

## **The Poetics of Interactivity: The Uncertainty Principle**

“*Negative Capability*, that is when man is capable of being in uncertainties, Mysteries, doubts, without any irritable reaching after fact and reason. ” — John Keats

The discovery of ambiguity in the sub-atomic world was the essential catalyst for the twentieth century’s abandonment of hierarchical Newtonian science; with its omniscient privileging of the observer.<sup>1</sup> Quantum mechanics, through Heisenberg’s Uncertainty Principle, provided definitive proof of the ultimately unknowable and unpredictable nature of the universe. As for particle physics, so for artists, writers, and filmmakers, engaged in the experimental discovery of appropriate form and language for interactive stories and drama, the rediscovery of ambiguity in the language and structure of narrative poses a primary challenge. Though here it is the omniscient privileging of the author as against audience, which is under contention. The frequent assertion that interactive narrative is ‘a contradiction in terms’ centres on the argument that the diegetic space of narrative is compromised or destroyed by interactive engagement with story; as I hope to show, this argument is based on a misunderstanding of narrative mechanisms. The active participation of audience is not new nor is it disruptive of narrative; it is merely incompatible with certain narrative conventions, which have become unduly emphasised by historical accident.

### **Language and ‘Deep’ Structure**

Writers frequently use complex strategies to manipulate the engagement of audience with content. These strategies often fall outside the normal complexities of the Aristotelian model of drama. Dickens, for example, was an episodic writer by practice and his plots are often thin or incredible to the critical eye. What we value in late Dickens, apart from his characterisation, is the vividness, energy, and ambiguity of his language; and it is through such language that the darker symbolic sub-texts of his narrative-worlds can reach an audience.<sup>2</sup> These affinities of language have been remarked in many great writers and form a secondary deep ‘indexical’ structure, which creates the unconscious mood of the work. We can also find equivalents to such indexical literary devices in various cinematic genres such as *film noir*, where complex plots have very little to do with the powerful unconscious effect of the imagery on audience mood and even defy logical analysis.<sup>3</sup> It seems to me that language is the perfect tool for overcoming the discontinuities and schematic thinness brought about by sudden shifts of timescale or viewpoint, typical of interactive narratives. The very flexibility of language allows both for a compression of meaning and a proliferation of association, which can simultaneously lend rich ambiguities of meaning and organic unity to a new media work.

### **Narrative Framing**

A second literary-derived tool available to control audience engagement is the

'framing' of the work. There are also many examples in literature of the 'nesting' of narrative framing to ensure that the diegetic illusion is not compromised by violent shifts in time or viewpoint. *Wuthering Heights*, for instance, uses three frames of narration to achieve this: Lockwood relates the narrative as recounted by Nelly Dean who recounts reported speech of the main protagonists. This simultaneously maintains a distance from the extraordinary melodrama of the book and reinforces the impact of that melodrama, as well as the dreamlike quality of the story. Curiously, the complex framing falls away when we engage with the work and we see and hear at first hand the vivid life of the story. This is not altogether surprising when one thinks, for example, of cinema where the musical score also comes from beyond the diegesis of the film narrative yet enhances the audience engagement with that world. Similarly, strategies for maintaining the diegetic coherence of interactive media works have often relied on spatial mapping to provide a secondary framing device to keep the audience within the narrative world. Modern Literature has become secure enough to add the frame of the real world itself to multiple internal framing of the narrative. It is typical of the post-modern writer to call attention to the artificial nature of the very devices, which have hitherto sustained the diegetic illusion.

We are in a period where emergent grammars are continually being invented and these in turn are feeding back into the fixed conventions of 'old' media.<sup>4</sup> The nature of digital media is such that the fossilisation of narrative forms that occurred in the development of cinema, partly through the influence of Hollywood since the late 1920s, and partly through the unchanging nature of the medium itself, is unlikely to occur with new media: the digital matrix is too indeterminate a structure to dominate emergent forms. The very linearity of film stimulated a number of conventions to counteract its effect. Flashbacks, jump cuts etc. reintroduce fluidity to a rigid medium. New media has the reverse problem: coherence. Interactive narratives demand a certain minimum 'granularity' of material, which can be assembled or reassembled in multiple combinations by an audience. This modular structure can easily become shallow or incoherent, unless temporality remains uncompromised and the 'indexical' qualities are enhanced.

