UOA D33

MUSIC, DRAMA, DANCE, PERFORMING ARTS, FILM AND SCREEN STUDIES

RESEARCHER

Martin Parker

OUTPUT TITLE

Scripts

OUTPUT TYPE

Composition

DATE OF PERFORMANCE

January 2015

01 / STATEMENT

FIG. 1
Scripts, Live Performance, Quasar Sax Quartet, Church of the Gesù, Montreal, January 2017. Photo Martin Parker.

▶ **Video documentation of Montreal performance available at:**
Script 1:
https://media.ed.ac.uk/media/+Scripts+for+ensemble+and+electronics+1/1_stqop0h5
Script 2:
https://media.ed.ac.uk/media/Scripts+for+ensemble+and+electronics+2/1_633u4kmn
Script 4:
https://media.ed.ac.uk/media/+Scripts+for+ensemble+and+electronics+4/1_uzivn9mf

Video explaining how the software system for Scripts works available at:
https://media.ed.ac.uk/media/ScriptsStandaloneDemonstration/1_lllxtlgl

Scripts is a suite of four concert pieces that can work as a collection of short compositions in their own right or be played amongst other pieces in programmes of extreme and physically taxing music.

At the heart of the piece is a real-time sound processing tool that applies sampling and DSP to each instrument individually and in highly varied ways. This tool responds to sound very directly; incoming audio pushes through a landscape of shifting parameters that reconfigure themselves with each note played. As such, the piece is very responsive. All sound spatialisation is ambisonic and can therefore be adapted to any sound system from headphones (for individual rehearsal) up to 16 channels.

Scores for the pieces are very simply structured with minimal detail pertaining to what exactly should be played. The scores give scope for the players to adapt their performance to the context of the concert. It is this openness to adaptation that gives the piece its name. Players are asked to interpret their instructions and adjust their playing to the sonic context created by the computer processing, rather like the way actors use a script as the starting point for a performance (Cook, 2014). This means that a very deliberate and carefully formed concept for a piece can exhibit different qualities, colours and player response each time it is performed.

The examples submitted show three *Scripts* alternating between parts of Michael Edwards's piece for saxophone quartet called *Hyperboles 3*. Edwards' piece is long and slow, and Parker identified moments in the piece where the *Scripts* could be used to change pace, position and concentration. They were configured to work seamlessly between parts of Edwards's work, yet are distinctly different in approach and concept.

Research output: recordings of three of the four *Scripts* performed in Montreal, January 2017 can be found at the links on page 2.

Note Script 3 wasn't included in the concerts and therefore has not been recorded. The score for Script 3 is in the software package linked in Appendix 3, page 14.

FIG. 2
Scripts screenshot, showing how
the amplitude of incoming sound
is used to push the parameters of
live electronic processing along.
Screenshot by Martin Parker

02 / RESEARCH DIMENSIONS

Scripts is a composition at the intersection of co-composition, live electronic music and adaptive systems. It involves the crafts of creative coding, improvisation and live sound engineering.

The piece has been performed twice: by the Quasar Saxophone quartet in Church of the Gesù, Montreal, January 2017 and again in Greyfriar's Kirk, Edinburgh, March 2017.

The work exists as a series of partially open scores and a sophisticated live electronics performance tool that responds very directly to sound input from the players. The system can be controlled remotely from a webpage and mixed from within the audience with no interruption to the flow of the concert **(FIG 2)**.

Video recordings of *Scripts*, performed in Montreal, Canada in January 2017 can be found via the links on page 2.

A video demonstrating the use of the patches can be found via the links on page 2.

