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Cursors and Crystal Balls: Digital technologies and the futures of writing

This paper arises out of my own creative practices, which have spanned poetry, experimental writing, performance, mixed media and now new media, and have involved work as both a writer and musician. These interconnected practices stem from my wish to explore language through different genres, media and environments; to expose myself to change and creative disruption; and to make myself available to different sensual, affective and intellectual pressures. The paper also arises out of my interest in collaborative practices, which have extended my intellectual, technical and creative horizons, as well as constructing different communities within which to share my work. Lastly, the paper conveys my interest in theorising and contextualising these practices, but in terms of *process* rather than simply *product*.

My argument is that creative writing is changing fundamentally in the digital era. Screen-based writing allows for strategies which are impossible on the page, such as the animation of words. But it also changes the nature of textuality, since words can be algorithmically controlled, and can be programmed to be continuously variable, totally eroding the notion of a fixed or final text. Creative writers have tended to be fearful of machine / person assemblages, and have been much slower to take advantage of new technologies than musicians and visual artists. However, a new community of technologically-based writers is emerging, including Mark Amerika, geniware, Komninos Zervos, Deena Larsen, Mary Ann Breeze (mez), Jason Nelson, Brian Kim Stefans and Alan Sondheim. Some of these writers are hardly known on the literary scene, but are a significant presence online, and network with each other through virtual communities such as dedicated email lists.

In the following, I will discuss the shifting boundaries of the creative writer, and briefly summarise some of the developments which have been taking place in writing in the digital era. I will then talk about the way new technologies have shaped my own creative direction.

From Analogue to Digital: the technowriter

Building on Mark Poster's conceptualisation of the page-based *analogue* author, and the computer-mediated *digital* writer (Poster 2001: 69-70) (note 1) I would like to present a more specific definition of the digital creative writer. My definition has three major components, each of which blurs the boundary between the writer and her human and technological

others, and may be reflective of broader social trends towards reduced role differentiation.

Firstly, the conjunction of writer and programmer produces a particular kind of cyborg, the technowriter. The technowriter can be one person, but may be a collaborative assemblage. The technowriter (individually or collectively) struggles between the demands of language and the computer program, sometimes defamiliarising both. Cybergenres emerge which may work with literary genres, or more radically displace and dislocate them. So for example, the poetic line becomes the 'cyberline', which is much more ephemeral, dynamic and unstable than its page-based equivalent: it can appear at an angle and change position, and may be of variable length and content.

Secondly, due to increased emphasis on the reader's interactivity, there is a blurring of the reader and writer distinction, leading Mireille Rosello to predict that the terms writer and reader may ultimately be collapsed into the all-embracing term 'screener' (Rosello 1994: 121-58). For Mark Poster the most fundamental feature of digital texts is the way they are subject to transformation by people other than the author, driving a wedge between author and text (Poster 2001 69-70). I would add that this can become a creative strategy: in a distinct change in power relations, the reader becomes co-producer of the text, modifying, overwriting, or most radically generating it. This creates a much more extreme form of interactivity than Barthes' writerly text, which is based on the interpretive activities of readers (the words stay the same). The digital reader can, in principle, write back to the writer in material terms, potentially dissolving the primary role of the author altogether.

Thirdly, there is a shift from writer to multimedia writer who, rather than working with only words, moves creatively between images, sounds and words. In the future, visual and sonic literacies will sharply increase, and I believe creative writers will either collaborate more commonly, or become creative workers who move freely between different media. The opportunity for writers to work with images and sounds has always been present in forms such as opera and illustrated books, but has become much more pronounced now that it is possible to generate mixed media work within one space: the domain of the computer. This process is sometimes approached rather superficially in multimedia work, as a simple juxtaposition of elements, for example a narrative with pictures. A more radical approach to the co-presence of words, sounds and image is, I believe, that of 'semiotic exchange': the negotiation of different media so that each takes on the others' characteristics and cultural connotations (note 2). Semiotic exchange means that the sonic, visual and semantic are not compartmentalised, or brought together in hierarchical relationships, but are moulded by each other. A text then may start to behave as a visual object, or a sound may start to assume much more a semantic content, or the continuum between word and sound, or words and image, can be more extensively explored. This widens the possibility of meaning involved in the creation of verbal texts, since images and sounds convey meaning in different ways, and also have culturally specific meanings within varying geographical and historical spaces. Semiotic exchange is central to my own work, where words are treated both as sonic and visual objects, and the continua between word and sound, and word and visual image, are continuously explored. (This kind of experimentation has also been characteristic of my performance work over a long period: see Smith 1994; Smith and Dean 1996; Smith and Dean 2001a; Smith and Dean 2001b;). As a result, the different capacities of the sonic, visual and verbal to

convey affective, psychological and political meanings are continuously renegotiated and redistributed.

