Interrogating Interactive Interfaces: On balance in the evocation of environmental responsibility in the creation of Responsive Environments

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Chapter 4: Foundational Works

4.1 Introduction 164
4.2 Plastic Art Installations 167
  4.2.1 InvertedPreverted 169
  4.2.2 D#generative 174
  4.2.3 Sly Drooler 180
  4.2.4 Summary 183
4.3 Tat Avam Asi (Kali Yuga) 184
  4.3.1 Project Overview 184
  4.3.2 Content and Subject Matter 186
  4.3.3 Visual Form 188
  4.3.4 Audio Form 192
  4.3.5 KYv1: Prototyping the Installation 194
  4.3.6 KYv2: Implementing Explicit Interactivity 195
    4.3.6.1 Sound 196
    4.3.6.2 Metanarrativity through cyclical repetition 199
    4.3.6.3 Modularity and Causality 200
4.4 Summary 201
4.1 Introduction

The following accounts of my PBR discuss my reflexive engagement with the key issues of the thesis, according to the suite of artworks I made for this PhD. They are:


2) *Tat Avam Asi (Kali Yuga) v1* (2004) and *v2* (2005-8) (hereafter *KYv1* and *KYv2* respectively)

3) *StilmS v1-v3* (2004-5)


My accounts of these artworks document my “journey towards true interactivity,” which chronologically progressed from control over content creation and execution (in 1 and 2), to control over content with purposefully subjugated control over execution (in 3), to collaborative co-creation amidst dialogical engagement with multiple simultaneous variables (in 4). In parallel, the works progress from Plastic Art (in 1), to non-linear single channel Media Art (in 2), to multi-channel semi-immersive performative-installation (in 3) and to full scale multi-channel immersive installation (in 4). Similarly, my authorial responsibility shifted from a high level of control over singularly created content (in 1) to focusing on creating context through Interaction Design in increasingly collaborative works (in 4).

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Chapter 4 – Foundational Works

The suite purposefully transcends boundaries between mediums and artforms, relative to four broad fields and periods of Interactive Art:

1) Combining ‘analogue interactivity’ with painting and sculpture relates (1) to “pre-electronic”\(^\text{544}\) precedents to Interactive Art, such as Johns, Ernst and Ascott\(^\text{145}\)

2) Combining a dramaturgical cinematic narrative with trammeled interactivity relates (2) to early 1990s narrative based Interactive Art such as Courchesne and Weinbren\(^\text{546}\)

3) Combining audience interactivity with organicist audiovisual data-sets relates (3) to Seaman’s “recombinant poetics”\(^\text{547}\) and Feingold’s approaches to Responsive Environments\(^\text{548}\)

4) Combining instantaneous and cumulative influences as exerted by groups of participants relates (4) to contemporary synthesised evolution and adaptation in Alife and Artificial Natures approaches to Responsive Environments.\(^\text{549}\)

Diverse interactivity and responsivity modalities were used, according to artwork-appropriate approaches. Chronologically they progress from:

1) Implicit environmental responsibility in non-responsive but metaphorically interactive works

2) Indirect and metaphorical environmental responsibility for a single-participant in a “reactive environment”\(^\text{550}\)

\(^{544}\) Penny 1997a.

\(^{545}\) See p173.

\(^{546}\) See p190.

\(^{547}\) Seaman 2002:1.

\(^{548}\) See p172.

\(^{549}\) See p259.

\(^{550}\) Dinkla 1996:281.
3) Direct, literal and instantaneous environmental responsibility for small group interaction in a semi-immersive Responsive Environment

4) Indirect, direct, literal, metaphorical, instantaneous and cumulative environmental responsibility for large group interaction in a highly immersive Responsive Environment

The artwork-specific modes of interactivity were intended to evoke audience responsibility by devising appropriate relations between content, form and Interaction Design. Responsivity and responsibility were designed to be content- and context-appropriate according to the particularities of the disciplines and mediums necessary for each work. Different works focused on different aspects, so the discussion of Kali Yuga focuses on content and form, as interactivity was less relevant for evoking attendees’ environmental responsibility, while interactivity is central to the discussion of how Emergence evoked attendees’ environmental responsibility through its complex Interaction Design. Instead of common aspirations toward the “Holy Grail” of Alife art, these artworks used an “‘under-engineering’ ‘lo-fi’ approach to minimise the steep learning curves required in mastering the technology necessary for Alife type art.

Like the works cited in related PhDs, such as the PhD of Graham, each artwork is discussed as a proof-of-concept rather than globally exhibited works made by professional teams with funding to match. While Graham’s PhD artwork, Individual Fancies, was simple relative to other works discussed in her PhD, it was intended to be a vehicle explored as part of her research as well as art practice that informed this research. My artworks have a similar function.

The accounts that follow chart the chronology of development and implementation. Blocks of italic text, in future tense, are quotations from production diaries made during production. Despite form, content and Interaction Design evolving throughout each project, they are presented first as they relate to the broader aims of my research.

551 Rokeby 1995b. These aspirations are discussed on p98.
552 Penny 1997b.
4.2 Plastic Art Installations

_InvertedPreverted_ (Figures 4-77, 4-78), _D#generative_ (Figure 4-75) and _Sly Drooler_ (Figure 4-76) were interrelated site specific responses to an outdoor space fronting onto a suburban Canberra street. Conceived and staged simultaneously, they complement one another in physical proximity, materials, form and content. They formed a “public research laboratory,” 553

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553 Rokeby 1998.
being produced and exhibited in situ on the ground, veranda railing and window and door adjoining onto this veranda facing the public street. The ideas and sketches were consolidated in 2004, with on-site production in the period 2004-7 ranging from one month for *InvertedPreverted* to three years for *D#generative*.

The three installations straddled between the conceptual/theoretical/ fine-art practices stemming from Manovich’s “Duchamp-Land” and the technological/scientific/experimental practices stemming from “Turing-Land.”\(^{554}\) This arose since they applied Huhtamo’s “archeology of interactivity”\(^{555}\) to their form, content and material substrate, to explore the “pre-electronic”\(^{556}\) precedents that Responsive Environments draw upon. This created analogue analogies to the form, structure, function and behaviour in interactive electronic art, such as *KY, StilmS* and *Emergence* and their digital ‘equivalents’ of the Alife art discussed in Chapter 2.\(^{557}\) As material-led research of painting-as-sculpture, their Blife forms recorded progressive stages of material decomposition over time, rather than any final form. Directed degeneration of paint, canvases and sculpted materials was achieved by subjecting these materials to manipulation and intervention, such as heating, freezing, re-melting, re-mixing, cutting, splicing, molding and re-molding. As layered surfaces of accumulating materials that interacted with one another, they metaphorically evoked an archaeological cross-section of time and space, with successive layers of material representing a figurate ‘pre-history’ of the analogue artforms that Responsive Environments draw upon.

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\(^{554}\) Manovich 1996.

\(^{555}\) Huhtamo 2006.

\(^{556}\) Penny 1997.