Scores, source code and standalone software for OSX (400 MB) are available online (see Appendix 3, page 14).
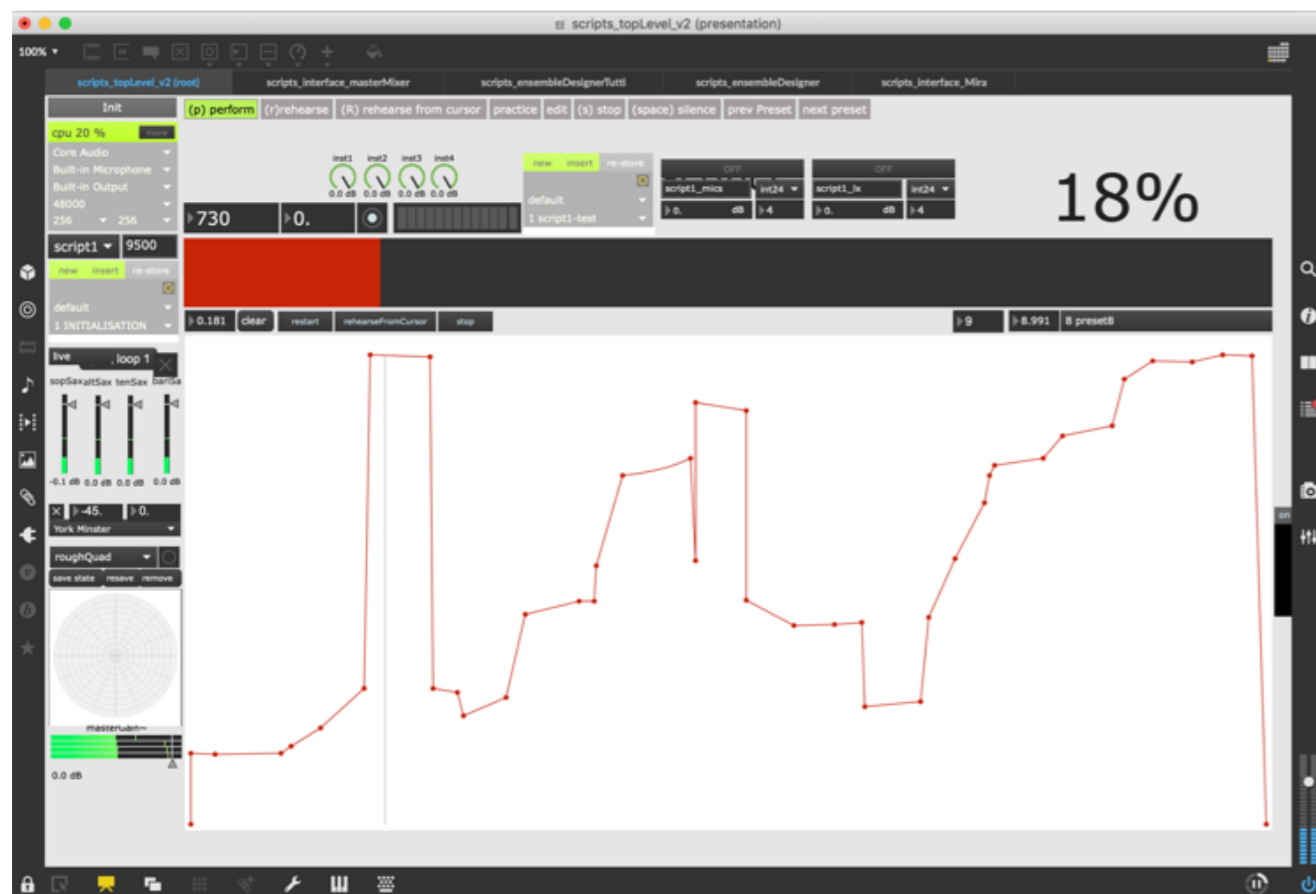
FIG. 3
Page 1 of the score to *Script 2* showing very simple instructions that allow considerable variation and divergence between players in performance. Screenshot by Martin Parker
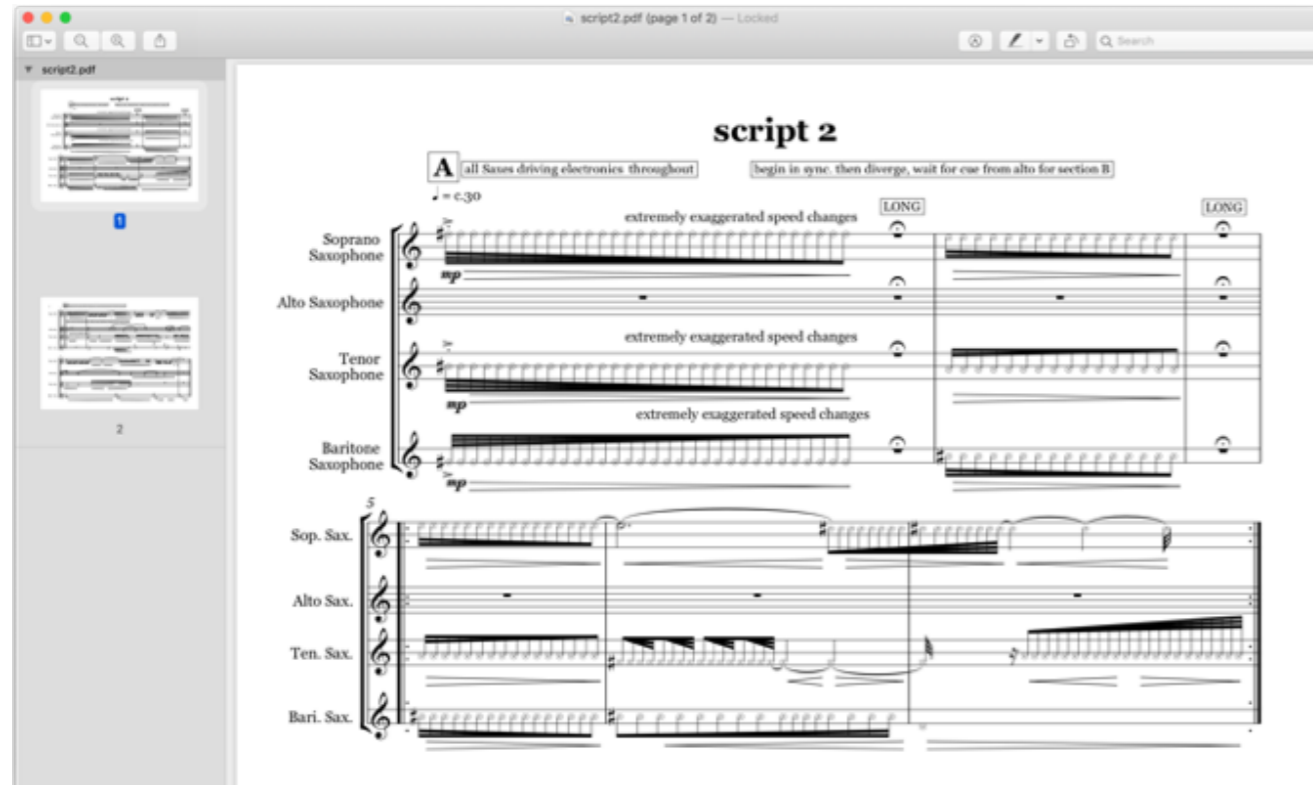

