Writing on Complex Surfaces

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Abstract

Writing in programmable media is theorized in relation to the surface of writing.[1] Within the framework of currently dominant cultural and technological formations, the surface of writing is conceptually simple, and this overdetermines practices of writing. As it is typically conceived, the surface of writing is a flatland plane, a 3rd-dimensionless scroll (however segmented or, indeed, fragmented) on which linguistic symbols, similarly dimensionless, are arrayed. Once language has come to rest on this simple surface, any qualities it may possess of temporality or material depth are bracketed. Programmable media problematize this dominant but simple model, and yet, arguably, its depthless, timeless surface misdirects the composition and publication of writing, even writing that is instantiated in programmable media. In the field of poetics, there are traditions for which the surface of writing is complex. Although rarely made explicit, such approaches to the writing surface have enriched the practices of important writers, particularly poetic writers. This essay sets out from one important statement on the complexity of writing surfaces and then pursues three examples of writing on/within/amongst such surfaces, connecting engaged poetic practices with literal art work in cinematic and programmable media. The film titling of Saul Bass is discussed; followed by the author's series of pieces *overboard* and *translation*. Finally, there are remarks on the author's work-in-progress for Brown University's four-wall VR Cave, within which the surface of writing is literally, graphically complex. The surface of writing is and always has been complex. It is a liminal symbolically interpenetrated membrane, a fractal coast- or borderline, a chaotic and complex structure with depth and history.

1. FLATLAND

If the vitality of our cultural morphology only makes sense in the fractal complexities of historical space-time, Flatland with its plane geometries of irony, misogyny and denial won't work. The symbolic is always such a flatland in its relation to the

complex real. In a fractal relation between art and life—that is, art as a fractal form of life—an infinitely invaginated surface of linguistic and cultural coastlines, interconversant edges of past/present/future, gives us, if not depth, then the charged and airy volume of living matter. [6, pp. 75-76]

These remarks by the poet and poethical essayist Joan Retallack surface in the midst of an essay that is itself formally innovative, performing parts of what it proposes. The sentences conclude a brief incisive critique of Jean Baudrillard's conception of an all-surface hyperreality or irreality, where, he claims, map becomes territory. Retallack challenges the pretended, ironic profundity of this exemplary postmodernist cultural critic, pointing out that not only would he leave us living on a flatland, he makes it impossible for us ever to escape. Baudrillard concedes a predominant cultural condition in which the symbolic both rests upon and constitutes an entirely superficial 'reality.' In a sense, his supposed insight is merely the recognition and acceptance of an existing textual condition, that of authoritative language (including his own) resting on the page; he simply gestures towards a number of the paradoxical and ironic consequences of maintaining an all-too-familiar preexisting paradigm.

Retallack's subversion of the would-be subversive is intellectually telling, and it is also effective because she understands it in terms of poet(h)ical practice, both her own and the potential practice in which she suggests that other writers participate, what might be termed an engaged formalism, a poetics that is ethically charged with 'interconversation' at 'linguistic and cultural coastlines.' Her own work clearly demonstrates and demands reading and writing in terms of a complex, fractal surface, implicated with time and history. Her texts are the traces of processes and procedures, involving erasure, error, changing states, affective and effective action. The very titles of her poethical collections—*Errata 5uite*, *Afterrimages*, *How to Do Things with Words*—indicate strategies for reading that require us to shift our attention and engagement beneath, above, with and through the surface of writing, and to replay and anticipate processes which both generate and constitute the text itself.[2] For Retallack, complex, procedural, (re)iterative responses to her processes of writing *is* the text. It is an intrinsically temporal entity chaotically inscribed on a complex surface.