### **Multi-lineal Verbosity**

The Multi-lineal possibilities of new media are not in themselves of any advantage in developing narratives. Economy and compression are hallmarks of successful artistic work, and cinematic conventions are based on its powers of visual shorthand and suggestion, with the audience filling in the details (witness the montage theories of Eisenstein). Imagine the artistic disaster, if a film like *Ground Hog Day* were spatially mapped as an interactive story, in such a way that the audience could live through all the repeated days and detail of the hero and his discovery of community. A tale of redemption would become a circle of hell- and the audience would empty the cinema. Multi-linearity then demands two things: compression and precision. Only the relevant is useful to art.

*"For cinema already exists right in the intersection between database and narrative.*

*We can think of all the material accumulated during shooting forming a database, especially since the shooting schedule usually does not follow the narrative of the film but is determined by production logistics. During editing the editor constructs a film narrative out of this database, creating a unique trajectory through the conceptual space of all possible films that could have been constructed. From this perspective, every filmmaker engages with the database-narrative problem in every film, although only a few have done this self-consciously.”<sup>5</sup>*

The frustrations of a multi-linear approach and the resulting non-hierarchical equivalence of all the material are anathematised by many critics. As this quote from the press shows, with New Media narrative, the cup can be either half-full or half-empty.

*“For every path taken, there is the path not taken. In frustration, we re-read the story, trying to exhaust all the possibilities in the search for the satisfying tale that surely must lie somewhere within. No wonder interactive fiction is such a troubled domain. That search for the "right path", after all, is heresy to the interactive evangelists. There is, to them, no right way to read an interactive story, just as there is no right way to explore a new city. Each person, the argument goes, is both reader and writer, creating by his choices a unique story of his own. And no version is more right than the next.”*

(The Economist, 1995)<sup>6</sup>

### **Audience and Interactivity**

As we move, as it were, from the interactive digital equivalents of the Lumières' spectacle to the appearance of the first D.W. Griffith or Sergei Eisenstein, the need for a better understanding of audience 'interaction' becomes all the more pressing. My own observations of the popularity of an experimental interactive video piece by Chris Hales<sup>7</sup> at a German short film festival illustrate the case. The users continually returned to torment an interactive character, which was struggling to wake up and dress for a vital interview. Doors could be opened by the user, soap spilt on the floor and alarm clocks switched off. The generated 'cause and effect' gave endless amusement and satisfaction to this supposedly sophisticated elite. In terms of audience, interactivity seemed stuck at the slapstick stage (significantly the predominant form of early cinema.)

### **Structure and meaning**

How then to tackle this problem of content and meaning pushing against the constraints and trivia of form? A re-examination of formal structuralist analysis makes it seem obvious that most interactive hypertext fictions and interactive movies tend to be a collection of what Barthes terms 'cardinal functions' or narrative hinge points, without the necessary 'indices' and 'catalysers' which add depth and flow to the narrative:

*“These (nuclei) are both consecutive and consequential (...) a catalyser (...) accelerates, delays, gives fresh impetus to the discourse (...) the catalyser ceaselessly revives the semantic tension of the discourse, says ceaselessly there has been, there is going to be, meaning (...) A nucleus cannot be deleted without altering the story, but neither can a catalyst without altering the discourse”*

(Barthes-The Structural analysis of Narrative in Image-Music -Text) <sup>8</sup>

The schematic dominance of the structure at the expense of content (of ‘nodes’ over ‘indices’ and ‘catalysers’) in most hypermedia narratives is vividly critiqued by Gareth Rees, the absurd reductionism of many such an approach is satirised in his version of an imaginary interactive Hamlet:

“1.[the battlements of Elsinore Castle] HAMLET: To be or not to be, that is the question If Hamlet takes up arms against a sea of troubles, go to 3; if he shuffles off this mortal coil go to 2” <sup>9</sup>

Unfortunately, this was precisely the model adopted by the majority of early hyper fictions and computer games narratives.