\(^{557}\) This Alife art is discussed on p98.
4.2.1 InvertedPreverted

The static artwork can be looked at in two opposing ways. It can be seen as authoritarian in its refusal to reflect the presence and actions of the spectator, or it can be seen as giving the spectator complete freedom of reflection and interpretation by not intervening in this process. An interactive artwork can likewise be seen as loosening the authority of the traditional work, or as interfering in the interactor’s subjective process of interpretation.

David Rokeby

InvertedPreverted (Figures 4-77, 4-78, 4-79, 4-80) consists of two 170x206cm paintings in a superimposed relationship resulting from one being hung in front of the other. Inverted is formed by black paint on a white canvas while Preverted is formed by white paint on a black canvas.

The title refers to negotiating boundaries between binaries. ‘Inverted’ refers to black paint on white canvas and white paint on black canvas, to composite inverted background and foreground colours. The colour binaries are mapped onto their form: paint strokes are long/short dashes or small/large circular shapes, as a reference to binary logic of ‘1’s and ‘0’s and Morse code. ‘Preverted’ is a malapropism of reverted and perverted: the work is perverted in the sense of to “alter (something) from its original course,

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558 Rokeby 1995a:141.
meaning, or state to a distortion or corruption of what was first intended. Collectively the title ‘InvertedPreverted’ refers to the play between Inside and Outside, as it connects and separates the room interior with the veranda outside and vice versa. This relationship is evoked by exactly filling the dimensions of the glass window/door to form a permeable membrane between Inside and Outside. Both are hung using slideable hooks on a cylindrical pole so the form is malleable by being retracted horizontally. Fully extended separates Inside from Outside, or diminishing degrees of retraction create partial openings between Inside and Outside by allowing Outside light to enter around canvas borders. Perversions are inverted by reverting the canvas back to its original size when retracted and expanded horizontally.

Participants adjusting the form exert instantaneous and cumulative influences. By engaging directly with the original material substrate, successive expansion and contraction of both canvases causes portions of paint to deteriorate by cracking or stretching, which irreversibly changes the content. Content is also perpetually influenced by environmental conditions of sunlight and wind that are beyond participants’ control or responsibility. ‘InvertedPreverted’ is viewed from Outside looking in (the veranda area) (Figures 4-77, 4-78) and Inside looking out (the interior room) (Figures 4-79, 4-80). Being backlit during daylight and frontlit by interior lights at night varies the opacity between the two paintings, so indeterminable portions constantly have different levels of visibility. Consequently, differing degrees of black paint on the white canvas intermingle with white paint on the black canvas. Such indeterminacy is coupled with the extent of retraction/expansion that participants leave the work in. This influences the content, as retraction creates outer layers of canvas which are more exposed to sunlight and wind, while creating relatively protected inner layers. Retraction/expansion is on a continuum of increments from 100% to around 10% of the stretched canvas size.

In keeping with Rokeby’s definition in quotation at the start of this section, InvertedPreverted is a “static artwork,” which was created to “be looked at in two opposing ways” of exploring conceptual and symbolic time-based interactivity. When in stasis, InvertedPreverted allowed unimpeded

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559 New Oxford American Dictionary from Mac OS10-5, s.v. ‘Perverted.’
reflection and interpretation as in Rokeby’s notion of a “traditional work.” When activated by participants modifying its form and content, InvertedPreverted produced negative connotations for interpreting its “loosened” authority, due to how Rokeby describes all interactivity as “interfering in the interactor’s subjective process of interpretation.” InvertedPreverted exemplifies ambivalence between these states of static and active, to critique the uni-directional ‘traditional’ painting-to-viewer influence while parodying bi-directional communication and exchange in Interactive Art. In this vein, InvertedPreverted embodies Graham’s argument that Plastic Arts cannot be interactive “unless the viewer could affect or influence the painting” since “whilst viewers may fervently wish that the painting was different, they can not change it without some physical intervention on their part.”

To evoke responsibility to the physical environmental of the artwork, participants’ minimalist “physical intervention” exerted reversible and irreversible influences. Responsibility for cumulative causality was not communicated, as the intention was for participants to determine their parameters of engagement. The notion of irreversible influences recalls Ernst’s placing of an axe next to an untitled sculpture in the Dada exhibition in Cologne in 1929. In From Participation to Interaction: Toward the Origins of Interactive Art, Dinkla cites this as the first artwork to openly invite irreversible audience intervention. However, while it offered audiences a written invitation to hack the sculpture with the axe, “in case they did not like the object,” Ernst’s intention “to provoke the audience into actively stating its opinions, remained an imaginary possibility, since the object elicited the trained response of detached contemplation.” Like Ernst’s sculpture, InvertedPreverted can potentially benefit from the irreversible effects of audience interventions, as removing paint by retracting InvertedPreverted can be construed as the audience fashioning the work in ‘improved’ directions.

InvertedPreverted recalls other seminal pre-cursors to Interactive Art by Johns and Ascott. It invokes qualities in Johns’ Tango (1955) and Target (1960) (Figure 4-81) that also influenced Feingold’s interactive artworks. In

561 Dinkla 1996:279.
**Target** the concentric circles of the outlined target are left blank, while underneath a paintbrush and three open containers of paint are encased behind glass. Authorship is inscribed onto the paper, with two signature spots. The first was signed by Johns, followed by “and,” with the second space left blank. Feingold argues that

the obvious suggestion is that the painting itself is to be physically completed by another, unknown to the artist. In this work, the interaction is conceptual, meta-interactive. The physical interaction is essentially irrelevant, as it is simply the idea of the action, which is enough to carry the meaning of the work.\(^{563}\)

Authorial responsibility in *InvertedPreverted* is similarly ambiguous, as the invitation to intervene suggests unknown others may contribute.

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While Ernst and Johns contributed important “meta-interactive” ideas, interactivity was a tangential interest throughout their careers. In contrast

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\(^{563}\) Feingold 2002:121.
Ascott’s *Change Paintings* (1959-60) (Figures 4-82, 4-85, 4-86, 4-87) formed his first foray into Interactive Art, an area he continues to work in. Like *InvertedPreverted*, these paintings prioritised non-representational abstract compositions of lines and dashes over colour variation. They were painted on three translucent panels of Plexiglas that could be slid underneath one another, making possible different combinations of form. Shanken argues that this implemented literal audience intervention as “the composition of these interactive constructions...entailed a durational aspect comprised of process, behaviour, and change” from “bringing the image painted on each panel into myriad configurations with regard to the images painted on the others.”

*InvertedPreverted* evoked responsibility for tactile engagement with the irreplaceable material substrate of the painting rather than the “idea of the action” in *Target* and the easily reversible and low likelihood of damage caused by sliding the panels in *Change Paintings*. Incorporating participants’ intentional or unintentional irreversible influences was further explored in the second work of this series: *D#generative*.


4.2.2 *D#generative*

Each of my ‘biotopes’ explores what I call ‘biological time’, which is time manifested throughout the life cycle of a being itself, in vivo (contrary to, say, the frozen time of painting or photography, the montaged time of film or video, or the real time of a telecommunications event).