Practices of writing find themselves constrained by at least two embricated cultural formations: institutions of authority governing publication and traditionally perceived characteristics of language-as-material. Addressed to writing, 'depth' is rarely conceived as material depth. Depth is even more abstracted when it is applied, critically, metaphorically, to writing than when, for example, it is applied to painting. Generally speaking, rather than any aspect of material depth, it signifies access, through a symbolically marked but dimensionless and transparent surface

(paradoxically, it is the marks that render the surface transparent) to the interiority of a remote author, an author whose very authority is guaranteed by institutions of publication which are, in a circular, bootstrap logic, predicated on flatland delivery, with all traditionally perceived material characteristics of language intact, or rather, collapsed, resting, flattened, on paper-thin media, ready to be read and passed through.

A related argument, that practices of writing are constrained by actual physical media—paper and the book—is often resisted by poetic writers, those, that is, who produce work which challenges flatland *author*ity and engages with language-as-material.[3] Whilst paper is thin and print is flat, nevertheless, these 'old' media allow many ways to indicate, if not perform, a text's material depth, its temporality, its constitution as process. Books can be programs. Because deep, time-based poetic practice has a history, including a tradition of serious intellectual exposition and commentary, poetic practitioners often also demonstrate their suspicion of so-called 'new' media. They resist work in new media which reads as 'thin' despite its explicitly, overtly complex surface; and they resist a potential future of overdetermination by unproven writing machines.

In agreement with many active poets, I do not and would not argue that print-based textuality is incapable of delivering writing with a complex surface, but I do say that in so far as this is achieved it is achieved as concept, in the familiar and comfortable realm of literary virtuality, in the 'mind' and in the 'imagination,' but not in the material experience of the text and its language. In our present times, so long as the dimensionless surface of writing casts its pall over the writing surfaces of the screen, it will remain difficult to make an unarguable case for the specificities of writing in programmable media. The screen should not simply be cast as the bearer, for example, of multiple (flat) surfaces or successive 'states' of text, it must be viewed as a monitor for complex processes, processes which, if they are linguistic, will be textual and symbolic, with a specific materiality as such. We must be able to see and read what the screen presents rather than recasting what passes before our eyes as the emulation of a 'transparent' medium.

From a certain perspective, the arguments I am developing here may appear to be a more or less familiar rerun of critical comparison between print and digital media as they are applied to literary art. I wager that by redeploying such arguments while retaining focus on the surface of writing, a clearer conception of the properties and methods of textuality itself will emerge. Flatland text on paper-thin surfaces will be reappreciated as a particular, relatively specialized instance of a more abstract and generally applicable textual object, one, for example, that is able to engage with and comprehend human time. Time is arguably the most important, necessary, and

most neglected property of textuality. A complex surface for writing allows time to be reinstated as integral to all processes of writing and reading.

Rather than continuing to try and present a case in terms of the literary virtuality of poetic theory, this essay now offers a commentary on examples of textual practice that can only be properly appreciated in terms of writing on a surface that is both materially and conceptually complex, and intrinsically temporal.

2.   NORTH BY NORTHWEST

My first example is taken from the unacknowledged prehistory of textual animation as pioneered in the art of film titles, arguably the first medium in which words moved.[4] Apart from helping to give writing in programmable media a historical context, Cinematic titling also demonstrates that the complex surface of writing is not, of necessity, media-specific. It does not require the screens of programmable machines. While the vast majority of film titles are instances, at best, of subtle and conservative design, there is a tradition of innovative formal engagement, and one of its most important exponents — the first acknowledged artist of film titling — is Saul Bass.[5] Despite the fact that Bass's work emerges from design as opposed to fine art or literary practice, I would argue that the film titling that made his name is a groundbreaking engagement with the materiality of language in what was then still a new medium for text. In his most innovative work Bass used the paratextual features of letter and word forms both to define graphic space and to dwell and move in and over the surfaces of the illusionistic naturalism within the already well-developed visual rhetoric of narrative cinema. He recast the surfaces on which he 'wrote' and rendered them complex in some of the ways that concern us.