FIG. 4
Screenshot by Martin Parker showing how instruments 2 and 3 push the parameters along. Instruments 1 and 4 can play and be processed, but their sounds don't make the piece change.

03 / ORIGINALITY

Live electronics can lock performers to a click track, precision score following tools or divide their attention with the demand to use pedals or other triggers.

Any of these methods can add concert security, but also add an extra layer of cognitive load that takes focus away from in-the-moment liveness. Parker's solution to this challenge has been to make computer music systems that respond directly to the sound that comes in from the instruments with the aim to make the software behave like the instruments on stage.

Nests of interconnected sound processing parameters are linked to a master line or trajectory through the parameter space. Each sound a player makes pushes the piece further along this path. Voice processing can be turned on and off between each sound event and different instruments can lead the journey at different times.

FIG. 5
Rehearsal session in Edinburgh
with Anne La Berge (flute) and
Pete Furniss (bass clarinet), testing
ways of integrating multiple
instrumental sources into a single
live electronics processing system.
Photo Martin Parker.

FIGS. 6–7
A miniature microphone was attached to the pen of
the tablet with the idea that writing and drawing,
following the lines on the paper would control the
sound and mode of sound processing. It was thought
that one of the players could do this in the concert.
Photos Martin Parker.

04 / RIGOUR

Models for this piece were first explored with Quasar Quartet during their 2015 UK tour. During their visit to Edinburgh, they examined ways of using interfaces like Wacom tablet controllers to shape the form and sound processing in the piece.

While this process was extremely interesting, in an ensemble context it was too distracting and complex to switch between modes of playing and stage positions. Following these experiments, it became clear that only the instrument microphones were needed to control everything and the piece would play itself in-concert.

Development of the system for using sound to push through a complex parameter space was done with Anne La Berge and Pete Furniss in December 2015. At this workshop Parker was keen to explore how more than one instrumental input could be used to control a single piece, rather than several independent pieces all travelling at their own pace.

The group experimented with hardware such as foot pedals and other triggers. However, with careful calibration of microphone input Parker was able to afford very fine-grained control to any combination of input signals at any point in the piece.

Having created an extremely adaptive system, Parker also integrated ambisonics directly into the output stage of the software. This gave access to adaptive spatial audio that can be experienced by players whether they are rehearsing individually on headphones or in larger speaker configurations at concerts.

FIG. 8
Players communicate more freely in performance as the scores are open and performance-managed as much by listening as looking at the score. Photo Martin Parker.