Eduardo Kac

*D#generative* (Figures 4-88, 4-89, 4-90) is a triptych of three 110x170cm canvases that are intermediaries between painting and sculpture. Being made without paint, *D#generative* is an ‘ing’: as ‘painting’ minus ‘paint’

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The triptych was put flat on the ground by the veranda used for *Sly Droyler*, to be exposed to elements of rain, soil, wind, native and non-native garden leaves and 'fed' organic materials on average once a week for three years (Figures 4-75, 4-76, 4-86, 4-87). *Presence of Absence* (the left side canvas) (Figure 4-88) was fed globally sourced used coffee and tea from Nicaragua, Ethiopia, Sumatra, East Timor, India, Sri Lanka, Mexico, Honduras and Cuba. *Absence of Presence* (the right side canvas) (Figure 4-90) was fed Australian, but predominantly local ACT+NSW fruit and vegetables. *Whatever Will will be Will will be* (the middle canvas) (Figure 4-89) had Australian bird seed suspended above it, so it received mixed local/global materials, from the freely roaming 'Australian' birds and their droppings. After three years, all but the base layer of surface materials was removed and each was sealed with acrylic sealant. The works were then stretched over wooden frames and hung vertically, side-by-side in an outdoor space near where they were produced.

To explore the dominant ‘desire for surprises’ in Alife art, but in Blife art, control and responsibility are ceded to innumerable local and environmental influences. *D#generative* embraced all manner of interactivity, including ‘detrimental’ environmental influences of storms, floods and frost, exploring Blife art in analogy to anarchic Alife art. Sediments, bacterial growths, patterns, colours, shapes and forms occurred in ‘biological time’ (to use Kac’s term regarding “biotopes” in his above quotation): whatever happened left cumulative indelible impressions and indentations which interacted with innumerable other decomposing compositions. Being deliberately non-technological, both *D#generative* and *InvertedPreverted* explore Charles Snow’s “Two Cultures” predicament between form and function posed by computational generative art versus analogue degenerative art. They use Systemic Painting a la Jackson Pollock (Figure 4-91), but anachronistically, as they reference Generative Art, such as that of Jared Tarbell (Figure 4-92) and Casey Reas (Figure 4-93). The title *D#generative*

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567 *New Oxford American Dictionary* from Mac OS10.5, s.v. ‘-ing.’

A protective undercoat of white paint was painted on the non-exposed bottom, while the exposed top was not painted, other than a protective acrylic sealant applied at the end of the production process.

568 Rokeby 1995b.
refers to ‘generative degeneration,’ as this was how the accretions formed. However this is the analogue antithesis to the computational systems used by Tarbell and Reas to create digital analogues to this idea.

Figure 4-91: Jackson Pollock Blue Poles (1952)

Figure 4-92: Jared Tarbell Intersection Aggregate (2004)  Figure 4-93: Casey Reas Process 7 (2005)

*Dgenerative* explores Huhtamo’s “System Interactions” over overt audience interactivity. Animals and humans walked over the canvases numerous times while they lay on the ground ‘evolving,’ in “open interaction” with environmental microbiology. In *Presence of Absence* and *Absence of Presence*, a dialogue was formed between my weekly feeding (by selecting ingredients and where and how I placed them on the canvases), and ongoing observation of the interactions between these foodstuffs and the material substrate of the canvas. By contrast, in *Whatever Will will be Will will be* my dialogue was negotiated in selecting and replacing the bird seed when the birds and possums had eaten it all. Despite 2 inch gaffer tape ‘separating’ the canvas into three sections, ‘leakages’ between the arbitrary boundaries of

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569 Huhtamo 2006.

570 Willits 2007:2.
global and local foodstuffs inevitably occurred due to wind and rain. Their ‘final’ forms were determined by their progressive decomposition, as the microorganisms, mold and fungus were literally ‘eating’ the actual canvas, forming large holes. Applying the acrylic sealant after three years of this process effectively suffocated the surface, creating a fixed form.

\textit{D\#generative} relates principally to two works produced by two Alife artists: Kac and McCormack. While both concentrate on highly interactive, complex and technological works involving direct audience interaction, they also produce conceptually interactive works that prioritise interactive processes rather than interactive ‘products.’ The quotation from Kac at the start of this section refers to his biotope series \textit{Specimen of Secrecy about Marvellous Discoveries} (2006) (Figures 4-94, 4-95, 4-96, 4-97, 4-98, 4-99, 4-100). Each biotope is composed of soil, water, air and a multitude of microorganisms interacting with one another. Kac establishes as initial condition the size and shape of the frame and the selection of categories of microorganisms, then he feeds the work nutrients and exposes it to light which affects the overall evolution of the biotope (Figures 4-101, 4-102, 4-103). Curator Christiane Paul sees the responsibilities in this “artist’s process” being in “an orchestration of the organisms’ metabolism...to keep them still or in motion and thus create a living animation.” She describes them as “living painterly objects that appear to be still images, yet are constantly evolving slow-motion animations generating and never repeating themselves.”\textsuperscript{571} They constantly change according to ongoing amounts of light, nutrients and water. If neglected, they die, leaving only remnants and residue of the accretions over the material substrate. Kac invites audiences to engage with such biological time, since the “‘image’ is always evolving into its next transformative state, the perceived ‘stillness’ is more a consequence of the conditions of observation (limits of the human perception, ephemeral presence of the viewer in the gallery) than an internal material property of the biotope.”\textsuperscript{572}


\textsuperscript{572} Paul 2010.
In contrast to the tightly controlled process used in Kac’s biotopes, *D#generative* sought to embrace a high degree of indeterminate registering of the interactions between flora, fauna and natural environment. The biotopes were largely hermetically sealed from ‘birth’ through to their exhibition, with highly controlled dosages of sunlight, water and nutrients. In *D#generative* I ceded such control to whatever the weather was like, in combination with my select feeding described above. Kac’s resultant aesthetic and symbolism are similar to *D#generative*, the major exception being that the canvas and surface material degeneration in *D#generative* was non-reversible, as is the case in the relation of *InvertedPreverted* to *Target* and *Change Paintings*. 

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**Figure 4-94**: Eduardo Kac *Apsides* (2006)  
**Figure 4-95**: *Oblivion* (2006)  
**Figure 4-96**: *Odissey* (2006)  
**Figure 4-97**: Figure 4-98: Installation views of Eduardo Kac *Theorem, Oblivion and Apsides* (2006)  
**Figure 4-99**: Eduardo Kac *Odissey* (2006)  
**Figure 4-100**: *Theorem* (2006)
D#generative evokes the differences between human and biological time, but is closed to viewers influencing the artwork as presented in static form. It offers an archeological portal or archival photograph through the layers of history of accretions and residue, to downplay any responsiveness between real-time participation and the three year ‘evolution’ of the triptych. This references McCormack’s Alife processes of producing “evolved digital still images based on native Australian flora” for his Morphogenesis Series (2001-4) (Figure 4-106) and bloom (2006) (Figures 4-104, 4-105). Unlike his real-time interactive works using animated sequences of these evolving ‘flora,’ these still images suggest inalienable processes for audience participation from which an arbitrary decision to ‘freeze’ one-instance of this process was made. McCormack began with Morphogenesis Series, which used “selected native Australian species” as the impetus for biomimetic Alife modelling to create digital ‘analogues’ of “strange, yet familiar models of archetypal Australian flora.”

