The In/Visibilities of Code and Aesthetics of Redaction

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Abstract

The material turn in critical approaches to contemporary media, games and art presents an impetus to go even deeper to the underlying logical and technical architecture of the digital: code. Whilst code may be as routinely obscured, by commercial and scholarly focus on more visible interfaces, as it is pervasive, we caution against the tendency to position code as a magical solution. Code, we argue, only executes in a way that is always composite and transversal, reliant upon and drawing into relation a vast network of actors and materialities, across multiple levels and forms. The papers that comprise this special issue take up the analytical challenge this suggests, addressing code in relation to topics ranging from material computing, digital heritage, gestural gaming, platform labour and the digitality of text, to DDoS attacks, the spatiality of ARGs, video game engrossment and the intimacy of white lines. Against this backdrop, this introductory essay frames the complex materialities and in/visibilities of code. We argue that code, in its semiotic and technical senses alike, both enables and obscures - in fact, it conveys often through forms of masking and erasure. We thus position code as a negative-yet-generative force, through a study of the politics and aesthetics of redaction. Code emerges as an analytical figure able to diagram forms of connection and tessellation, but also negation and erasure, within material, technological and cultural assemblages.

Introduction

Critical approaches to contemporary media, games and art are increasingly marked by material concerns. They range from old-school materialist accounts of the labour taking place on both sides of our glowing screens, required to sustain vast infrastructures of electronics manufacture and gaming and social media value-creation (Perlow 2011; Kücklich 2005), to the new materialisms of software studies (Fuller 2008), media archaeology (Parikka 2012) and platform studies (Monfort and Bogost 2009). Many of these strands intersect with games studies’ “material turn” towards machines, bodies and situated contexts of play (Apperley & Jayemane 2012). The material also emerges in ‘post-screen’ media arts interventions that wrest open the so many “black boxes” populating our digital media ecology (Whitelaw 2011). What these recent interventions and emerging approaches share is an emphasis on interrogating the material conditions, embodied characteristics and technical specificity of contemporary media.

Surveying this trend, the organisers of CODE: A Media, Games and Art Conference, held late 2012 at Swinburne University, Melbourne, Australia, saw a strong impetus to go even deeper, to the underlying logical and technical architecture of the digital. “The time has come“, the organisers argued in the initial call, “to bring code out into the open“. The papers
collected in this issue of *Scan* demonstrate the breadth of concerns that emerge when code is in focus, from the politics of denial of service attacks (Robbie Fordyce) and faceless bodies in amateur pornography (Emily van der Nagel), to the counterintuitive excavation of the book through code (Scott Wark) and view of physical space as ‘data dense’ (Kyle Moore). Together, they contribute to a growing academic concern with the role of code as an increasingly pervasive force that operates across wider cultural, social and political fields. Moreover, they reflect a core issue that emerged from the conference itself, which is that ‘bringing code out into the open’ is not as easy as it sounds, as a focus on code often raises more knotty analytical questions than it answers.

Certainly, as editors of this issue, we, , maintain the importance of contesting the masking of code, computing’s operative logic, by the gadget fetish of breathless tech marketing, not to mention scholarly focus on more visible social and technical interfaces, or what Matthew Kirschenbaum critiques as media studies’ “screen essentialism” (2008: 34). Similarly, Wendy Chun charts the paradoxical enshrinement of a visual culture of transparency around “the computer - that most nonvisual and nontransparent device” (2004: 27). The argument that interfaces make the constant workings of code opaque to ‘end-users’ is stated even more forcefully by Friedrich Kittler’s (1997) declaration that ‘there is no software’, or rather that software is a simulation which conceals the true locus of computing: hardware. Such debates suggest that the participatory or interactive nature of new media is a fallacy, and that it is instead bound up in various forms of control (Galloway & Thacker 2007; Chun 2011).

Indeed, in his contribution, ‘Gestural Economy and Cooking Mama: Playing With the Politics of Natural User Interfaces’, Luke van Ryn updates this critical approach to understand how the encoding of gesture in recent gaming devices naturalises the “universal modulation“ (Deleuze 1992: 7) of the control society.