In many ways Drama differs from narrative fiction through the freedom of interpretation given to the performance. There are as many versions of Hamlet as there are directors; music is even more vastly dependent on the interpretive. The composer’s original coding is given new ‘interactive’ life with each performance-in this we seem but one step away from Barthes’ conclusions about authorial authority and the primacy of the reader:

*“We know now that a text is not a line of words releasing a single ‘theological’ meaning (the message of the Author-God) but a multi-dimensional space in which a variety of writings, none of them original, blend and clash. The text is a tissue of quotations drawn from the innumerable centres of culture (...) but there is one place where this multiplicity is focussed and that place is the reader(...). The reader is the space on which all the quotations that make up a writing are inscribed without any of them being lost; a text’s unity lies not in its origin but in its destination.”*

(Roland Barthes-The Structural Analysis of Narrative in Image-Music -Text)

## **Comedy as Index**

As a member of the Ship of Fools<sup>10</sup> group, my first creative encounter with the branching model of interactive narrative was in the early 1990s through authoring our production of ‘Media Myth & Mania’.<sup>11</sup> Here we struggled with the intrinsic problems of the tree form, which forces the participant to repeat a part of the logic branching on each replay and constrains any true freedom of choice in the development of narrative. The strategy we adopted was primarily an ‘indexical’ one, to compensate for the

reductive constraints of structure. We extensively employed pastiche and humour, rapidly switching position and viewpoint to encourage the audience towards a critical handling of the material.

*Illustration: Caption: From Silver to Silicon:Media, Myth and Mania, Ship of Fools,CD-ROM Artec, 1995*

Designed as an interactive spoof game, using digital sound, and photographic sequencing, it examined issues of power and control of the mass media by a multi-choice biographical journey through the life of a media 'Mogul'. The individual player identified with the protagonist, through use of anarchic humour in various parodies of contemporary biography. The player made moral choices based on absurdly limited visual data at various life stages, viewing the consequences in dramatised photo-romance style tableaux.

Photo-realistic image based adventure games were, at the time, a growing section of the computer games market and were spearheading the penetration of interactive CD-ROMs into the domestic environment. Our game was an attempt to subvert this process by de-mystifying the use of representation within the genre, through both form and content. Density was achieved through themes related to the role of public media and their relation to the domestic sphere. Media verities were continually questioned via hidden quotes and layered juxtapositions of media facts, embedded behind the tableaux. Since Photo-romantic magazines and adult comics provided the inspiration for the visual 'feel' of the piece, actors were posed for various life situations and placed digitally against computer-generated photomontage backgrounds. In a sense this updated the Citizen Kane idea of rooting the public figure in the personal depths of childhood. Biographical parallels to the lives of such contemporary 'Moguls' as Maxwell and Murdoch were explored.<sup>12</sup> Here language was used ironically, the layering of media facts clashing uncomfortably with the over-simplistic form of the moral choices forced on the audience by the structure itself.

### Story as Ritualised Landscape

Unhappy with the experience of the branching 'tree' structure, where huge amounts of overlap and determinism are the obvious drawbacks, we moved on to another strategy altogether. Ritual and myth appeared to offer a route for "deep" story. Narratives where actor and participant are one and the same, where the proscenium arch is dissolved, where landscape takes on symbolic significance, and where the usual hierarchies of temporal sequence, plot and sub-plot are suspended. In other words, the same model as early Greek theatre, Carnival, and religious ritual.

In the *Dreamhouse*<sup>13</sup> project, Ship of Fools was seeking to bring such an experience up to date, combining spatial, ritualistic, and dreamlike elements. As in many other 'games' the user finds themselves in a house. A walk through the *Dream house* offered access to a number of rooms or experiences; each designed by an artist,

reworking traditional storytelling structures. Various rooms were appropriately matched to the different psyches of those involved in authoring the piece. So the house became an interactive theatre, where different tales are triggered by audience exploration. The bland domestic environment of a real suburban house (in fact a real Barrett's 'Show Home' in a suburban estate at Bradley Stoke, the negative equity capital of the U.K.)<sup>14</sup> became the main interface.