He explored similar tensions in bloom, a billboard size digital image of the same process and product that was publicly exhibited in Queensland. He related these still images to his moving-image and interactive works, as bloom “forms part of a continuing proposition that synthesised natures are becoming replacements for the real nature lost in urban environments through human development and progress.”

Like McCormack’s still images, D#generative evokes responsibility to what once was (the dynamic production process), as presented by a static representation of the culmination of this process.


4.2.3 Sly Drooler

Figures 4-107, 4-108: Sly Drooler at sunrise

Figures 4-109, 4-110: Sly Drooler in late afternoon
Photography by Josh Wodak

Figures 4-111, 4-112, 4-113, 4-114: Examples of slide rulers
A painting is an instance of representation. A film is a sequence of representations. Interactive artworks are not instances of representation, they are virtual machines which themselves produce instances of representation based on real time inputs.

Simon Penny

_Sly Drooler_ (Figures 4-76, 4-107, 4-108, 4-109, 4-110) is the last work in this series. It was a sculpture made of parallel lines of 35mm film strips with their multi-channel soundtracks. They were woven through the banister around the veranda, running between *InvertedPreverted* and *D#generative*. Progressive degeneration due to wind, rain and sun exposure produced differentiated decomposition between individual slides and between strips of slides.

_Sly Drooler_ anachronistically refers to slide rulers as mechanical analogue computers (with the title a spoonerism of ‘slide rulers’ as shown in Figures 4-111, 4-112, 4-113 and 4-114). It represents a 3D visualization of *Intact Syntax*, *Arpeggiated Hierarchy* and *Translucinatory Recombinatronix*, my techniques of combining form, content and Interaction Design that balanced interactivity and narrativity in _KY, StilmS_ and _Emergence_. While _Sly Drooler_ used static form to represent the dynamic processes of my techniques, the patterned placement of each row of slides represents the multiple simultaneous interwoven non-linear narrative threads used in narrative-based _KY, StilmS_ and _Emergence_. Each individual slide forms a primitive, as _D#Generative_ and _InvertedPreverted_ do within Penny’s above definition of a painting as “an instance of representation.” The sequential placement of the slides along individual strands represents cinema, according to Penny’s above definition of a film as “a sequence of representations.” Collectively, the strands form an interwoven audiovisual data-set as the content for an interactive artwork. The audiovisual content in _Sly Drooler_ is accessed via projectors and amplifiers which reproduce the content embedded in the film strips. Such a data-set can then be designed to behave according to Penny’s above definition

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575 Penny 1996a.

576 How they were applied is discussed in the sections on these three artworks, in Chapter 4.3, 5 and 6 respectively.
of "interactive artworks" as "virtual machines which themselves produce instances of representation based on real-time inputs."\textsuperscript{577}

The real-time inputs refer to designing how participants may exert influences over the behaviour of the artwork. One such example is in navigating through the multifarious streams represented by the layered arrangement of the film sequences in \textit{Sly Drooler}. \textit{Translucinatory Recombinatronix} refers to the process whereby individual audiovisual streams may become translucent, such as images and/or sounds being faded in and out or placed over the top of one another through sound and vision mixing consoles. The recombinant potentiality of how all primitives may be combined in real-time by participants is according to combinatorics as "the branch of mathematics dealing with combinations of objects belonging to a finite set in accordance with certain constraints, such as those of graph theory."\textsuperscript{578}

Combining these two modes of interaction refers to participants being able to simultaneously modulate both the translucency of audiovisual streams and their ways of being combined, which I explored in \textit{StilmS}.\textsuperscript{579}

The "certain constraints" explicit in combinatorics refer to the techniques of \textit{Intact Syntax} and \textit{Arpeggiated Hierarchy} discussed in Chapter 2.\textsuperscript{580} Both concern negotiating influence that engages audiences, while leaving the syntax of the artwork (such as the primitive of individual slides in \textit{Sly Drooler}) relatively ‘intact’, so responsibility to the artwork may still be evoked via cogent engagement with the narratives. For Interaction Design, \textit{Intact Syntax} denotes the trade-off between narrativity and interactivity whereby selected components which ‘carry’ the narrativity are non-malleable, while other components entertain greater plasticity. In application to \textit{StilmS}, this meant that the individual images could only be subject to permutation and combinations of re-arrangement to form the visual narrative, while the continuous stream of sound could be subject to more malleable forms of interactivity, as it does not ‘carry’ the narrativity.\textsuperscript{581} \textit{Arpeggiated Hierarchy}

\textsuperscript{577} Penny 1996a.

\textsuperscript{578} New Oxford American Dictionary from Mac OS10.5, s.v. ‘Combinatorics.’

\textsuperscript{579} See p220.

\textsuperscript{580} See p93.

\textsuperscript{581} See p222.
concerns the hierarchy of consequence in determining what should be influenced and how. It denotes the form, whereby different ‘layers’ of media, such as sounds and images in *Sly Drooler*, are vertically overlayed as an arpeggio. In application to *Kali Yuga* and *Emergence*, the hierarchy of consequence meant the playback and order of the visual sequences were unalterable while more modular elements such as sound and tactility entertained greater real-time interactivity.

### 4.2.4 Summary

The three works described above explore ideas from three eras of Interactive Art. *InvertedPreverted* relates to Penny’s “pre-electronic”\(^{582}\) precedents of Responsive Environments, *D#generative* relates to contemporary Generative Art and Huhtamo’s “Systems Interactive”\(^{583}\) while *Sly Drooler* anachronistically relates to Expanded Cinema of the 1960s-70s. Within the suite of artworks made for this PhD, the function of these works was to ‘strip away’ the maelstrom of technology-mediated interactivity to explore fundamental form and function in an analogue medium. They were conceived and executed in a similar vein to artists such as Ascott, McCormack and Kac, whose careers have oscillated between complex interactive works and simple analogue works that cannot evoke the same responsivity, but which provide another lenses for exploring the same issues in ‘debased’ mediums. My three works explored divergent approaches to evoking responsibility to the physical environment of the artwork, from the literal, tactile irreversible influences in *InvertedPreverted* to the metaphorical interactivity in *Sly Drooler* and *D#generative*. Collectively they comment upon the nature of human-environment interactivity itself, albeit evoking a relatively more conceptual responsibility compared to the more literal responsibility evoked by the responsivity of *Kali Yuga*, which is the subject of the next section.

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\(^{582}\) Penny 1997.