Yet whilst code may be as routinely obscured as it is pervasive, on reflection, we caution against the tendency to position code as a magical solution in critical accounts of digital media, as if it were the essential level of analysis, the final layer that would reveal some supposed technical truth of digital media if we just ‘brought it out into the open’. Code may enjoy a privileged role, as Alexander Galloway (2004: 165) argues, as “the only language that is executable“, but it never executes in isolation. Indeed, not only does this beg the question, as Martin Howse, whose work is discussed in this issue by Mitchell Whitelaw, puts it “of where precisely the plague known as software executes” (Howse 2013), moreover, as Chun (2004) demonstrates, executability is only possible following the establishment of a vast network of capitalist accumulation, bodily configuration and technological alignment. Further, the execution of code’s abstract formalism is itself then always instantiated within varying and related materialities (Hayles 2004) - not merely those of software and hardware, but, moreover, the messy domains of cultures, economies and “forms of life“ (Wittgenstein 1963: 19).

**Germane here is Melanie Swalwell and Denise de Vries’ contribution on ‘Collecting and Conserving Code’, which shows how preserving born-digital cultural heritage is not simply a matter of locating and securing source code, but is instead a struggle to capture a shifting constellation of technical, institutional and legal codes. Code is always conjoined with various materialities and domains, not only technological. Instead of being treated as the fundamental unit of inquiry, then, we argue code is best thought of as a transversal concept.**

To continue complicating the supposed finality of code, in this introductory essay we are also interested not only in how code is both hidden and surfaced within various technocultural
contexts, but also how code itself operates within a double logic of in/visibility, or production and negation. Having outlined the impetus for this special issue and our perspective on code, we turn to the cultural trope of redaction to reflect on the opacity of coded messages. Redaction, as a cultural, legal and technical process, is a productive case for thinking through the muddied binaries of in/visibility that characterise a code-saturated society.

Here, redaction emerges as a trope that highlights the ‘double logic’ that marks cultures of transparency and secrecy - in which code surfaces not simply through its effects, but also through its conspicuous absence. Code, we argue, executes and generates, but it also prohibits and obscures, and a critical study of code must account for these elisions, gaps and masks.

An aesthetics of redaction

As a media practice, redaction brings together many of the concerns with code explored by this special issue, particularly in relation to the dynamics of in/visible forces. Indeed, on a more general level, the iconography of redaction, that simultaneously portentous and prosaic black bar, has become a significant visual trope across diverse contemporary fields, platforms and industries including law, security enforcement policies, journalism, archival institutions, social media, artistic expression, graphic design and software production. In this section we want to explore the critical meanings produced by redaction through its material and symbolic registers. We begin by sketching the key definitions and problematics of redaction by placing the practice within its critical and cultural reception and contextualising the term through a brief review of the different theories and disciplines for which redaction is central. After setting out the conceptual groundwork, we offer a reading of how code opens up a space for thinking through the aesthetics and politics of redaction.

The National Archives of the UK define redaction as the “separation of disclosable from non-disclosable information by blocking out individual words, sentences or paragraphs or the removal of whole pages or sections prior to the release of the document“ (UK National Archives 2012). In the context of law and litigation, redaction is also known as ‘masking’ and refers to the “practice of selectively concealing part of a document otherwise being produced pursuant to a discovery obligation or to be otherwise tendered as evidence in proceedings“ (Bannon 2012: 48).

While redaction deals in the withholding of information and the foreclosing of communication, as a number of commentators have noted, it is an operation driven by a double logic. By drawing material attention to what is withheld, the absent text becomes a central focus of perception, a curious sort of visibility. This is what Pamela Lee calls “the open secret“ since it “paradoxically announces its clandestine quality by virtue of its public appearance“ (2011). For Lee, redaction and release in the form of WikiLeaks, for example, performs a crucial rhetorical function in the “dream of transparency“. As she explains:

[T]he endless search for, and generation of, new content to expose … propels the fantasy of the free exchange of information. None of this is to dismiss WikiLeaks so much as it is to stress that the relationship between disclosure and redaction is not simply a matter of spilling secrets … Nor can the contemporary secret be understood to statically inhabit one of two registers: known or unknown, illuminated or obscure. The secret is itself an ideological contrivance; its withholding - its visible withholding - is as critical to its power as whatever content we might imagine it conceals (Lee 2011).
Similarly, as John Beck has shown, the ‘perception of appearances’ or the dynamic between depth and surface long debated in critical and aesthetic theory is, of course, also intensely political. One must recognise that the desire for disclosure is implicated in and mobilised by the economic and cultural logic of governance. As he puts it: “‘openness’ has become a defining performative gesture of democracies proficient in the rhetoric of ‘transparency’” (Beck 2011: 130).