Digital Writing: trends and evolutions

So far I have emphasised the collaborative and multidimensional role of the new media writer, but I want now to talk briefly about the way digital writing has been recently developing. No account should give the impression that this has been a linear or teleological process, since many trends have developed in overlapping or simultaneous ways. Nevertheless, I want to suggest that the opportunity for technical evolution and diversity is currently greater in digital writing than in other spheres of writing, because new software developments constantly produce the possibility for new cybergenres and associated cyber-sensibilities. To summarise very briefly, originally most digital writing took the form of hypertexts, usually hyperfictions. These were usually arranged in branching pathways, and readers made choices between the pathways by clicking on links which were often clearly visible. Some classic works of this type were Michael Joyce's *Afternoon* (Joyce 1990); Deena Larsen's *Samplers* (Larsen 1996); Shelley Jackson's *Patchwork Girl* (Jackson 1995) and Stuart Moulthrop's *Victory Garden* (Moulthrop 1991). An important aspect of such texts is their resistance to totality and retrievability: taken down one pathway the reader is aware that other possibilities exist, but not exactly what they are. Even after repeated exposure to the text, the number of different ways through can be so numerous that the reader will probably find it difficult to hold all the possibilities in mind at once.

After the heyday of hypertext - and even overlapping with it - writers became interested in animation programs such as Flash. These programs are much more kinetic than hypertext, they move text round the screen, break up, re-form and morph words. The resultant works, such as Komninos Zervos's animated gifs (Zervos 1996) - and numerous other works by him (Zervos 2004) - or Meikal And's mesostics (And 1998), usually stress the fluidity and plasticity of language. They challenge left to right reading strategies, and sometimes exist at the edges of readability. But they can also - through their mobility - question norms of sexuality and ethnicity. Brian Kim Stefans's *The Dreamlife of Letters*, for example, written in Flash, performatively breaks up and re-forms words relating to sexuality and language, challenging the idea that either are fixed essences (Stefans 2000). It explores sexuality as 'polymorphous possibilities' by breaking up, morphing, and transforming words relating to sexuality (the word 'male', for example, transmutes into 'mammary', while the words 'oedipality, oedipality, oedipality? oedipalized' slide up the screen and mutate into a rapid circle of letters). As such the poem enacts what I have elsewhere called a 'morphing' sexuality, one which is always transforming (Smith 2000b).

Since then, some digital writing has moved further away from literary genres towards alignment with other contemporary cultural, popular and cyber-genres, for example in the synthesis of computer games and fictions where the reader 'plays' the text (Montfort 2003). In such game-fictions the reader may be asked questions, the answers to which determine development of the text - though often within a strict generic framework which is familiar to readers who play such fictions regularly. Also prevalent has been what is called 'codework': that is the hybridisation of computer programming and ordinary language, discussed by Rita Raley (Raley 2002). This usually involves the insertion of the brackets, digits and

periods characteristic of computer code into language - together with digital puns - to defamiliarise, hybridise and interrupt contemporary modes of communication. This is a major strategy in the work of Talan Memmott (Memmott 2000), 'netwurker' mez (Breeze 2001), and others. Cyberwriting has also become markedly more multimedia, including sound and image as well as words. This can be traced in the trajectory from words to multimedia in Mark Amerika's output (Amerika 2003) and in the work of Jason Nelson (Nelson 2003a; Nelson 2003b) and many others.