In my own contribution, *Labyrinth*<sup>15</sup> various devices—doors, windows, mirrors and other objects, opened gateways into the mythological world. The themes of intimacy and alienation were explored through such devices as multiple talking heads, each with their particular poetic fragments, or through a hall of sleepers who could be individually awakened. I sought to employ the resonance of poetic verse drama to unpack a number of thematics around fatherhood, overwhelming passion and 'Real Politik' suggested by the original Theseus and Daedalus legends. The transition in Greece from the worship of the Goddess to Apollonian religion is explored in the myth, where the Frankenstein-like quest for knowledge has equally dire consequences for the inventor. Daedalus commits murder, loses a son, and creates the monstrous Minotaur through his overweening pride in science. The piece explores these themes through dramatised video and a verse structure, which utilised parallel monologues (or duologues), set in dialectic opposition for each linked pair of protagonists. The verse is constructed so that cross-counterpoints occur with every phrase. The verse reads vertically for the individual speaker and horizontally for each pairing. The freedom to switch video streams at any time allowed the audience to reconstruct meaning somewhere between the two opposing narrations. The development of irony and pathos demanded that no single monologue is privileged. Writing for such an interface involved a new and precise multi-lineal approach to scripting:  
The arrival of Theseus and the sudden love sparked by him in the king's daughter Ariadne is notated here. The Minotaur is her brother and Ariadne lends him the thread and sword by which he kills the Minotaur and returns safely from the labyrinth.

Here Daedalus arrives in Cumae Italy after the flight from Crete, where Icarus has died in his climb toward the sun. He visits the Sybil for guidance, who counsels that he erect a temple to Apollo to atone for the death of Icarus.

Daedalus

The Sybil

*Wings and rain*

A slow pageant spiralling to madness  
I remembered falling:  
Stars or something worse  
Smoking to the sea

*Under sea*

A body rolls and shifts  
In strong currents  
Ambition and ecstasy curled in rictus  
Picked by fishes

I connect nothing  
On the shore

Your care, your mind

The god's eye blank,  
vengeful

The god turns away  
Ashamed

The Sybil spelled in signs  
Hissing, urgent  
Engraved in madness

Locate your heart  
Open your armoured closeness  
Locate a centre

At Cumae I raised  
an architecture of atonement  
For my deep neglect

Build around the flame  
In tender stone

At Cumae I wept

And calculate its beauty

### Responsive Machines and Believable Agency

Grahame Wienbren proposes an alternative model both to branching narratives, like that of *Media Myth and Mania*, and the parallel video streams of *Labyrinth*, a two-way transaction between computer and audience, only partially achieved in his own interactive cinema piece *Sonata* which also uses multi-linear streaming.

"The ideal is a responsive representation machine, responsive in its capacity to change according to how the viewer responds to it. With such a machine, a new language of cinematic communication will be possible and a different type of narrative can unfold." <sup>16</sup>

In his *Sonata* <sup>17</sup> the viewer can only control certain aspects of the narration - moving from the murderer of Tolstoy's *Kreutzer Sonata* telling his story in the railway carriage, to the events themselves, which can in turn be overlaid with the mouth of Tolstoy's wife berating the author, references to Freud's wolfman case, the story of Judith and Holfernes etc. These indexical elements continually qualify and requalify each other. *Sonata* is linear, with time's arrow pointing forward, but it never reads the same way twice

In Jon Dovey's piece on The Toybox CD ROM, '*The Desktop Theatre of Amnesia*'<sup>18</sup> these techniques of parallelism were tested out on a grid structure. The emotional transformations of an unhappy love affair and its visually equivalent symbolic analogues are mapped over a matrix of QuickTime mini-movies. A simple click on symbolic arrays of objects reveals the underlying talking heads, each one narrating a separate epiphany. Like multiple personalities locked inside one mind, but still aware of the other's presence, they reinforce poetic resonance by proximity and association.

*Illustration: Caption: Jon Dovey Toybox:Desktop Theatre of Amnesia, Video Positive,*

This approach has also been employed by practitioners such as Malcolm Le Grice<sup>19</sup> and Bill Seaman<sup>20</sup> as a way of neatly side-stepping the strait-jacket of articulated narrative, allowing the audience to set the selection criteria of matching components: thereby creating a form of associative narrative flow. As in a card game, turning up a particular image forces the computer to turn up a matching narrative fragment. Here we begin to approach Weinbren's responsive 'representation machine'.