To highlight an aesthetic principle that focuses on the relations of tension between two, apparently, opposing terms - visible/invisible; disclose/withhold; depth/surface presence/absence - brings us, ineluctably, to the work of Jacques Derrida. In particular, two intertwined theories help us to historicise the processes involved in redaction. First, there is the broad recognition, that, counter-intuitively, the ‘lesser’, second term of such parings can often function to shore up the apparent strength or self-evident nature of the first. The meaning of the terms is explored in terms of their relations of contingency, how, in other words, to think ‘presence’ without an idea of ‘absence’? An illustrative example of this movement is provided by the postal service. Derrida suggests we recognise that the condition for a letter to arrive successfully is the possibility it may not. In every despatch, there is the real possibility of postal failure and a letter may not reach its intended recipient. For Derrida, this means that the failure to arrive is actually a condition of successful arrival. The presence of a letter or postcard is to some degree predicated on its absence. As he explains in The Post Card, “the condition for it to arrive is that it ends up and even that it begins by not arriving” (1987: 29). The second point to note is what we might see as the visual representation of this dynamic where Derrida, drawing from Heidegger, deploys the typographic practice of *sous rature* to put certain terms ‘under erasure’. This movement is achieved by crossing words with an x (for Heidegger) or a horizontal strikethrough (for Derrida), to cover a particular word but also allowing it to remain legible. In this way, the definitive meaning of the term is called into question, at once visible and shadowed. As Gayatri Spivak puts it “since the word is inaccurate, it is crossed out. Since it is necessary, it remains legible“ (1976: xiv).

Marks of deletion and obscuration have played a central role in literary history. In *The Life and Opinions of Tristram Shandy*, (1759-67, 1985), for example, eighteenth century author Laurence Sterne punctuates and illustrates his prose with asterisks, dashes and dots. Ostensibly avoiding profanity, these redactions draw attention to the omitted words by inviting the reader to count out the missing letters, thereby producing, once again somewhat paradoxically, intense engagement with the text. At one point, for example, the protagonist, Tristram, recounts how his Uncle explained his mother’s preference for a female midwife: “My sister, I dare say, added he, does not care to let a man come so near her ****“ (Sterne 1985: 146). Moreover, Sterne’s typographic experiment, the inclusion of blank pages, graphs torn out pages and diagrams, explicitly engages with the materiality of print technology. Indeed, at one point, Tristram refers to his book as a “machine“ (Sterne 1985: 459). Further, the prose itself, an exceedingly frustrating autobiographic tale, withholds meaning and closure as a direct affront to the tropes of traditional narrative structure. These gestures are then mirrored at the level of representation, with Sterne visually depicting the trajectory of a particular story by way of a literal line sketched on the page, bent curly and digressive, suggestive of the author’s own inability to close his story (Sterne 1985: 453).

Remaining within the field of literary studies, a further disciplinary field to mention is that of ‘redaction criticism’. This is a form of theological study that examines the actions of editors or redactors, in the historical development of biblical production, dissemination and reception. Rather than to see gospel scribes as mere copyists, redaction criticism focuses on
the extent to which the archivists, collectors and editors of religious manuscripts create theological meaning. As Norman Perrin explains:

The prime requisite for redaction criticism is the ability to trace the form and content of material used by the author concerned or in some way to determine the nature and extent of his activity in collecting and creating, as well as in arranging, editing, and composing. (Perrin 1969: 2)

Emerging in Post-Second World War Germany, redaction criticism investigates the role of scripture editors along a number of axes, including instances where settings are transposed between different stories, portions of a gospel tradition are omitted, where details in the source are explained or where certain narrative developments to follow are foreshadowed. This data is then coded to ascertain the stylistic similarities between these editorial practices (Osborne 1992: 662). For our purposes, what is instructive from this field is the insistence on how editorial work, its suturing together of diverse biblical sources, can be understood as a certain sort of authorship in its own right (Smalley 1977: 182).

