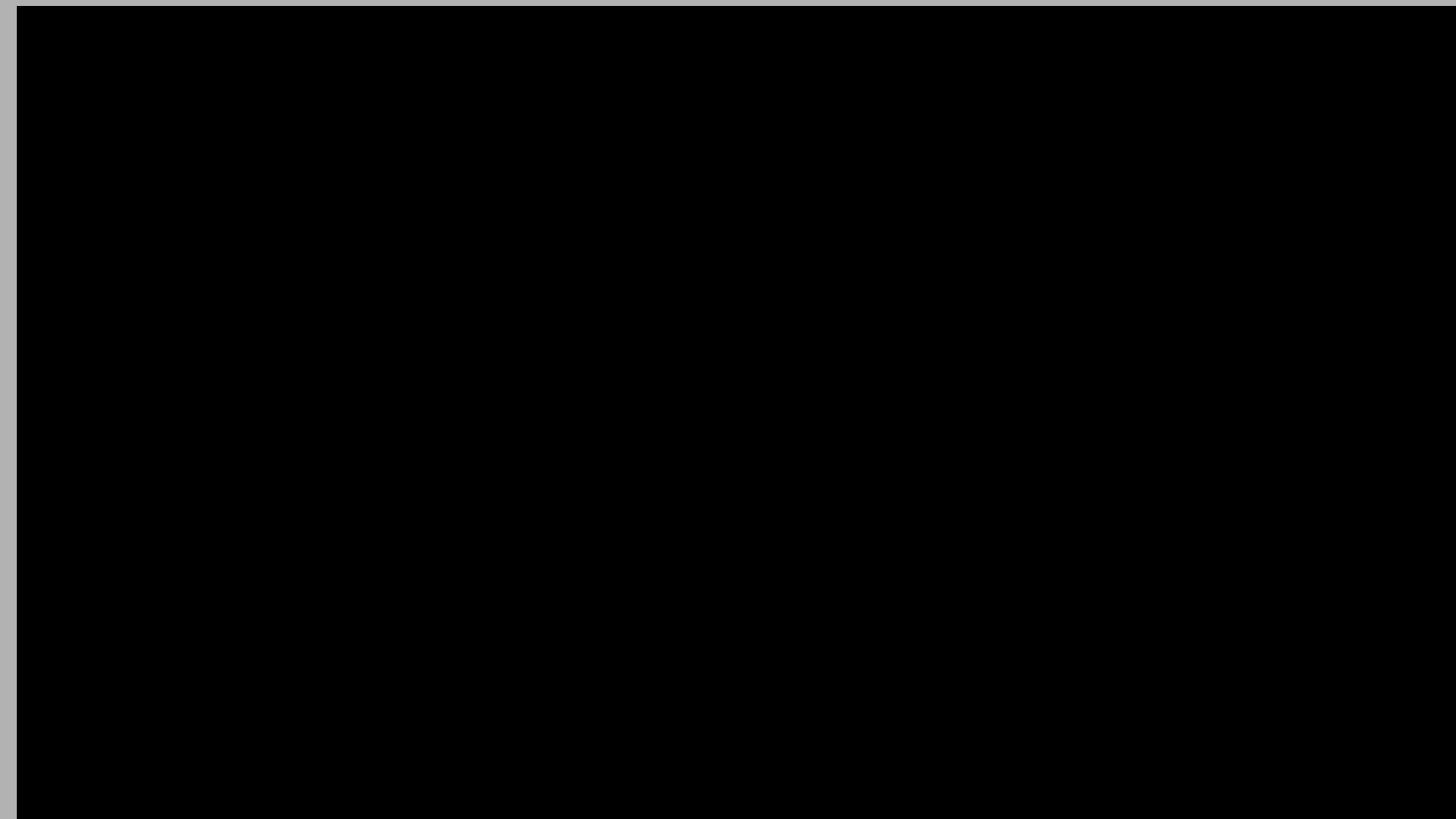
Performances

System Demonstration, Natural History Museum, London, June 2014



Performances

System Demonstration, (local video file) Natural History Museum, London, June 2014