\(^{583}\) Huhtamo 2006.
4.3 Tat Avam Asi (Kali Yuga)

Figures 4-115, 4-116, 4-117: Video stills from Kali Yuga (2004-5) of some of the natural and urban environments. Cinematography by Josh Wodak.

4.3.1 Project Overview

Film is a technological medium which contains narrative content. It is a technological vehicle. Many of the experiments in digital media are formal explorations in which the manipulation of media components are the work...and if the technological combination is the work, then its ability to carry narrative content is a secondary issue and somewhat superfluous.

Simon Penny

Kali Yuga (KY) was an artwork in two iterations. This following discussion concerns v1 (the first iteration), that existed within Penny’s above definition of film as “a technological medium which contains narrative content,” and v2 (the second iteration), which concerned “formal explorations in which the manipulation of media components are the work.”

The project began as the third in a trilogy of thematically contiguous short films made with the same collective as the artworks discussed in Chapters 5 and 6. As Producer, Writer, Director, Editor, Director-of-Photography, Cinematographer, Sound Designer, Lighting Designer and Costume Designer I initiated and managed v1 and v2 from conception to realisation. While envisaged as an immersive environment, it was subject to

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The name of the collective at the time was Splendiferous Productions. This was the name principally used by myself, Bolotin, Cartwright and Wood between 2000-2004, after which the name was changed to Synarcade Collective from 2004-2007. See Appendix B Curriculum Vitae.

The credits for the cast and crew are: Starring: Richard Cartwright, Geoff Cartwright, Philip Wood, Dave Ma; Voices: Richard Schweizer, Ian Shoebridge, Dave Watts, Philip Wood; Lighting Operator: Dave Ma; Sound
the limited budget and technology available. The trade-off between technology and scale of presentation was subsequently skewed in favour of large-scale audience immersion for *StilmS*, the next work made, as both works aimed for immersive engagement. Production involved difficult locations, including major Sydney train stations (Figures 4-118, 4-119), moving peak-hour trains (Figure 4-116), busy public domains (Figures 4-124, 4-125) and multiple locations along a 300 metre cliff face in the Blue Mountains (Figures 4-115, 4-117). Permission to film was obtained where possible, but funding could not encompass official permission.  

*KY* evokes relatively indirect and symbolic responsibility to the natural environment by prioritising the subject of environmental responsibility relative to other ingredients of form and Interaction Design. Balancing interactivity and audience engagement with the narrative involved implementing relatively simple interactivity over two iterations. *KYv1* was metaphorically interactive within narrative based experimental cinema that draws upon video art and expanded cinema. *KYv2* explored Penny’s above mentioned trade-off between “formal explorations” where manipulating audiovisual media “is the work” and “narrative content” consequently becomes “superfluous.” *KYv2* used trammeled responsivity as a “reactive environment” that resembles the early narrative based interactive works in Dinkla’s *The Art of Narrative: Towards the Floating Work of Art.*  

*KY* references this period of Interactive Art of the mid 1990s, where members of Huhtamo’s “old school,” such as Weinbren and Courchesne, attempted to balance the narrativity of experimental cinema and literal interaction with the unfolding of their narrative based works. Such interactivity was limited due to the prioritisation of conveying narratives, such that Cameron describes Weinbren’s *Sonata* (1991-3) and *The Erl King* (1983-6) as forms that “demonstrate a tension between repression and freedom, offering

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Recorder and Monitor: Philip Wood; Additional Cinematography: Mark Bolotin; Titles and Credits: Fabian McDonald.

587 However this proved invaluable for my following artwork *StilmS*, which involved photographing without permission in areas of India where photography is banned due to governmental, military, political and industrial concerns.

588 Dinkla 1996:286.

the reader the illusion of control within a tightly authored set of possibilities.” In a similar vein, KY evoked responsibility through negotiating repression and freedom in low-key interaction with the subject of environmental responsibility. Hence, the following discussion focuses on how the content and form were created to be engaged with.

4.3.2 Content and Subject Matter

A fundamental characteristic of the narrative form in cinema is the inevitability of its fictional resolution. The outcome of the plot is pre-determined and the plot carries its primary significance in the relationship of action to the ultimate resolution. The form of a narrative text itself, in the pre-determination of its resolution, is intrinsically fatalistic. The end (as represented in the text) is already determined. Viewers know it is determined when they start watching the film and the events of the film only have their rationale in their contribution to the ultimate consequence.

Malcolm Le Grice

While situated within the constraints of the medium of film, as Le Grice remarks above, KY intentionally eschews coherent content and subject matter to downplay any such “rationale” or “ultimate consequence” in “the events of the film.” These ideas were suggested in minimal publicity for stagings, which provided only the following evocation:

...a quartet of voices superimposed over a silent film without beginning nor end, to together form a never ending cycle concerning the adventures of a young man dealing with the Powers That Be: The Nicotine and Alcohol Rehabilitation Centre...

The Sanskrit title encapsulates the interpenetration between form and content. The idiom tat avam asi (“that you are”) summarises the Upanishadic philosophy of essentialist self-other identification. It connotes interchangeability between oneself (“you”) and ones' surroundings (“that”) thereby dissolving differences between binary opposites, such as Inside-Outside, individual-universal, sacred-profane and idealist-materialist. The phrase connotes enlightenment for young adult students, following their

Cameron 1995.

formal training in Vedic theology and philosophy. *Kali Yuga*, the apocalyptic fourth and final epoch in Vedic cosmology and cosmogony, is the current epoch according to Hindu belief.\(^5\) Combining the two title parts encapsulates the work’s Inside-Outside relationship: identifying one’s self in one’s surroundings in a disintegrating age causes a crisis of subjectivity between selfhood that mirrors the (visibly deteriorating) external world.

These subjects are allegorically evoked by the narrative, which charts an archetypal protagonist, *Man*, undergoing a journey of discovery of his relationship to the natural environment, and the State forces which fashion this relationship. *Man*’s environmental responsibilities were not evoked through a didactic fable but rather through obtuse content and form, harnessing enigmatic ambiguity, analogy, symbolism and metaphor. For example, the publicity provided about the title was: “The Sanskrit title translation is: ‘That you are (the Age of Kali).’”

*KYv1* produced a disjuncture between the subjects of non-linearity and indeterminate causality within the form of a linear ‘film’ as “the intended representation is of a non-fatalistic world, the representation is in conflict with the intrinsic form of linear narrative and its experience by the viewer.”\(^6\) The subject of *Man*’s will to seek freedom from the State’s autocratic dominion over the natural environment trapped him in a seemingly fatalistic linear narrative within a never-ending cycle. The classical five part narrative charts *Man*’s crisis-resolution journey within a palindrome structure that is Aristotelian and Freytagian. The five parts represent one *Yuga* each, with the narrative designed to repeat ad infinitum as per the Hindu notion of cyclical time in *Yugas*. *KY* uses “ambiguity in resolution, alternated resolutions, parallel action, branching detours in the plot or multiple viewpoint in the representation of the fiction” as part of what Le Grice terms “attempts…within classical cinema to break both the linearity and tyranny of the singular consequentiality of narrative form.” While these attempts evoke such non-fatalistic structures, “none of these substantially question the structure of linear causal representation.”\(^7\) Realising that the content required a form that

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\(^5\) Within Vedic notions cyclical time, whereby the cycle of time begins again with *Satya Yuga*: ‘The Age of Truth.’