The relationship between writing and space has similarly loosened and diversified. Hypertext produces a rhizomatic textuality, but a hypertextual link usually leads reproducibly to another text which replaces the previous one. This type of hyperlinking has been replaced in many digital works by subtle forms of hyperlinking and action scripting, which create unpredictable and unmappable cyber-topographies. These often involve the division of the screen into frames, so that clicking in one frame triggers overlaying or disintegration of text in another, but not necessarily in a fixed or reproducible way: see for example the work of Talan Memmott (Memmott 2000) and Christy Sheffield Sanford (Sheffield Sanford 2000). Even more radical is the spatial re-situation of reader and text in virtual installations constructed from words. In Noah Wardrip-Fruin's project *Screen*, a text about a person in a room of screens is visually projected in a VR chamber. Words peel off from the text and whirl round the reader, who can also hit the words so that they bounce back to the walls, sometimes taking up different positions from before. Once a certain number of words have peeled off, they swirl round the reader and collapse in the centre of the chamber (Wardrip-Fruin 2003).

Hyperscapes and Voicescapes

I have suggested, so far, that the digital era is moving writing, and also that digital writing is moving itself. But I now want to focus a little on how working with new media has shifted my own approaches to writing, and also helped me to explore certain literary and cultural ideas, particularly the remapping of bodies, language and place. My own writing and collaborations in new media, of which I will now talk through some selected examples, have ranged from early hypertexts and animations, to new technological developments which include real time image processing of text. A major feature of all these works is their performativity: that is, they are never the same twice, either because they depend on interactive choices by the reader, and/or because they are algorithmically programmed to be different each time. These pieces also often combine several different types of writing environment: for example, they may be designed for performance but also contain new media elements. Also highly significant has been the process of making the works: the merging and mixing of subjectivities and skills which results from collaboration. For example, my words have sometimes been transformed, resituated or animated by my collaborators.

In *Wordstuffs: the city and the body*, a multimedia piece I developed in 1997 with Roger Dean and Greg White, I wrote hypertexts which mixed poetry, prose, satire, surrealism, theory and aphorisms (Smith et al 1998). These hypertexts were juxtaposed with material created by Greg and Roger. This included interactive music files written by Roger which can be played in any combination or order; an interactive java applet made by Greg called the 'word wired web', in which strings of my words can be pulled in different directions; and Flash animations using both words and

images created by Roger. The piece also contained other forms of algorithmically programmed text and images, including text programmed to appear in a probabilistic sequence, and 'mangled' text which is subject to various types of fragmentation and transformation, suggesting the presence of signifiers which can never be fully captured or decoded.

But this work also attempts to map out its own cyber-topography. An important idea on which the piece is based is that of the hyperscape, a word I invented because it brought together the words hypertext and landscape, and as well as scrambling Frederic Jameson's notion of hyperspace. The hyperscape is a postmodern site characterised by difference: it breaks down unified concepts of city and body, and creates changing conjunctions of multiple cities and bodies (Smith 2000b). Influential in the writing of the text, and the formulation of the hyperscape, was Elizabeth Grosz's essay 'Cities-Bodies' (Grosz 1995). This suggests a model of the relations between bodies and cities which breaks down the unity of both, and is not based on parallelism or causality. It conceives of both body and city

not as megalithic total entities, but as assemblages or collections of parts, capable of crossing the thresholds between substances to form linkages, machines, provisional and often temporary sub- or micro-groupings. (Grosz 1995: 108)

In this model the interrelations between body and city

involve a fundamentally disunified series of systems, a series of disparate flows, energies, events, or entities, bringing together or drawing apart their more or less temporary alignments. (Grosz 1995: 108)

In *Wordstuffs*, a model evolved which became a creative enactment of Grosz's theoretical ideas. The hypertexts interlink cities and bodies—both parts and wholes—in different times and places, from the medieval to the modern, from Kuwait to Australia, with an emphasis on marginalised, racially vilified, and futuristic bodies (Smith 2000a). But which hypertexts appear, and in which order, depends on the hyperlinks the reader chooses to click. In fact all aspects of the piece are variable, creating a hyperscape: a dynamic interaction between cities and bodies in continuously shifting multimedia assemblages.