Bass achieved this during the second half of the 1950s, in his groundbreaking titles for films from 'The Man with the Golden Arm' (1955) through 'Psycho' (1960) and, to a certain extent, 'Spartacus' (1960). The latter marks a distinct shift in his practice, after which, in the 1960s and 1970s, he turned away from film titling and worked more directly with the visual imaginary of cinema, as then understood. The titles for 'Spartacus' use photorealist images of objects—especially a bronze bust—but shot such that they hover on the edge of the silhouette-abstraction that had become a Bass trademark. From 'Spartacus' on, the actual words of his titles are distinct typographic forms floating over or through the visual imaginary that they caption. In 'Spartacus,' a letter-edge might still have caught on the edge of a silhouette. What and where is the surface of writing when this is possible? By contrast, none of the

words in the titles for 'Cape Fear' (1991) would share a surface with the water and shadow over which they move.

This more familiar, later work—in what has become the established mode of film titling—sets the innovations of Bass's 1950s work in sharp relief. The typographic 'rule'—typically a printed bar of ink—was an important trans-medial element in his film titles of the time. Rules are quintessentially paratextual.[6] They share the surface of writing and they share its graphic materiality—particularly contrasting monochrome colour. They manage and marshal the spaces in which writing is set, but they are not writing in the strict sense of symbolic representation. At one and the same time, rules are also lines, lines that may shape themselves into abstract visual representations. Rules problematize the surface of writing, they are both writing and not writing both on the surface of writing and on a surface of another dimension of writing. They bound and define the surface of writing and they may even, in certain contexts, as Bass showed, become the surface of writing.

Titles for 'The Man with the Golden Arm' demonstrate this perfectly. A single heavy rule sweeps down to mark the director's credit; three more are propagated and, while introducing the names of the (three) lead actors, suggest, to my eye, walking legs. Three of the four vanish, leaving one upper rule, with the three now returning, sweeping in from the other screen edges, to set out the superbly composed spaces of the film's title. The same rules go on to marshal and punctuate the remaining credits, suggesting more visual forms and spaces, and also, I would argue, letter forms, before finally and infamously combining to become the jagged silhouette of the 'golden arm' itself.

Figure 1.

Rules in Bass's work do not typically become letters, but they do interfere with the surfaces of writing - sometimes making the switch from foreground to background and becoming a newly delineated surface of inscription. This is shown, for example, if we consider the torn-out surface spaces of the titles for 'Bunny Lake is Missing' as a special type of rule. Rules can also interfere directly with writing, which provides one interpretation of the titles for 'Psycho' where they become manic and overwhelming, slicing through the caption words, momentarily allowing us to glimpse and read, before destroying legibility in a striated frenzy that is permanently linked with cinema's most notorious shocker.

Figure 2.

Bass's masterpiece is the title sequence for 'North by Northwest' (1959) where the surface of writing is remarkably complex. The rules we discuss above are present in their primary role as the squared lines supporting text. But more, in this sequence, their formation of a (archi)textual gridwork also provides a direct link to the visual imaginary, to a world of real images, a prefiguration of Bass's personal concerns with cinema *per se* and also, I'd argue, an unconscious premonitory graphic representation not only of the interaction of the symbolic and the real but of the information-age virtual and the real. These titles are a 'central processor' of writing in new media, before its time had come, and a superb demonstration of writing on a complex surface.

The sequence opens with a landscape-aspect grid receding in perspective, not yet quite recognizable as the surface of a modernist office block. Words of the titles glide in on the gridlines and, in particular, glide up and down the vertical lines where they meet and come momentarily to rest for reading. As they do so, their

movements are suddenly like those of elevators in a building, giving us one of the first visual clues to a real-world referent for the abstract grid as a signifier or representation.