### **Alternative Structures-Towards the Matrix**

As we have noted, the technology of digital media has virtually no grain, no resistance. The lack of linearity in the medium itself coupled with its ability to simultaneously reintegrate representations of all forms of 'old' media, means that it can pretend to be all things to all people. This is manifestly not the case in cinema. As a consequence, a taxonomy of hypertextual systems supporting narrative could be said to range from the completely 'open' matrix of certain multi-participant web-art projects to the completely 'closed', pre-determined, single author mode of a CD-ROM. My next project was an attempt to explore an open matrix, where the text itself became not simply an adjunct of the work, but the central formative agent, altering the structure and the indexical quality of the piece at one and the same time. Thus the work would be in continuous flux, but would retain an overall shape or architecture.

One of the earliest British multi-participant web art collaborations was the *ArtAids* project. Conceived as a series of artists' images available for transformation by a global web audience. New variants could be posted on the website and the resultant image 'family trees' explored. In *Screening the Virus*<sup>21</sup> I tried to expand the concept to fully utilise the unique potentials of the Web. I sought to develop a far looser approach to narrative, exploring an open structure: a self-curating and evolving web site, based on the theme of viral infection, investigating issues around HIV/AIDS, through contributions in both text and image from web users and artists. The project web site attempted to create an analogue of a viral organism in all its stages of development. This was to be achieved by the self-curation of the site by a special programme that recognised key words in the user's textual contribution. Image and text submissions were to be placed on a strictly temporal rotation into whichever space was most appropriate for the text. Displays would change quickly as new contributors logged in. This process involved developing a visual database to store the contributions and Perl scripting routines to link to the HTML of the interface, including keyword-search routines. Thus socially-weighted contributions, containing both text and imagery, were to be assembled by neutral machine judgment. In partnership with Artificial-life programmers it was further intended to develop evolutionary algorithms to constantly change the visual appearance of the interface, through generative mapping, based on the data from the look-up table of keywords. The more positive the attention given by callers, reflected in affirmative words, the 'healthier' the images would appear (primarily through colour changes towards red), thus acting as a 'barometer' of the



climate and nature of the attention the site received.

The theme of viral infection was further reinforced by the way in which users logged their contribution, placing of a viral icon onto a map of the human figure. This gave each user a unique identity. The site reflected four stages of AIDS from early HIV infection through to full blown AIDS and its aftermath: symbolising these areas of experience as four 'worlds' based on the elements of Earth (the Body), Water (early stages of HIV), Fire (full blown AIDS) and Air (Aftermath and reflection). Although still work in progress, the site sought to create open thematic narratives on a matrix of changing cross-referenced responses. The database-narrative trajectory, referred to earlier by Manovich, is here at once navigated and renewed by the same audience.

### Physical Space Embodying Diegetic Space

The main direction of my recent work has been in examining the nature of theatrical and interactive installation spaces where poetry can be re-imagined as a part of a hypertextual universe. In pursuing this direction I was attempting to synthesise aspects of cinema, video art and more primitive and associative spaces, to create a narrative form based in a physical environment, rather than on a virtual one. While in *Labyrinth* a more directly theatrical route was chosen, the *Understanding Echo*<sup>22</sup> installation was an attempt to root interactive narrative in a magical space corresponding to part of the audience's 'collective unconscious' where 'memory, dreams and reflections'<sup>23</sup> could rise to the surface. Language once more played a central role, one indexed directly onto a physical space.

In a darkened room hung a number of translucent panels, displaying large digital photographic montages. In the centre space of these images was a shallow circular pool of water. In the silence of the installation the audience could make out the drip of water. Flickering in the pool was the image of a woman's face, submerged below the surface. From time to time she rose from the depths and talked slowly in short poetic fragments or aphorisms. The audience may not immediately have realise it, but the form of these spoken fragments became ever more personal as they approached the pool. (A similar strategy had been successfully used in earlier interactive works such as Lynn Hershman's *Lorna*) The large changing digital montage projections around the pool represented combinations of memory.

The figure rising from the waters loosely corresponded to the nymph Echo, in myth forced to forever repeat the last lines of her lover Narcissus's speeches, trapped in a pool for all eternity. The form of the work also alluded to the female spirits that inhabit wells and rivers in various folklores, such as the Lady of the Lake in Arthurian Legend, as well as the drowning Ophelia in Hamlet. The woman reviews her life and the

sense of powerlessness her situation has brought. The poetic fragments were intended to resemble a mix of colloquial musings and the timeless incisiveness we associate with poetic aphorism. They ranged from the general to the intimate. The woman is by turns embittered, flirtatious and coquettish, disillusioned and enthusiastic: ignoring the audience one minute; hectoring them the next. Her character moves through a wide emotional range, returning obsessively to her situation and the unhappy love affair, which caused it. The woman inhabits the present, but lives only in the past. Onto the audience she projects her loves and fears. We are immersed in her longings and become her blank screen: the spatialised narrative and the poetic monologues were fused together in the environment of the piece.