The Egg The Cart The Horse The Chicken was written by me in Flash in 2000, with music by Roger Dean (Smith and Dean 2003a). It explores the tenuous relationship between cause and effect implicit in the title (Smith and Dean 2002). It consists of a split screen with different verbal animations in each half, and a minimalist, repetitive, but varying soundtrack by austraLYSIS. Flash is used to animate letters, words and sentences, shifting them round the screen and breaking up textual configurations. The animation in the top screen can be interrupted by clicking on hyperlinks which take the screener to different parts of the movie, so that the top movie is always in a variable relationship to the bottom one. The piece foregrounds the poetic tension between metaphor and metonymy which, I have argued elsewhere, exist in each other (Smith 2000b). The words egg, horse, cart and chicken are all metaphorical magnets, and appear in various different guises (so the egg transforms into egghead; appears as pickled eggs in a text about fertility; turns into a reference to 'Lacan's hommolette' which 'scrambles the yokes of little man and omelette'; and reappears in 'effects hunt causes/causes hatch effects').

But, paradoxically, each of these words (egg, horse, cart, chicken) is also the origin of sprawling metonymies, created by the movement of the animation, and hypertextual linking in cyberspace. So a reference to the Jewish aunt who forgets to put the chicken in the chicken soup leads to her wish to homogenise and dilute Palestinians as Arabs, and therefore implicitly to issues of Palestinian self-determination. In the same way the reference to pickled eggs leads to a text about the privatisation of wombs. There are numerous metonymic links of this kind which criss-cross the text, creating what one text refers to as 'the incestuousness of the unrelated'.

More recently I have been involved in two collaborations with Anne Brewster and Roger Dean, *ProseThetic Memories* and *soundAFFECTs*, both of which have been performed with live music by austraLYSIS, and involve algorithmic control and processing of text. The first of these, *ProseThetic Memories* is a digital realisation and transformation of a page-based fictocritical and multi-genre text of the same name by Anne Brewster and myself (Brewster and Smith 2002): this juxtaposes sections of poetry, prose, theoretical quotation and theoretical reflection on the subject of memory. For the digital and performance version we arrived at a split screen structure: text programmed in VRML by Roger rolls up one side of a large screen, but fragments of it are algorithmically treated in the other. This algorithmic treatment results in a number of processes: rearrangement of text so that the lines of a poem might appear variably in different orders; movement, inversion and enlargement of text; and the display of text with missing letters and words. All these processes suggest the operations of memory, in particular its tendency to reorder, vary, edit or superimpose concepts, images or feelings from the past. In fact, the algorithmically treated text appears both before and after the complete text. This enacts spatially a central idea in the piece, the Freudian concept of *Nachträglichkeit* or afterwardsness which suggests that memory is not buried or inert, but is constantly being re-enacted and transformed in the present (King 2000; Middleton and Woods 2000).

soundAFFECTs is also based on a fictocritical text by Anne Brewster and myself, this time on the subject of affect, and published as 'AFFECTions: friendship, communities, bodies' (Brewster and Smith 2003). Sections of the printed text were taken by Roger Dean and treated with programs written by him within the real-time image processing platform Jitter (Dean et al 2004). Jitter has become available only recently, and again shows how new software developments are facilitating innovative creative directions. The sound is algorithmically generated from the text, creating a technical relationship between all the different multimedia elements. Each text is treated as a whole image, so there is less manipulation of words at a micro-linguistic level than in *The Egg The Cart The Horse The Chicken*. Instead the text is subjected to a number of processes, such as layering, stretching, superimposition and compression, which act in combination: the screen also divides into multiple frames of the same text. Particularly striking is a process of 'overwriting' in which a text progressively writes over itself or another text: this disintegration and replacement of text creates intricate visual patterning. In this piece the texts are subjected to such rapid replacements and metamorphoses that they are not fully readable at any one time, but the repetition of the texts means that readers acquire an accumulative, if flickering, sense of their import. The text-image can be continuously processed during any performance of it with different results each time (the referenced example [Dean et al 2004] is only one possible version saved as a quicktime movie). The rapid visual changes enact the instability of affective responses: the way emotions fluctuate (sometimes

precipitously), and are always multiple, overlaid and disunified. In addition the superimposition of political and personal texts demonstrates how affect is both individuated and socialised, often simultaneously. In fact all these pieces point to the highly interruptive modes of cyberwriting, and the disjunctive and volatile affective environments they create. These are distinct from the long, continuous, emotional build-ups often induced by page-based writing and reading.