FIGS. 9–10
Screenshots by Martin Parker of some spatial audio options: the spatial audio possibilities for the piece can be scaled up from headphones (for individual rehearsal) to any number of speakers, thanks to the use of ambisonics.
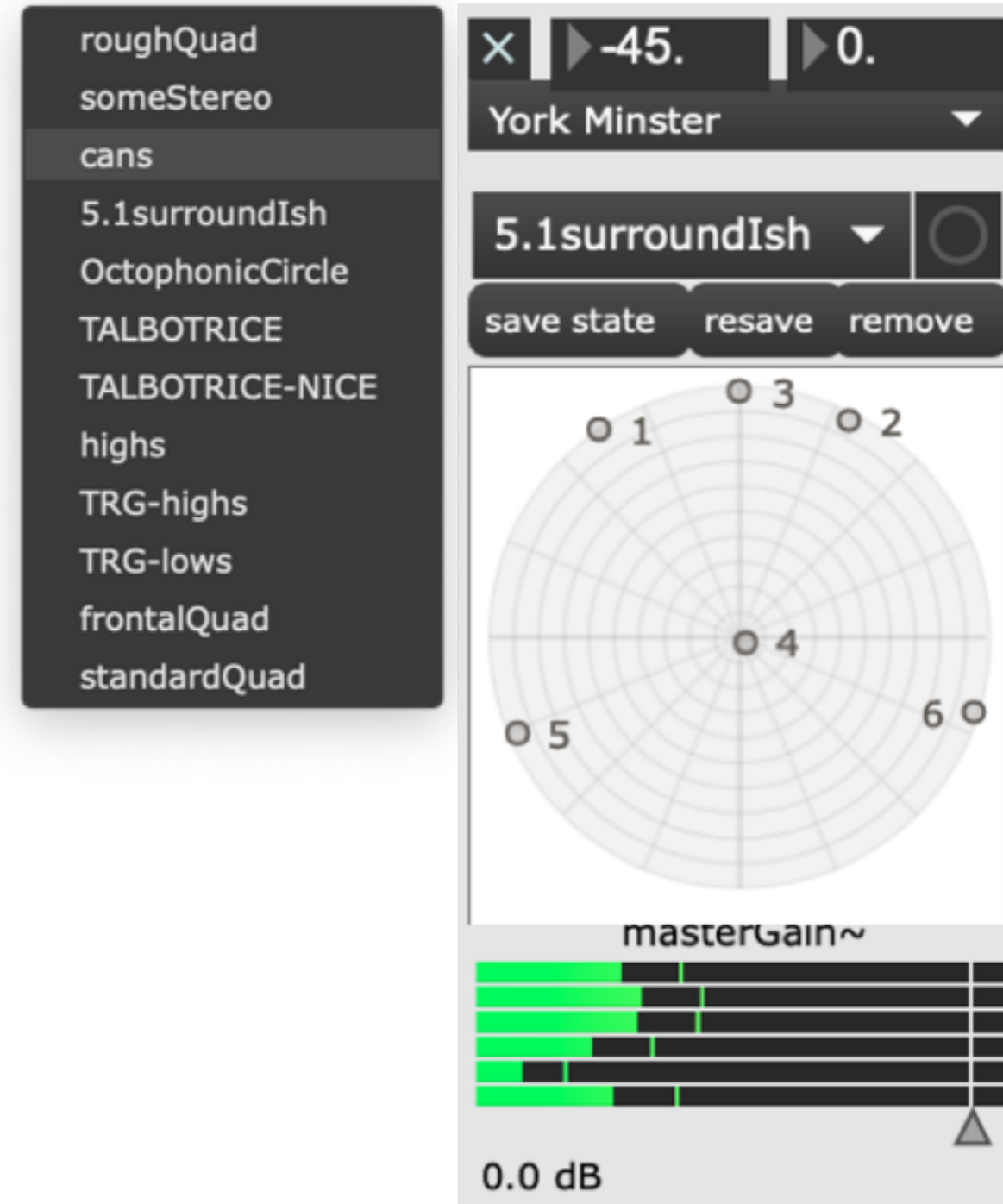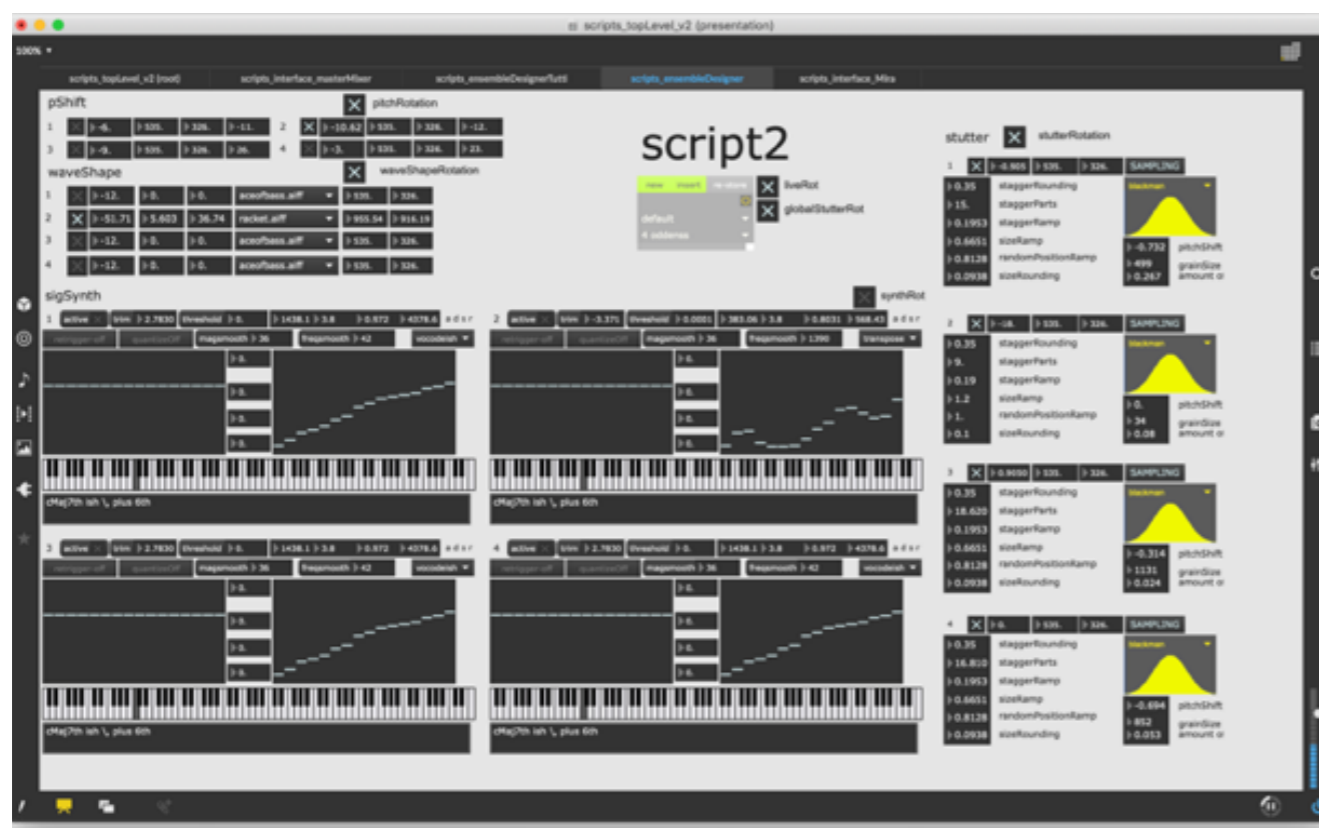
FIG. 11
Screenshot by Martin Parker of the 'Ensemble_Designer' section of the software tool, were the composer shapes and sculpts the range of sounds possible for each *Script* and saves each state as a preset.