\(^6\) Le Grice 1995.

\(^7\) Le Grice 1995.
could accommodate such structures, I designed KY to evoke an exploratory encounter with Interactive Art, by unraveling the narrative within a non-linear and cyclical form. This form is outlined in the following two sections which separately describe the visual and audio form of KY.

### 4.3.3 Visual Form

New media forms pose a fundamental challenge to the principle of narrative coherence... if we explode and open the structure, how can we be sure that the story is being conveyed? Other stories, or non-stories, may become possible.

Mitchell Whitelaw

KY posed “a fundamental challenge to the principle of narrative coherence” by employing a rhizomatic structure within the conventional dramatic format of a film with a notional beginning, middle and end. Referencing Paine and Rokeby’s desire for understanding through repeated engagement, it was designed to be engaged with through multiple encounters. The beginning remains incomprehensible until the multiple simultaneous interwoven non-linear strands coalesce at the finale and then make the cyclical narrative retrospectively comprehensible. End and beginning mirror and feed back into each other, making the interrelated audiovisual layers increasingly understandable through repetition.

Part I (exposition) (Figure 4-124) and Part II (rising action) segue into Pt III (crises) (Figure 4-125), with Part IV (falling action) segueing into Part V (resolution). Actions in Part I are the opposite to actions in Part V, while Part II actions are in opposition to actions in Part IV. As an example of how this was applied to the composition and structure of the scenes, Figure 4-118 is the opposite of 4-119, 4-120 the opposite of 4-121 and 4-122 the opposite of 4-123. My use of an Aristotelian structure that is also palindromic relates to Weinbren’s Sonata and The Erl King. For these artworks, Weinbren, argues “the

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596 This is discussed in Paine’s practice on p125 and in Rokeby’s practice on p143.
Figure 4-118: Walking away in Part II
Figure 4-119: Walking towards in Part IV
Figure 4-120: Going up in Part II
Figure 4-121: Coming down in Part IV
Figure 4-122: Climbing up in Part II
Figure 4-123: Climbing down in Part IV
Figure 4-124: Walking the beginning of the Spiral in Part I
Figure 4-125: Walking the middle of the Spiral in Part III

Cinematography by Josh Wodak.
traditional (Aristotelian) notion of narrative must be rethought” when attempting “an interactive narrative cinema” which could “not have the shape of narrative as we have understood it” since “the very idea of user impact opens to question the concepts of end and beginning, of crisis and conflict, of development itself.” Like Sonata and The Erl King, KY employed form inspired by Freudian dream interpretation, as used by Weinbren to explore how strict sequence can be abandoned without losing the narrative thread. Freud’s understanding of dream-structure is an alternative to the Aristotelian model, not only because the components can appear in any order, but also because the story is never over, the analysis is always incomplete, there are always more biographical details to uncover.

Form and content were also inspired by Levi-Strauss’ writing on the narrative structure of myth, as KY resembles an enigmatic and surrealistic fable via the non-linearity of Levi-Strauss’ approach to mythic structures. Levi-Strauss argues “the true constituent units of myth are not the isolated relations but bundles of such relations, and it is only as bundles that these relations can be put to use and combined so as to produce a meaning.” The “constituent units” of KY were each individual shot, which formed the size of the visual primitive described on p92. KY explored both mythic structures and the structure of myth. The meaning of the primitives came about through their individual and combinatorial presentation, as Ricoeur argues that the meaning Levi-Strauss refers to “is not at all what the myth means, in the sense of its philosophical or existential content or intuition, but rather the arrangement or disposition of the mythemes themselves, in short, the structure of the myth.” This is illustrated in the following description of how each shot formed a primitive.

All shots are static and from a tripod, other than one tilted down interspersed over the montage beginning each of the five parts. The order of all shots is modified in real-time, by each shot played in its entirety and by

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accessing individual frames from within separate shots. As the camera position remains stationary, each shot can be subject to malleability akin to jumping around a succession of photographs where the camera remains still while movement occurs within the frame. This avoids a kaleidoscopic ‘MTV style’ rapid montage while allowing the primitives to be subject to combinatorics. The literal reversibility of actions in the same location, such as ‘Man’ walking toward the camera in Part II (Figure 4-119) or from the camera in Part IV (Figure 4-118), means all can be played forwards and backwards with instantaneous access to any frame in any shot.

Balancing interactivity with narrativity was similar to Weinbren’s negotiation between non-linear structures and narrativity where “the order in which the depicted events are accessed would have to be open to variation.” Weinbren found linearity and narrative causality to be at odds when “a film might try to approximate the structure of Freudian dream analysis in a story structure that step by step unraveled the components of an evocative image.” While he advocated interactivity to “reproduce the minimal significance of sequence” and “the irrelevance of order,” his approach offered minimal choice between multiple narratives (like those represented in Sly Drooler above) at pre-defined points, as he attempted to retain complex yet discernable narratives. This was necessary in Sonata and The Erl King, for “the analogies with fate and determinism are still effectively sealed in this hermetic system, as while ‘things could have been different’ they could only be so in the confined context of other permissible possible paths.” This echoes Whitelaw’s argument, quoted at the beginning of this section, that to “explode and open the structure” undermines “the story” in favour of “other stories, or non-stories.” Like Weinbren, I sought to “open the structure” to “other stories” but not to “non-stories.” In applying my technique of Arpeggiated Hierarchy to KY, the order and presentation of the visual primitives bore the weight for conveying “the story” and “other stories.” Accordingly, I used the relative malleability of the sound to evoke audience interactivity.

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603 Weinbren 1995.
4.3.4 Audio Form

Lived experience does not parcel itself into linear, closed structures, though we sometimes represent things in that way in order to tell stories about ourselves... If the interactive cinema is a more faithful rendering of reality, it is precisely because it can bypass some of these criteria of narrative structure. Intermixing and interweaving multiple narrative streams, it can create a metanarrative sum that is greater than its component parts, if the subject-matter is a match for the potential of the medium. What would be an appropriate model for the subject-matter? The ideal is the human mind in operation.