Once an audience enter the installation room, they have become part of the diegetic space of the narrative and are continually addressed directly or obliquely by the character of Echo. The precise sequencing or order of the fragments is irrelevant. There is no linear temporal curve involved. The more a visitor interacts, the more intimate the knowledge they gain of Echo's character. Thus the narrative is embedded in every experienced fragment. The difference between conventional literary narrative and this interactive form could be compared to the difference between a conventional photograph and a hologram. Whilst in a photographic fragment we see a part of a single perspective view, in a hologram each fragment of the photographic plate carries the total waveform of light generated by the original object. This holistic potential is what attracts me both to poetry and to interactive work. The immanent form is not only manifest in each part of the work, each fragment attains further resonance, meaning and 'negative capability' from the collection of other fragments and that meaning is subtly altered with each viewing.

#### **Zone 1 (Distant)**

This is what I can remember  
From our past:  
A single thought  
Expanding to fill the Universe  
Like the mind of God.

I can see the clouds  
Passing over  
Like airships  
And the stars opening out  
Burning.

#### **Zone 2 (Intermediate)**

Sometimes I think  
I am really all alone  
With my fictions  
And the world is  
A mirror suspended over me  
Like a small sky.

It's all very well for you  
Tramping around out there  
I feel so cold  
And the lights keep  
coming and going

#### **Zone 3 (Intimate)**

Please move closer.  
I have so much to tell you-  
Last night I saw a star  
Right above me like a  
small jewel  
So perfect, it changed me  
Into a better person.

I recognised you  
At a distance.  
Didn't we meet

Last year?  
I remember your face  
So vividly, so clearly...

## AI and Immersion

The move from the physical narrated space of the interactive video installation to that of the fully realised virtual environment is one I have so far avoided. I am sure it had something to do with the acute travel sickness I felt on my first encounter with a CAVE at University of Illinois, where the 'pilot' was late for an appointment and 'drove' too fast! But it is probably only within a truly virtual space we might reach the equivalent of Weinbren's 'responsive representation machine'

In speaking of the pleasures and engagement within VR environments, Janet Murray of MIT Media Lab identified '*Immersion, rapture and agency*'<sup>24</sup> as the key requisites of interaction in virtual space. While these certainly identify the pleasures of the medium, they do not of themselves create the complexity of meaning found in the fixed structures of traditional forms. Char Davies's VR piece *Osiose*<sup>25</sup> is a case in point, where an audience could float through a semi-transparent virtual world, viewing natural processes, gliding effortlessly through trees, following rising sap into the leaves etc. The user's breathing controlled their descent into the world and, because of this trance-like immersion, many came out of the installation in a deeply emotional state. This direct physical relationship between the audience and the content seemed to have been the most telling aspect of the project.

In the search for narratives without predetermined scripting, the use of artificial life algorithms is increasingly leading towards the granting of autonomous agency to individual VR characters. Only a few years ago, the state of the art in artificial life seemed to be at the level of MIT's attempts at programmed behaviours, exemplified by Bruce Blumberg's virtual dog Silas in the Artificial life Interactive Video Environment <sup>27</sup>, where a computer generated ball-fetching creature was mapped onto a mirror image of the real user's environment. Since then artificial life creatures have become a commonplace, from the dreadfully primitive Tamaguchi to the unstoppable Furby. Norns are even more sophisticated entities, evolving and breeding in virtual environments through genetic coding embedded in software, they have even been known to evolve independently patterned behaviours such as playing collaborative ball games.<sup>28</sup>