This resemblance of the words' movements to elevators marks what is, for Bass, an uncharacteristic evocation of Concrete poetics—words behaving like objects.[7] Paratextual elements, like rules, are allowed to crossover, via abstraction and over the complex writing surface, into the visual, but words remain set in legibility, as tokens of the symbolic. They must do this, since film titling is, after all, an art with a specific and highly constrained function. The important thing for us in Bass's titles is the continuum that is manifested and played out in literal time-based art, a continuum of rhetorical possibilities and signifying strategies that cross and recross from graphic to linguistic media and back, in evocative iterative performance, without ever loosing a grip on their specific materialities. It is, I argue here, a complex surface of writing which provides underlying fundamental media for such trajectories.

The ruled gridlines of 'North by Northwest' and the complex surface they literally delineate are faithful to graphics, typography, visuality and textuality all at once. As the sequence progresses this becomes clear. The words of the title perform their function—we can simply read the credits—and give material pleasure in their design and movement. At a certain point the grid moves away from abstraction and is filled in with the mirrored glass windows of a modernist office block. It becomes real or rather more than real because it is also a mirror, an inscribed surface that is also one particular privileged representation of the world. We see people and traffic alive and moving in the mirror-world and world of filmic naturalism. Meanwhile, the title words continue to share this same surface. They are still well-set and respectful of typographic principles but now they share a surface of visual representation that is simultaneously a real object (the building) in the (film) world. It's a *tour de force*. These titles embody an evolving continuum of signifying strategies across media that could only be performed in time and on a complex writing surface.

The potential emergence of the now familiar screenic surface of programmable media is prefigured in the titles for 'North by Northwest.'[8] Moreover, this prefiguration is unambiguously and necessarily complex, contrasting with the actual historical development of *computing's* screenic writing surface, for which emulation of flatland paper became a misdirected priority.
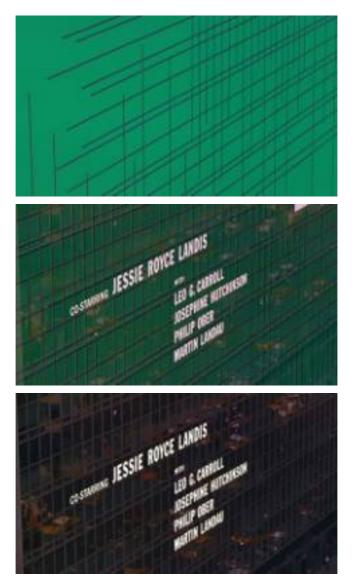
Figure 3.

3. 'SURFACING': *overboard* AND *translation*

Over the years, since the late 1970s, much of my own literary work in programmable media has incorporated text that is algorithmically generated in relation to composed or found given texts. Clearly, even in the most simple of flatland terms, the given text and the generated text represent two states, both of which require to be read and appreciated together in any critical assessment of the work as a whole. Of necessity, the generated text will include symbols and symbolic structures that derive from the given text. It is possible, therefore, to see the generated text, in more than a merely metaphoric sense, as a topological transformation of the given text, with its traces providing clues to the way the textual surface has been reshaped. The generated text is the given text rendered on a transformed surface, a surface with at least one degree of further complexity.

The generation of a mesostic text, algorithmically or otherwise, demonstrates this quite clearly. Emmett Williams, Jackson Mac Low, and John Cage are all notable for their deployment of varieties of mesostics and it was also a form that I programmed into pieces, in a number of variations. In instances of mesostics, one or other given text will be, as it were, folded into the generated text.[9] Traversing the surface of the resulting symbolic structure in a standard flatland reading invokes the recital of a generated, programmatically ordered, but apparently unitary text. However, traversing the same surface according to different rules and procedures, may allow the given text to be recovered. One way of looking at this is to say the surface of writing is complex and has more than one functioning dimensional presentation. In one particular dimensional mode, the generated text is legible, in another, the given text surfaces. Or one might conceive of it as an example of the type of self-sameness that is found in the scaling of fractals. Zoomed in, we read the generated text; zoomed out, we read the given text.[10]