Grahame Weinbren⁶⁰⁴

The images and sounds in KY function independently and interdependently of one another. It is designed to be experienced with images or audio or with both at the same time. Synaesthetic audiovisual relationships were constructed by replacing all the dialogue of the filmed characters’ with a compositional collage of four voices in contrapuntal consonance and dissonance with one another and the images. As *interrogational* interaction, the quartet comprises modular samples from my interviews with four friends/collaborators. To capture “the human mind in operation” in Weinbren’s sense above, each was asked exactly the same questions in exactly the same order, so their responses could be compared and contrasted when superimposed over the images. The questions concerned the project themes and issues. The narratives of their responses were broken into progressively smaller modules, with the primitives being phonemes that were unintelligible in and of themselves. The opposite end of the size spectrum included minute-long multi-clause stream-of-consciousness musings on philosophically dense concepts. The audio was structured according to *Intact Syntax* and the analogy of re-arranging letters in Alphabet soup as illustrated in Chapter 2.⁶⁰⁵ *Intact Syntax* imposed the constraint that I could not change the order of any words, to reflect Weinbren’s notion of capturing the real-time temporal flow and thought-development of a “human mind in operation.”⁶⁰⁶ However, once each

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⁶⁰⁴ Weinbren 1995.
⁶⁰⁵ See p92.
⁶⁰⁶ Weinbren 1995.
module had been determined, it was arranged in fugal counterpoint of repetitions and re-orderings in combinations that formed metanarratives within and between each interviewee, as a reference to Freudian dream interpretation and Levi-Straussian structuralism.

Leitmotif arrangements formed a non-linear matrix between preceding and succeeding speech by the same interviewee and other interviewees. This forms 21 relational 'conversations' throughout:

1) Conversations 1-4:
   Internal dialogues within each interviewee’s responses juxtaposed with their immediately preceding and succeeding modules

2) Conversations 5-10:
   External dialogues between any two interviewee's simultaneously modules in each channel

3) Conversations 11-16:
   External dialogues between any two interviewee's modules juxtaposed before or after one another in the same channel

4) Conversations 17-21:
   External dialogues between any two interviewee's modules juxtaposed before after one another in the other channel

Each of these is also in conversation with the images on screen immediately before, during and after each module.\textsuperscript{607}

\textsuperscript{607} In the silent version this relationship is only between images immediately succeeding or preceding what is on screen.
4.3.5 KYv1: Prototyping the Installation

Figure 4-126: Installation view of KYv2, Canberra Contemporary Art Space, Canberra, 2008. Photograph by Josh Wodak.

To enable comprehension of concurrent conversations, I specified that both speakers be positioned in line and equidistant to the screen, with the apparati-audience distance proportionate to the screen size. This ensured both sound channels were distinguishable for all audience members. Figure 4-126 shows an example of this ratio for a small-scale presentation of the work.508

This configuration symbolised the ‘conversations’ between media, mediums and interviewees and between audience and artwork. The ‘conversations’ between image and sound were that the actors rendered silent on screen had surrogate invisible replacements (the interviewees), emanating from equidistant sources on opposing sides of the screen. The ‘conversations’ between audience and artwork harnessed this spatial configuration to evoke metaphorical interaction by placing audiences spatially between ‘conversations’ they could not join. Audiences seated on the left were deliberately over-exposed to audio on the left channel and the right side to audio on the right channel. This partitioned audiences along a continuum: from those closest to the left channel, through to those in the middle and onto those closest to the right channel with the aim of generating discussion arising from differing perspectives via the relative prominence of audio channels.

508 KY was intentionally unsuitable for domestic viewing or with headphones, since narrow distances between speakers or between speakers and audience rendered it incomprehensible.
However, my specified configurations were often not achieved, as the 2004-5 filmic presentations were amongst heterogeneous screenings onto various sized screens, with various projection devices, speaker arrangements and room sizes. I also re-conceived the work in light of my investigation of audiences’ responses, especially regarding what real-time control would facilitate heightened engagement.

4.3.6 KYv2: Implementing Explicit Interactivity

Reworking audiovisual form and content was in the interrelated areas of interface design, metanarrativity, non-linearity, causality and indeterminacy. The ‘balance challenge’ was to retain the contemplative mode of engagement of KYv1, whereby audiences could engage with the work (which was challenging in and of itself) and not get overwhelmed by complex responsivity. Designs were either realised as experimental proof-of-concepts, used in the more appropriate works of StilmS and Emergence, workshopped during screenings, exhibited in a gallery and staged at the Magical Theatre in Sydney. Magical Theatre was a community performance space co-founded in 2001 by myself, Richard Cartwright and Phillip Wood, two fellow members of an art collective. It was an invaluable production site, sound stage and “public research laboratory” for those I collaborated with on KY, StilmS and Emergence. Many of those associated with Synarcade, the Sydney based multi-arts collective which made Emergence, developed and showcased iterations of their works there.

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609 I sought feedback on some of my proposals for KYv2 after the following screenings: Magical Theatre, Sydney, April 15 2004; ANU Centre for Cross Cultural Research, July 16 2004; National Museum of Australia, DUST, October 8 2005; ANU School of Music Sounds in Translation Conference as part of my presentation ‘Visual-Audio and Audio-Visual: Intermediary Translation of a Motion Picture Soundtrack,’ October 15 2005; Camera Obscura – Lanfranchis Memorial Discothèque, Sydney, June 4 2007; and following the ANU Symposium on Practice-Led Research or Research-Led Practice? The Joys and Challenges of Making Media Art in a University Context as part of the ANU Beginning Middle End festival, September 18 2009.

610 Rokeby 1998.
4.3.6.1 Sound

How do we move from one mental entity to the next? Switching between streams of mental activity involves responding to hardly perceptible internal and external cues. Except in the least significant cases, we affect things in our lives not by making choices, but by actively responding to situations - with speech acts or in behaviour, and equally by silence or inaction.

Grahame Weinbren

KYv1 represented ‘conversational’ artwork-audience interaction metaphorically, in a similar vein to Graham’s Individual Fancies. KYv2 augmented this with literal ‘conversational’ interaction so audiences could influence the interior conversations of the work. I intended for minimalist intervention to express Weinbren’s contention (quoted above) that we may “affect things” as much by “actively responding to situations” through “silence or inaction” as through supposedly more assertive responses. To create literal intervention with KYv2, I undertook research similar to Turner’s PhD survey of sensing technologies for Interactive Art. As relatively complex sensing technologies were suited to my latter, relatively complex, works, I proceeded with two sensors Turner listed under “Rotation Sensors,” namely the “potentiometers” of volume level dials and “gyroscope sensors to detect changes in angle.”

The filmic presentations of KYv1 did not facilitate actively selecting between the work’s simultaneous phrases (like tuning a radio). This required physical freedom to filter between the audio channels by moving around, which was unviable in cinematic environments. Physical movement afforded nuanced prioritisation of different sound channels, with correspondingly more nuanced interpretation of the associated images. In his Real Time Arts review of KYv2 in the Dorkbot CBR group exhibition at Canberra Contemporary Art Space in 2008 (Figures 4–131, 4–132), Alistair Riddell commented that “one sensory mode triggers or illuminates the other” of these audiovisual relations, whereby “this synaesthetic experience was interactive in the sense that it is