Finally, a very important aspect of my multimedia work for many years has been exploring the connection between writing, voice, subjectivity and place. New technologies can process and radically transform the voice, creating what I call voicescapes. Voicescapes disrupt essentialist notions of subjectivity, as voices are merged, multiplied and denaturalised through performance strategies and technological manipulations. For example, the performativity of gender can be activated through 'sonic cross-dressing' (Smith 1999). 'Sonic cross-dressing' arises from digital manipulation of the voice (particularly with regard to pitch) so that gender can be inverted or modified: a male voice can sound female, a female voice male, and half-gendered positions can also be comprehensively explored.

Voicescapes are multiple and variable aural territories which create their own cultural geographies. They consist of multidimensional and multidirectional projections of the voice into space, so that the voice as a fixed, and locatable, entity is destabilised. The digitally manipulated voice may seem to belong to several locales at once; to project into non-specific, virtual or imagined spaces; or to cross backwards and forwards between the real and the imagined (Smith and Dean 2003b).

The voicemap is the focus of a recent piece, *the writer, the performer, the program, the madwoman*. In the first published version of the piece (Smith and Dean 2004) Roger Dean continuously samples and processes my voice, using a specially constructed computer patch written in the platform Max/MSP. Recent technologies allow for much more continuous, immediate and long-term sampling of words and voice than used to be possible even in the recent past, and the piece capitalizes on these developments. In the piece my words - organised in short sections with breaks between - are repeated, varied, truncated or played backwards by Roger, and my voice is manipulated with regard to pitch, dynamic, reverberation and more fundamental spectral features. This creates a sense of transforming and multiple identities: sometimes, for example, a chorus of voices is created, or a more child-like identity emerges when the vocal pitch is raised. (In live performances of the piece - usually with sampling by both Roger Dean and Greg White - there is an added dimension, since it is also often difficult to distinguish between my live and embodied voice and its digital counterparts). In addition, the manipulation of words explores the continuum between words as recognizable semantic entities, and their transformation into sound textures in which such semantic connotations may be changed or become submerged. Again the piece will be different each time it is performed.

The piece, however, also speaks of the processes with which it engages. It is about the struggle between the different identities of the contemporary writer as she moves beyond words on the page, and allows her work to be transformed by performance and technology. Real-time manipulation blurs the roles of writer, performer, audience and computer program, and creates a productive conflict for the writer between control and loss of control. In the piece this tension is dramatised as a power struggle between the writer and other forces; a balancing act between madness and sanity; and an

exercise in sexual politics. On the one hand the writer invites the (male) programmers to dissolve her and tear her up: she feels that on her own she 'has little charm' and that it is the programmers who can creatively transform her. But at the same time she finds her own voice and words are moving out of her control: 'texts come back to me, texts I have not spoken... I keep reaching for my voice but it has been plucked and purged' (Smith and Dean 2004).

As such, *the writer, the performer, the program, the madwoman* thematises many of the issues that have been raised here about the fruitful tensions within cyberwriting. These tensions are between writing and programming, language and other media, the screen and the page, the self and collaborators. As we have seen, in some respects technowriters have more fluid identities than page-based writers. They are part-machine and part-writer, and in some cases performer, visual artist or musician. And cyberwriting broadens the forms that verbal creativity can take. On the one hand there is the possibility for tight algorithmic and systematic control which makes writing almost entirely *process*, on the other hand there are new writerly and readerly freedoms which dissolve textual invincibility. Overall, cyberwriting foregrounds the balancing act which constitutes all creative writing: between freedom and control, direct expression and mediation by language. But it pushes it further into a dynamic and multi-faceted realm in which textual certainties dissolve and re-form.

Notes

1) Poster's argument that the analogue author configures a strong bond between text and self, while the digital author configures a greater alterity between the text and the author, is nevertheless rather incomplete, since it is obvious that many analogue authors have adopted digital strategies. Return to article

2) The relationship between sound, image and word as semiotic systems is discussed at length in Smith and Dean 1997 and Smith 1999, pp.129-130. Return to article

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TEXT

Vol 8 No 2 October 2004

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Editors: Nigel Krauth & Tess Brady

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