The Oz project <sup>26</sup> (and the Virtual Theatre project at Stamford University) have engaged for many years with the problems of 'interactive drama' and 'liquid narrative'. Oz is a computer system developed to allow authors to create and present interactive dramas (Bates 92). The architecture includes a simulated physical world, several characters, an interactor, a theory of presentation, and a drama manager. A model of each character's body and of the interactor's body are in the physical world. Outside the physical world, a model of mind controls each character's actions. The interactor's actions are controlled by the interactor. Sensory information is passed from the physical world to the interactor through an interface controlled by a theory of presentation. The drama manager influences the characters' minds, the physical

world, and the presentation theory. The goal of the Oz project at CMU was to build dramatically interesting virtual worlds inhabited by believable agents - autonomous characters exhibiting rich personalities, emotions, and social interactions. In many of these worlds, the player is himself a character in the story, experiencing the world from a first person perspective. Typically, the player's representation within the world - the avatar - is passive. The avatar performs actions as fully specified by the player and reports events (by, for example, rendering a 3D scene or generating descriptive text)

## Machines are not Poets

More recently Naoko Tosa and Ryhohei Nakatsu <sup>29</sup> at ATR research Labs in Tokyo have created *Play Cinema*, where controllable avatars act under the audience's direction, creating new scenes from *Romeo and Juliet (in Hades)*, as the characters journey through the underworld. The dialogue and plot are unconvincing and by no means free-form. But at least here gesture-recognition and speech-synthesis, as well as facial and emotional-state recognition software, have been fused to create a variety of responses and variations on the basic plot. The neural net software is about as adept as a human observer at detecting emotional nuance in audience response. In an earlier experiment *Muse*, a software agent talked poetry to which the audience responded in preset phrases or in their own words. The animated *Muse* responded in turn with emotional expressions controlled through a neural network, that also recognised emotional nuances in the audience's own phrases. Most of *Muse*'s words were previously developed by programmers, as were many of the dialogues in *Romeo and Juliet (in Hades)*. There is obviously a long way to go before machines can properly attempt the precise art of poetry, and it is a moot point whether machine consciousness will ever have any affinities with human consciousness, let alone poetic sensibilities!

## Conclusion

The responsive nature of such systems opens up a potential new craft for the writer, where the encoding of mood, emotion and their syntax takes precedence over plot and traditional forms of narrative technique. In the experience of any serious work of art, the audience must invariably map narrative onto a whole range of cultural and historical references and resonances (a process conflated by Barthes as the 'Death of the author'). This process seems to be independent of whatever medium is involved. Interactivity by itself may never introduce closer engagement than that achieved by traditional art forms, even when autonomous agents in immersive environments conduct the narrative. Words alone are clearly not enough, but if used intelligently within such models they can, as I hope I have demonstrated, move us nearer to the serious works of art new media has the potential to deliver. And, just as in the great religious debates around First Movers and Free Will, the author remains the architect, no longer a direct voice or manipulator of plot, but a creator still.

## Footnotes

1 I am referring to Heisenberg's theory of Quantum Mechanics, outlined in the Uncertainty Principle Paper 1927:

*"I believe that the existence of the classical "path" can be pregnantly formulated as follows: The "path" comes into existence only when we observe it."*

2 Witness Shelston , University of Manchester writing on the late novel "Our Mutual Friend":

*"The convoluted plot, involving its central character in not two, but three, separate identities, all involving disguise, outdoes anything its author had contrived before; we are asked to accept concealed evidence, simulated behaviour and hidden secrets as part of the day-to-day processes of existence... Our Mutual Friend seems at times like a vast and somewhat decaying baroque structure, threatening at any moment to collapse. "*

<<http://www.lang.nagoya-u.ac.jp/~matsuoka/CD-Shelston.html>>

3 For example The Big Sleep is notorious for its illogical and convoluted plot:

*"The most famous loose end in the story concerns a chauffeur, one Owen Taylor, who turns up dead in a water-logged Packard, "washing around off Lido Pier." Questions on the set arose as to who, in the carnival of conflicting motives that made the film a Chinese box of mayhem, actually did kill Owen Taylor? Hawks realized he didn't know, and successive calls were put in to screenwriters Leigh Brackett, Jules Furthman, and William Faulkner; they didn't know, either. Finally, Chandler himself was reached; no, he said, he guessed he didn't know, either. (...) Hawks realized it didn't matter who killed Owen Taylor, and the film went ahead, its atmosphere of treachery somehow improved by the ambiguity."*

Hagopian, Kevin Jack, 10 Shades of Noir:The Big Sleep

<<http://www.imagesjournal.com/issue02/infocus/bigsleep.htm>>

4 Mike Figgis' multi-linear narrative film *Timecode*, for example, was not only made possible through the advent of high resolution portable digital video cameras, but also took inspiration for its split-screen form from the multiple frames of new media work.