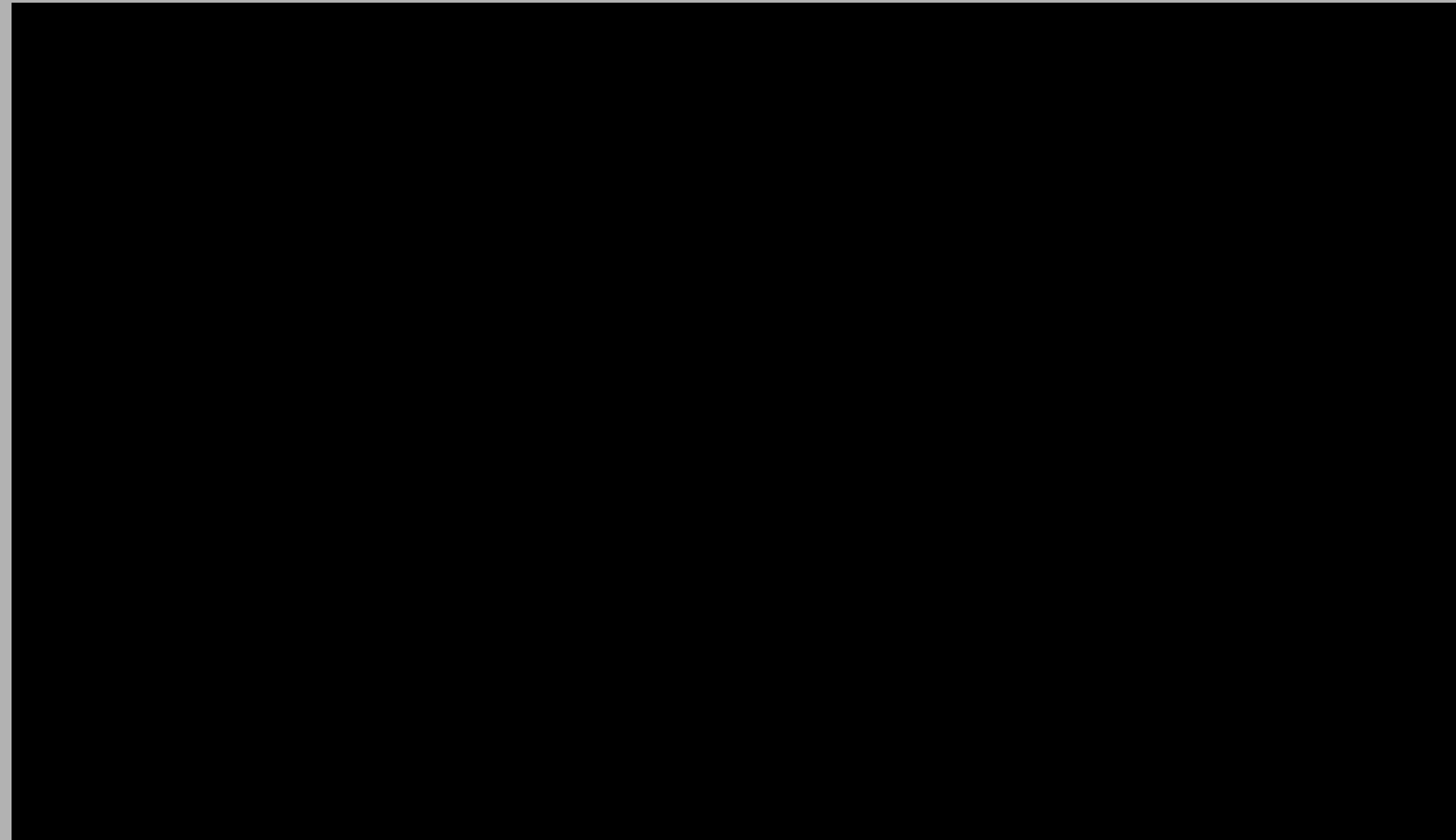
Performances

Semaphore, Cambridge, October 2014



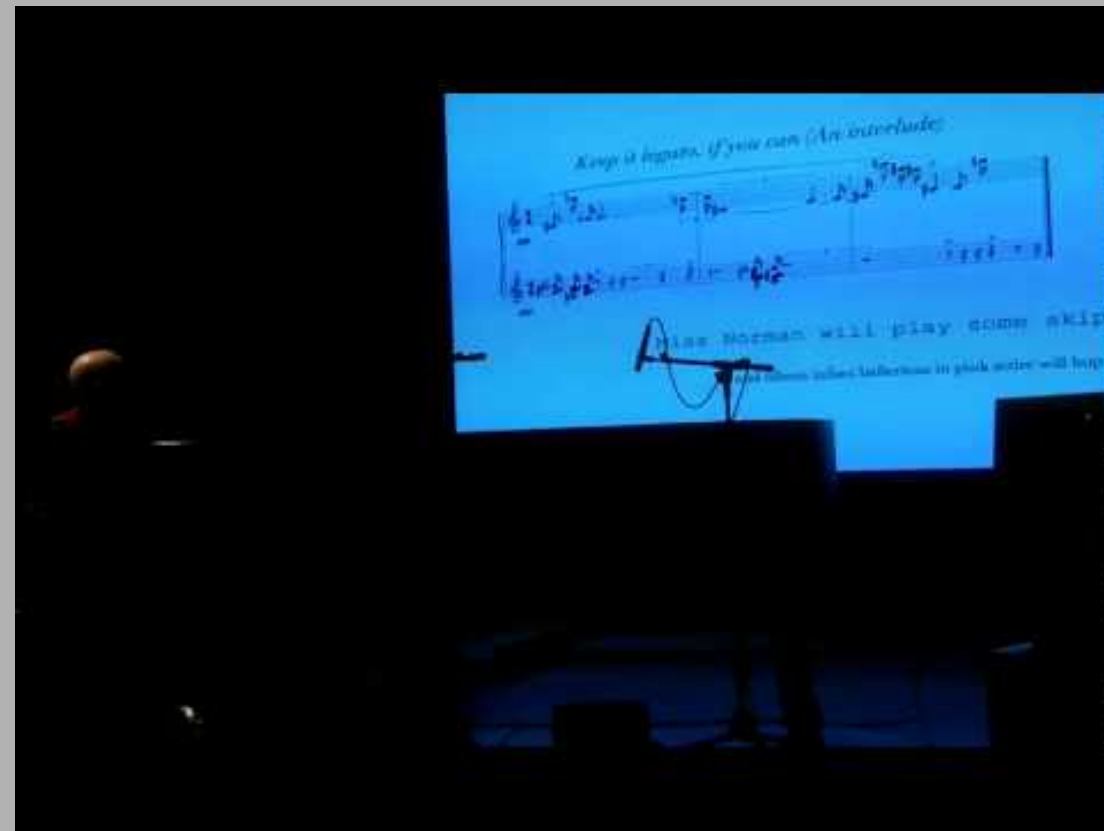
Performances

Semaphore, (local video file) Cambridge, October 2014



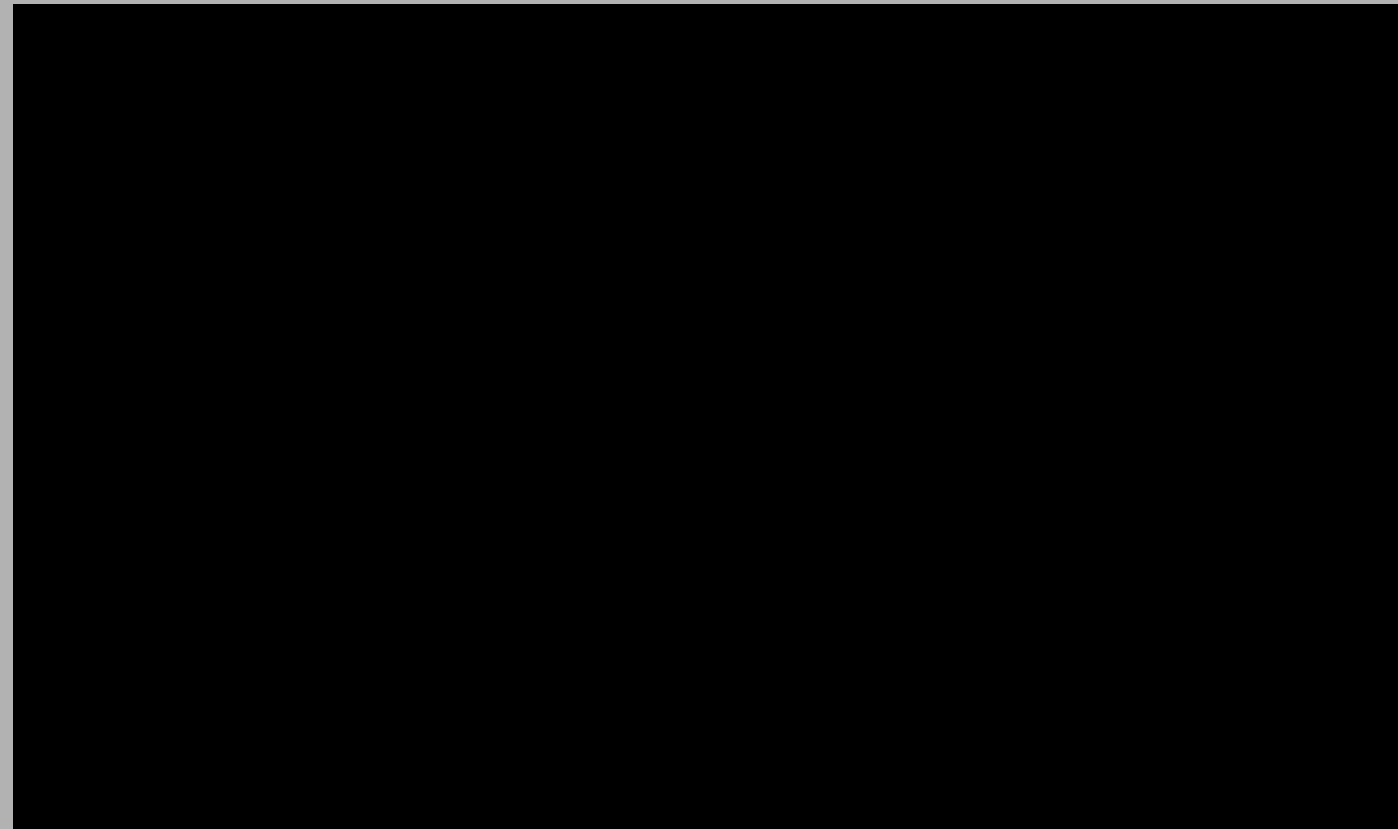
Performances

How To Play the Piano, (Hoadley/Norman) Leicester, February 2015, piano: Philip Mead



Performances

How To Play the Piano, (local video file) (Hoadley/Norman)
Leicester, February 2015, piano: Philip Mead



Peer comment and criticism

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

- the 'fetishisation' of the notation (when displayed)
- the dancer being 'caged' by the 'cone of the Kinect' (MSphobia?)
- 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

How to Play the Piano with Philip Mead, 26th February 2015, Exchanging Cultures Festival, de Montfort University, Leicester

Collaborative Cross-domain performance and real-time score generation: extreme sight-reading and beyond, workshop at the Guildhall Reflective Conservatoire Conference, Guildhall School of Music and Drama, London, 10am Sunday March 1 2015

Semaphore @ Drawing Towards Sound, University of Greenwich, 20th March 2015

Semaphore @ Lunchtime Concert, Mumford Theatre, ARU, 17th April 2015

INScore workshop, 28th May 2015, Centre Universitaire Clignancourt, Paris-Sorbonne, a part of the first international conference on Technologies for Music Notation and Representation (TENOR) 29-30 May 2015, University of Paris-Sorbonne/IRCAM, Paris, France

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

<http://rhoadley.net/presentations/ccde-s.pdf>

Workshop demonstration

Just in case:



Thank you

any questions?

contact:

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this presentation is available at

<http://rheadley.net/presentations>

as **ccde-s.pdf**