In programmatological instantiations of mesostic structures, these traversals may be played out in (real) time. Traditionally we read this as observing the production of the generated text or at least some unitary fragment of the larger text (a screen-full). We wait for the process to begin and then conclude, and we read the starting and the end states of the text. However, if we reconceive the writing surface as complex, then we are provided with a structure which can be seen to bear as well as perform the temporal dimensions of the text. Let's be clear, the point of this reconception is to be able to reconceive the text as a complex, temporal object, to fully appreciate textuality as time-based. I say that the writing surface is complex. This allows us to perceive it as having more dimensions than the usual two and also as having at least one temporal dimension. In fact, of course, it is the writing and its particular structure that generates a particular complex surface, rendering its

specific dimensional complexities, whatever they may be. In Flatland, at best and in theory, writing renders itself and the writing surface transparent. In the real world, writing produces surfaces of arbitrary complexity and dimensionality, including dimensions of time.

Clear examples of the instantiation and performance of complex writing surfaces are demonstrated in the two series of works I call *overboard* and *translation*.[11]

The texts underlying these pieces are arranged with line and stanza breaks. Each of the resulting verses may, independently, be in any one of the three states which I describe as floating, drowning or surfacing. The names for these states were chosen before I began to theorize the complexity of the writing surface, but nonetheless, they are highly suggestive of what I am now attempting to convey. If we think of the screenic surface as monitoring a 'run-time performance' of one of these pieces, the writing that is produced renders this surface as complex. It becomes a manifold of many constituent surfaces that shift and move as the given and generated texts shift and move. The floating metaphors suggest that we might think of this as like the surface of the sea, deformed by interfering wave patterns. The texts are particular patterns of ever-shifting wave-deformed surfaces. Where the surfaces touch, literal writing appears. As waves rise and fall and where the surfaces no longer touch, writing disappears.

In *overboard*, the surfaces of the text are deformed by functions relating to legibility. That is—continuing with our metaphor—the 'wave-pattern' of a verse will be determined in relation to legibility. In a 'surfacing' state, literal points (points on the surface where letters may appear) will tend to 'rise' and touch the screenic surface of visibility such that it will spell out the underlying given text. In a 'drowning' or 'sinking' state they will tend to recede from the surface of visibility. In the 'floating' state they may be algorithmically transformed so as to appear on the visible surface in an alternate literal form, producing a quasi-legibility, a linguistic shimmering on the screenic reading surface.

Figure 4.

translation deploys similar algorithms but introduces further complexities, demonstrating the contention that the surface of writing may be arbitrarily complex. In *translation* the wave-patterns of textual surfaces may be deformed by literal functions relating different texts to one another, specifically texts in different languages. If a text floats or drowns in one language, it may surface in another.

Figure 5.

As they run and perform, pieces from the *overboard* and *translation* series are what they appear to be—ever-changing, ambient manifestations of writing on complex surfaces. Neither *overboard* nor *translation* can be read or appreciated as flatland literary broadsheets.

4. COMPLEX SURFACES ON THE CAVE WALLS

My work in writing for programmable media has, in a number of instances, involved designing and implementing a conceptual topology for textual structures. Specifically, I have recognized that the programmability of both compositional and delivery media allows for the disposition of texts in an ordered manner such that, for example, media can represent structural interrelationships between the texts, and that such an arrangement may be most easily figured as spatial. As indicated above, this spatiality can be understood as the material instantiation of the critical notion of 'depth.' In the present essay, I conceive depth as emergent from the complexity of writing surfaces. When I came to make work in an immersive Virtual Reality Cave, there was an obvious first step to make: use the Cave's immersive 3D graphics to delineate a topology, a shaped space in which text is systematically disposed.[12] In this unusual, artificial, programmatologically-generated environment, the surface of a text can be literally, visibly shown to be arbitrarily complex. A unitary

textual object may subsist, suspended in virtual space, with a manifold of interrelated writing and reading surfaces.