5 Database as a Symbolic Form-Lev Manovich, 1998

<URL: <http://www.desk.nl/~nettime/>>

6 "Multimedia feature: Interactive fiction. But is it story-telling?" The Economist November 11. 1995, U.S. Edition.

7 Chris Hales "Jinxed" interactive Cinema installation Oberhausen Short Film Festival Germany 1997.

8 Barthes, Roland. Introduction to the structural analysis of narratives: Image - Music-Text. London. Fontana. 1977 p.95

9 Gareth Rees, Tree Fiction on the World Wide Web, Website <e-mail:Gareth.Rees@cl.cam.ac.uk>

10 Ship of Fools:Terryl Bacon, Jon Dovey, Constance Fleuriot, Liz Milner and Martin Rieser

11 Silver to Silicon:Media Myth and Mania on CD-ROM Artec London 1994

12 In consequence the piece was structured as a binary branching choice "seven ages of man or woman" interactive biographical narrative, with the player assuming the role of the either male or female "Mogul". The player chose between two action options at each level. There were more than 80 Interactive tableaux images in the whole game, plus accompanying sound, text and QuickTime movies. A mythic parallel universe of neoclassic futility interweaves the narrative at various key points as a metaphor for the ultimate emptiness of the scramble for media control.

13 Ship of Fools group, Dreamhouse, CD-ROM, Research project on interactive narrative and new media at the Faculty of Art, Media and Design, University of the West of England , Bristol 1994-6

14 Barratt is a major UK home builder and has built housing estates up and down the U.K. As a consequence of the housing boom in Britain in the late 1980s and the subsequent slump, housing prices fell sharply in the early 1990s, leaving many home owners with mortgages far in excess of the value of their properties. Bradley Stoke in the South West of England experienced the worst negative equity problems in the U.K to the point where the town was nicknamed 'Sadly Broke'.

15 Labyrinth, CD-ROM and Installation, shown at ISEA 97 in Chicago and exhibited at F-Stop, Bath 1998 and Cheltenham Festival of Literature 2000

16 Weinbren, op. cit p.408

17 Grahame String Weinbren, Sonata, Institute of Contemporary Arts, London, September 1994

18 Jon Dovey, The Toybox, CD-ROM,Video Positive , (Moviola Liverpool, 1995)

19 Malcolm Le Grice, 'The Story Telling machine', Public Lecture, Watershed Media Centre, Bristol Spring 1996

20 Bill Seaman, CAiA PhD seminar, Newport College of Art and Design, Spring 1996

21 Rieser, Martin, Screening The Virus, a residency for World Aids Day 1996,

commissioned by Artec and Watershed Media Centre as a multimedia pilot for the ArtAids website

22 Rieser, Martin, Understanding Echo, Interactive environment, commissioned by DA2 and SW Arts for the Cheltenham Festival of Literature 2000

23 Jung, Karl "Memories, Dreams and Reflections"

24 Laurel, Brenda, Computers as Theatre, (Boston, Addison Wesley 1991) ps 188-192; see also Janet H. Murray, Hamlet on the Holodeck: The Future of Narrative in Cyberspace. New York: Free Press, 1997, MIT Press, 1998.

25 Char Davies, Osmose, shown ISEA95 in Montreal at the Museum of Modern Art and Serious Games, Barbican London 1997

26 Bates, J. 1992. Virtual Reality, Art, and Entertainment. Presence: The Journal of Teleoperators and Virtual Environments 1(1): 133-138. Details can also be found on the Carnegie Mellon University web site<  
[www.cs.cmu.edu/afs/cs.cmu.edu/project/oz/web/papers.html](http://www.cs.cmu.edu/afs/cs.cmu.edu/project/oz/web/papers.html)>

27 Charles Platt, Interactive Entertainment , Wired magazine, Volume No. 1.05, (September 1995), p63

28 See Norns<[www.creatures3.com](http://www.creatures3.com)>

29 Neesham, Claire 'It was the Best of Times...' 'New Scientist' Vol No 2181 Reed Publishing 10th April 1999, see also Creativity and Cognition. Conference Proceedings. University of Nottingham, 1999