05 / SIGNIFICANCE

The piece was commissioned as part of Quasar Quartet's 2016-17 tour and was supported by funds from the British Council and with support from the Conseil des Arts et des Lettres du Québec. See Appendix 2, page 14. The work now forms part of Quasar's increasing repertoire of work for Saxophone Quartet and live electronics.

Quasar quartet have been pushing the boundaries of what is possible for sax quartet and electronics for several years and have worked closely with academic music departments in the UK such as the Sonic Arts Research Centre at the Queen's University Belfast, the University of Huddersfield and University of Edinburgh and across the world with pioneers such as Jean-François Laporte, Benjamin Thigpen, Laurie Radford and Zack Settel. *Scripts* is an addition to the Quasar Quartet's extensive repertoire.

Scripts has been designed to directly address two persistent challenges in the realisation of live electronic music. The first relates to the quest for liveness as set out by Simon Emmerson (Living Electronic Music, 2007) where he identifies the need for action and resultant sound to be a direct consequence of one another. The second pertains to how music needs to flow and how scores in live-electronics can impede this.

Scripts re-evaluates the score in relation to the demands of live electronic music in ways explained by Craig Vear in his 2019 book *The Digital Score*, where some of Parker's earlier work is cited and explained (p.130).

06 / APPENDIX

APPENDIX 1:
Performances

January 2017
Church of the Gesù,
Montreal, Canada.

March 2017
Greyfriars' Kirk,
Edinburgh, UK.

APPENDIX 2:
Funding and support

The performances and development of *Scripts* was made possible through funding from the following bodies:

British Council: £2,500
https://www.britishcouncil.org

Conseil des Arts et des Lettres du Québec: £12,000
https://www.calq.gouv.qc.ca/en/

University of Edinburgh: £2,500

APPENDIX 3:
Software downloads

Scores, source code and standalone software for OSX (400 MB) are available online at:

https://datashare.is.ed.ac.uk/handle/10283/3655

References

Cook, N. (2014). *Beyond the Score: Music as Performance*. Oxford, New York: Oxford University Press.

Emmerson, S. (2007). *Living Electronic Music*. Ashgate.

Vear, C. (2019). *The Digital Score* (1 edition). Routledge.

THE UNIVERSITY *of* EDINBURGH
Edinburgh College of Art

May 2020

The University of Edinburgh is a charitable body, registered in Scotland, with registration number SC005336.

www.eca.ed.ac.uk