Rather than attempt to describe in any detail one or other Cave-based project, in this section, I aim to outline a particular example of the complexity of literal surfaces, one that emerged as a discovery and that could only, perhaps, have been recognized and appreciated in the Cave environment.

There was a known anomaly in the graphics system of the Cave software, not really a bug, but more a matter of a default configuration in rendering that produces counter-intuitive visual effects. The effect of this anomaly was that, in certain contexts, the surfaces of conceptually and perspectively distant objects in the Cave are rendered *over* the surfaces of closer objects in terms of transparency/opacity. If letters were all rendered in the same surface colour with no lighting effects or without anti-aliasing or similar sophisticated edge rendering techniques, then this 'bug' would not necessarily have been noticeable. However, even a smaller, conceptually more 'distant' white letter rendered 'over' a larger, 'closer' white letter will, in practice, be visible because its edges are made visible by the graphics engine's subtleties.

In the graphics 'world' of the textual objects I developed for the Cave, letters have no thickness, but they pivot in three dimensions so as always to face the primary, tracked point of view (the Cave's single dominant point of view, associated with one privileged viewer within the Cave-space). If the tracked reader is positioned at the edge of a plane of letters and she turns to face the plane edge-on, the letters will all turn to face her. Their images overlap, occlude one another—partially or wholly—and recede in view, since the majority of them will be successively more or less distant. 'Normally' the surfaces of the larger closer letters would cover the more distant smaller letters. However, because of the anomaly, smaller letter outlines may be clearly discernable 'within' but 'over' the formed surfaces of the nearer letters. Given these circumstances, and because, I believe, all the letter forms are familiar—both visually and symbolically legible—and because we know what their relative scale 'should be,' this produces a striking and somewhat bizarre visual illusion. We assume that even through the smaller letters are rendered 'over' the larger ones, they must be more distant (as in fact they are in the conceptual topology). Thus, what we see is a very deep and narrow corridor formed from letter shapes, with the most distant smallest letters visible in completely edged outline, apparently farthest off, as if inscribed on a tall, thin distant end of the corridor. Moreover, the reader is able to move 'into' the corridor formed by this plane of letter shapes.

Figure 6.

This powerful perceptual experience is demonstrable and repeatable, despite its artificiality and strangeness.[13]

This rendering anomaly was exploited and highlighted in a distinct study piece called 'Lens.' Versions have been made in the Cave—where the concepts are more fully realized—and as also as a transactive QuickTime maquette.[14]

If different, contrasting coloured letters are used for texts on distinct surfaces, the rendering anomaly plays out differently. As expected, 'distant' letters will render over closer ones in the anomalous configuration. If the distant letters in question are dark in colour and the nearer letters light, then, effectively, the surfaces of the nearer letters are transformed, by the anomalous rendering, into surfaces of inscription for the distant letters. If the overall background colour is dark (black by default, as in the existing Cave version and also the present QuickTime maquette) this has a further effect relating to legibility and strategies of reading. Dark and distant letters on a dark background are difficult to read. On a lighter background they may suddenly become legible. If the lighter background happens also to be the surface of a letter that otherwise seems to be perceptually close to the reader (it is closer in the conceptual topology of the graphic world), a strange counter-intuitive effect is produced when the dark letters stray into the region of light—a literal surface becomes a surface for inscription/reading and the spatial relations between the textual surfaces are inverted by the suddenly predominant desire to read. The surface of the nearer letter may also, as we shall see, become a full-blown 3D space within which the more distant letters appear to be disposed.

In the QuickTime maquette, which uses no actual 3D rendering and in which illusory visual distance is represented only by the sizes of its various texts, these effects can nonetheless be demonstrated. 'Distant' texts, two dark- and two light-coloured, drift

in the screen's blackness. There is also, at first, a 'lens' word rendered in larger white letters. The reader can move this 'lens' by dragging and scale it using command keys. If the lens itself is zoomed-in so as to become (illegibly) large, the surfaces of one or other of its constituent letters can then be used as a reading surface for the more distant darker texts and this makes them suddenly legible, as well as subverting our assumptions about their relative distance.