611 Weinbren 1995.
612 Graham 1997:141.
613 Turner 2007:64.
activated by the position of the viewer in the gallery.”\textsuperscript{614} In his catalogue essay for the exhibition, David Broker described KYv2 as a “deceptively interactive \textit{mise en scene} due to the mixture of metaphorical interactivity and minimalist intervention offered. Within this structured engagement, Broker argued that audiences “can create their own synaesthesia from a limited palette of sound options.”\textsuperscript{615} This referred to Riddell’s metaphorical dimension of the interactivity as “activated by the position of the viewer in the gallery” and the trammeled interactivity of inviting attendees to physically manipulate two separate rotation knobs, which each controlled the volume level of the corresponding sound channel (Figures 4–127, 4–128, 4–129, 4–130). Broker described this as highlighting the “synaesthetic audiovisual relation” between sound and image, through “a condition in which one kind of simulation evokes the sensation of another” such as “sound as colour.”\textsuperscript{616}

The rationale for presenting this with a “limited palette of sound options” is expressed in the following excerpt from my production dairy:

\textit{Balancing between binary oppositions of left and right audio channels evokes extremist political left and right wings. Such balancing is symptomatic of action versus inaction: not interacting results in passively receiving all voices simultaneously, while interacting allows for the extremes of only left or only right or gradated intermediary positions whereby participants are subject to both in varying degrees. However stereo sound impedes comprehension of the four voices as two voices share both sound channels. Four simultaneous channels allows more nuanced balancing as there is one voice per sound channel and each voice is positioned in one of the four corners. A gyroscopic interface allows for nuanced balancing between quaternaries rather than the binaries available with a rotation sensor. Participants do not choose degrees of ‘either-or’ as they simultaneously modulate between all four volumes by positioning the gyroscopic interface in any position in the four quadrants. While this increases comprehension of the work, it does not embody the binary}


\textsuperscript{616} Broker 2009:4.
oppositions that are the subject of the work and which are physically sym bolised when balancing stereo sound.

For this exhibition I decided against the gyroscopic interface as adjusting the proportional balance between two sound channels was an intuitive interface with sufficient play between audience responsibility and an intact narrative. KYv2 was presented with a stereo amplifier with separate rotation sensors for accentuating or muting left and right audio channels. The program notes (Figure 4-130) informed attendees.

the interviewee’s ‘conversations’ are in counterpoint to encourage actively modifying the balance of power between voices. Controlling the stereo balance between left and right channels is done by adjusting the amplifier balance knob, to mute and/or amplify particular voices (like tuning a radio). Not interacting results in receiving all voices simultaneously, while interacting permits the extremes of only left or only right or ‘middle ground’ combinations of both.

Figures 4-127, 4-128, 4-129, 4-130: Installation views of KYv2, Canberra Contemporary Art Space, Canberra, 2008. showing the printed work description and invitation to interact in 4-130. Photography by Josh Wodak.

Figures 4-131, 4-132: Publicity for the Dorkbot CBR exhibition that KYv2 was included in. Flyer designed by Icelab.
4.3.6.2 Metanarrativty through Cyclical Repetition

This staging also addressed the requirement of comprehension through multiple encounters:

Balancing between left and right sound channels is not based on absence or presence, but on a continuum between these extremes, with a balance knob raising or lowering volume across a continuum. It can switch any voice ‘off’, or reduce any voice to any volume level relative to the other voices. However to make full use of this control requires participants to know what is on the other sound channel. If they do not know, they are in a responsive position of suppressing the voice they do not want after it has already started (which means they do not know what is said when that same segment re-appears on the next cycle). To be ‘pre-emptive,’ they must first encounter the work with the balance knob in the middle, to learn what the options are at each point, and then may progressively exert more control over the work. Although this interactivity may appear to be basic, because of the relationship to the narrativity and form it is subliminally more complex that it appears.

To shift focus back and forth between visual and audio narratives, slow incremental changes in sound density accentuate the multi-layered image-sound construction. The cyclical narrative and structure are highlighted through repeating the image track with the following changing sound layers:

1st cycle: Non-Verbal Soundscape (NVS) only
2nd cycle: NVS with 1st voice on front left channel
3rd cycle: NVS with 1st voice on front left channel, 2nd voice on front right channel
4th cycle: NVS with 1st voice on front left channel, 2nd voice on front right channel, 3rd voice on rear right channel
5th cycle: NVS with 1st voice on front left channel, 2nd voice on front right channel, 3rd voice on rear right channel, 4th voice on rear left channel
6th cycle: NVS only

As KY is 14min59 seconds, these six cycles parody the conventional 90 minute Hollywood feature length.
While using two rather than four channels, KYv2 was presented in alternations between silent/passive and audible/interactive. The program notes informed audiences that end and beginning mirror and feedback into each other, making the interrelated audiovisual layers increasingly understandable through repetition. The non-linear narrative is designed to be started at any scene, although it is advised to experience one complete cycle, being 15 minutes between the re-appearance of the same shot in successive cycles. The work alternates between the silent and audiovisual versions: it is silent for the first 15 minutes of each hour, then with sound for the next 15 minutes, then silent, then with sound.

4.3.6.3 Modularity and Causality

KYv2 involved deconstructing the visual narrative into the non-linear modules described above on p181. I used the modules frequently in experiments at the Magical Theatre and when Vjing in 2004-5 to determine preliminary rule sets for reconfiguring the visual narrative for recombinant interactivity. These performances demonstrated how differently the visual stories could be told. However, expecting participants to exercise such fluidity with the source material created further responsibility through the above mentioned requirement for multiple encounters. Improvisational adjustment of other parameters such as duration and inflexion of shots, scenes and sequences created an imbalance with the audio, visual and audiovisual narratives. In addition to real-time responsivity, I researched how to evaluate patterns of cumulative interaction where responsivity was derived from each successive interaction relative to discernable behaviour patterns arising over entire installation stagings. This would encourage participants’ deductive responsibility toward the real-time behaviour, combined with inductive responsibility from anticipating such actions’ consequences for future participants, in a similar manner to Feingold’s The Surprising Spiral. However, I decided that the subsequent artworks of StilmS and Emergence were better

15 minutes is the most common criteria for a ‘short’ film in festival circuits.

618 See Appendix B: Curriculum Vitae.
suited to incorporating such cumulative interactivity patterns, as for KY they would be problematically reflected if any of the narrativity was to be retained.

4.4 Summary

In her “development of a taxonomy” of interactivity, Graham found “the ‘most interactive’ category of ‘Real Conversation’ was deemed not to be possible between an interactive computer based artwork and its audience.” Instead she found “an interesting site for study” in “‘Real Conversation’ (of a verbal or other variety)...between members of the audience.”619 She found that one-on-many interactivity, denoting an artwork where one person may interact at a time while all remaining attendees are excluded from interacting at that point in time, places undue duress on the sole participant, as they become responsible for shaping the experiences of fellow attendees. Like McCormack620 and Feingold,621 I also found this to be the case with KYv2. In response, I sought to devise an interactive artwork that would encourage “‘Real Conversation’ (of a verbal or other variety)” between participants. I decided a new work with an intrinsically non-linear and malleable structure would be more appropriate for evoking social and physical responsibility between multiple simultaneous participants interacting with one another in non-verbal ‘Real Conversation.’ This led directly to the conception and realisation of StilmS, which are the subject of the following chapter.

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620 See p132.
621 See p84.