In the Cave version of 'Lens,' the effects are far more striking, disturbing and spectacular. The letters of 'Lens' obey previously cited rules so that their surfaces turn towards the tracked point of view, and the textual objects in the piece are fully 3D as is the space itself. The lens text can be moved in relation to the reader's point of view, drawn close or sent out amongst the distant darker texts, like an investigative spotlight. Most spectacularly, because of the immersive characteristics of the Cave system, the literal surface of the lens's letters can be, as it were, moved so close as to touch or pass 'behind' the reader's body and point of view. The surface light of a lens letter can even be brought into the very eyes of the reader. When this happens, the reader's vision seems to be flooded with the white light of this literal surface and the most spectacular spatial inversion/subversion occurs. The whiteness becomes a 3D space. In fact it becomes the enclosing 3D space of the Cave, taking the place of the dark space previously inhabited by both reader and the various textual objects only a moment before. The distant dark blue texts still drift in this space, but now they do so, distinct and legible, in a space of light and clarity. If the reader then moves the surface-literal lens-light 'out' of her eyes, the enclosing space, as suddenly, reverts back to darkness.

Figure 7.

Figure 8.

It seems clear that this relatively simple system makes literal, in virtual space, a particular type of complex surface that has spectacular perceptual affect and a degree of rhetorical potential. As a proof of concept, it is striking. In so far as it 'works' it does so in terms of the complex, recursive interrelations of writing surfaces and surfaces that are, literally, formed by writing, at least in so far as the graphic surfaces of letters are 'formed by writing.' However, except in the sense of writing as graphic form, there is no immediate or necessary determination of any symbolic content of writing in 'Lens' by its formal complexities of surface. The relationship between a particular letter's surface and the 'distant' text it allows to be read is not expressed as a linguistic or even a quasi-linguistic function. Contrast a typical mesostic text or the texts of *overboard* and *translation*, where the shifting states of complex reading and writing surfaces are determined by functions applied to their constituent symbolic 'contents.' Rather, 'Lens' shares some of the characteristics of surface complexity in Saul Bass' cinematic titles. The play of complex surfaces produces effects in the visual imaginary and in our notions of the 'real,' in the sense of the worlds we feel ourselves to inhabit. In Saul Bass' work the writing surface enters the imagined visual world of film and shows that the surfaces of that world may be inscribed. In the Cave, we can 'really' dwell within the text. Its surface complexities may suddenly determine where we are, how we see what we see, and what we can or cannot read in a 'world' that is literally made of text.

5.   THE SYMBOLIC ON COMPLEX SURFACES

Retallack wrote, "The symbolic is always [...] a flatland in its relation to the complex real." In a world of letters dominated by paper, print and their hypernetworked emulations, it is hard to dispute this contention. And yet, in their specific context, these words dispute themselves. They are, unambiguously, extracted from a writing project that is made from language. It is self-consciously poetic and it demands a poethics. It is engaged, at one and the same time, with the symbolic and the complex real. In so far as Retallack's words are effective in this context, they turn on themselves, producing a fold in their own writing surface and demonstrating that flatland sentences may generate surface complexities that are continuous, fractally, as Retallack would say, with art and life. I hope to have indicated above that programmable media provide arbitrarily numerous means to realize, in program and performance, complex relationships between the symbolic realm of language and the world it dwells within, represents and constitutes. To achieve this we require a textuality of complex surfaces, capable of conveying a multi-dimensionality that is commensurate with lived human experience, including the structured culture of human time.

6.   REFERENCES

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Notes

1. This essay was first presented as a paper at the 6th DAC (Digital Arts & Culture) conference, held at the IT University in Copenhagen, 1-3 December, 2005. See http://www.dacconference.org for links to past conferences and future plans.

2. Retallack is also notable for being a scholar and student of John Cage, see [5], one of the most important artists to have contributed to the field of digitally mediated writing through his algorithmically-generated mesostic texts.

3. Retallack is a example of such a writer, but not one of those who would resist a practical engagement with or appreciation of 'new' media. For instances of the latter, see some of the discussions associated with [1]. In the course of these discussions, I wrote, "Some writing … either could not exist in more 'traditional' media, or would not be so elegantly presented as it would in cyber/hypertext … // In particular, I mean texts where 'chance operations' and/or algorithmic transformations are applied to given texts and the writer insists that the 'real time' results of these procedures *are* her inscription on the surface of a complex medium." [1, pp. 174-75] For resistance to this view, please refer to the proceeding and following contributions to the thread, within the book cited, especially those by Ron Silliman. My remarks here are a revisiting, reformulation and development of related ideas and arguments which will continue well into the future.

4. This section is based on discussions in both [3] and [4].

5. Saul Bass was the first film title designer to be given a screen credit by the Director's Guild of America (for Otto Preminger's 'Carmen Jones,' 1954).

6. Paratext generally could also be retheorized as complexity of writing surface. Graphic design and framing conventions elements create depth and structure time in and amongst the textual object.

7. One of the interesting aspects of Bass' work is its non-use of Concrete poetics. One strand of literal art in new media clearly derives from Concrete traditions. Note however, that I do not consider linguistic or textual objects that deploy the rhetoric of Concrete to produce complexity in the surface of writing as I am developing the concept here. In a sense Concrete works because the properties and methods it brings together cannot share the same surface. This is the trope of Concrete: words are objects; words are not objects.

8. In his work on 'West Side Story' (1961) Bass quietly and wittily played with real surfaces as a site for (title) writing, with the credits expressed as graffiti and

intermixed with signage. One of the recognized artists in contemporary film titles, Kyle Cooper, literally etched or collaged the credits for 'Se7en' (1995) onto film stock. In Bass' later worked he reverted to the dominant mode of screen titling in which letters and words 'float over' the visual world of the film on planes that are, conceptually, in an entirely different space to that of the underlying photo-naturalism. This mode is also relatively familiar in new media work with language in the form of writing that is, basically, illustrated by visual and audio material rendered in new media. There is, as yet, little work that is consciously made for the complex writing surfaces made accessible by new media.

9. I am aware that, following Retallack and others, I am evoking some mathematical concepts in a rather vague and quasi-metaphorical sense. I am not pretending to use any of these terms with an informed understanding of their mathematical counterparts. But I would not like to preclude the possibility that this could be done, and that some of the procedures loosely described here could be given fairly precise representation in the mathematics of complexity and chaos, for example.

10. This analogy might be pursued since the mesostic procedure is also inherently recursive. The same mesostic process can be recursively applied to the generated text, as in Emmett Williams 'universal poetry.'

11. For *overboard*, visit http://www.shadoof.net/in/?overboard.html; for *translation*, visit http://www.shadoof.net/in/?translation.html. The principles and algorithms underlying overboard are set out in [2].

12. I have pleasure in acknowledging and thanking Brown University's Literary Arts Program for the opportunity to work and direct research in the university's Cave during the spring of 2004 and 2005. In particular, I would like to thank Professor Robert Coover, who invited me to take part in the Program in this way. While at Brown I benefitted from discussions and other interactions with, amongst others, Noah Wardrip-Fruin, Roberto Simanowski, Talan Memmott and Bill Seaman (at the neighbouring Rhode Island School of Design). Dmitri Lemmerman was my main collaborator on the projects discussed here. Further discussion of work-in-progress for the Cave can be found in [4] from which some of the following is derived.

13. The question arose as to why should this phenomenon be so immediate and effective, and this is discussed in far more detail in [4] along with other aspects of the phenomenology of text in space more generally.

14. The maquette is accessible on the Web at http://www.shadoof.net/in/?lens.html.