The arts of redaction

Viewing redaction as a mode of authorial production opens up the space of creative intervention. Contemporary art practice has been particularly provoked by the threat of public silence and censure which redaction seems to herald. In this regard, the work of American conceptual, installation artist Jenny Holzer is germane. Her Redaction Painting series began in 2005, with an exhibition taking as source material the administrative literature pertaining to the US military presence in Iraq and its acts of torture, particularly at Abu Ghraib and Camp X-Ray. These government documents included declassified emails, letters, memos and maps which Holzer then silk-screened and enlarged to produce a “brutal narrative of physical and psychological violence, both illegal and officially sanctioned“ (Wilson 2006: 375). In a related exhibition, Protect, Protect, shown at the Witney in 2009, Holzer reproduces the infamous, November 2002 ‘Action Memo’ in which US Defense Secretary Donald Rumsfeld gives approval for interrogation techniques for causing distress to detainees through the use of fear. The memo contains Rumsfeld’s exhortation to “Exterminate all the brutes“ and, in response to one of the forms of torture sanctioned by the memo requiring detainees to remain standing in one position for four hours, he adds “however, I stand for 8-10 hours a day. Why is standing limited to 4 hours?“ A further panel displayed the redacted August 2003 file, colloquially named “Wish List of Alternative Interrogation Techniques“, providing for techniques such as “Phone book strikes“, “Low voltage electrocution“, “Muscle fatigue inducement“ and “Closed fist strikes“ (Slaughter 2010: 208).

Critical reception for Holzer’s work demonstrates what is at stake in the double logic of redaction. For Michael Wilson it is the explicit focus on her sources and the aesthetic process of omission that diminishes its social impact. As he puts it:

The content of the selected documents is so chilling and the manner of their presentation so seductive (Holzer imposes a range of slick Warholian colorways, and seems to dwell on the censor’s oddly expressive gestures) [it] … threaten[s] to soften the content’s necessary blow. The series’s aesthetic is so tight that it soon begins to feel airless - even, at worst, cynically programmatic. (Wilson 2006: 375)
Similarly, for Paul Usherwood, the excessive focus on the visual appearance of redaction renders the paintings illegible in their “almost Malevich-like” abstraction (Usherwood 2007: 28). These critical readings are problematised by Joseph Slaughter, who argues the critiques are based on a false dichotomy which divides “image and text“ and in so doing “curiously separates aesthetics (the visual) from politics (the documentary)” (2010: 209). For Slaughter, it is precisely the resolute illegibility of these paintings that is the point. Rather than making “the invisible visible” as is the institutional and legal remit for freedom of information practices, Holzer renders “invisibility itself visible” (Slaughter 2010: 211). In other words, the act of redaction exposes the difficulty of interpretation, of reading and recovering authentic narratives from the silences, gaps and ellipses. “Holzer’s paintings force us to confront the fact that there is nothing behind the black oil paint but blank canvas; close reading might not do for these declassified documents - perhaps they can’t be read closely enough“ (Slaughter 2010: 212).

The politics of redaction

Much of the source material for Holzer’s work was declassified and released under the provisions of the US Freedom of Information Act 1966 (Slaughter 2010: 208). We turn now to examine the legal and policy frameworks which shape the processes of redaction. In particular, we explore the role of code in formulating redaction as an aesthetic and political practice. The purpose of the Australian Freedom of Information Act 1982 (herein FOI Act) is to provide to the Australian public access to information held by the Government by “requiring agencies to publish the information and providing for a right of access to documents“ (FOI Act: 3.1). It aims to “promote Australia’s representative democracy“ though “increasing public participation in Government processes“ and by “increasing scrutiny, discussion, comment and review of the Government’s activities“ (FOI Act: 3.2). The FOI Act recognises “that information held by the Government is to be managed for public purposes, and is a national resource“ (FOI Act: 3.3). Finally, the FOI Act stipulates that information should be provided to the public “promptly and at the lowest reasonable cost“ (FOI Act: 3.4).

However, certain categories of information are exempt from publication and dissemination. This is true for similar Acts in the neighbouring jurisdictions of, for example, the UK and the US. Part II of the Freedom of Information Act 2000 (UK), sets out 23 exemptions constraining the release of documents including matters regarding national security, defence, international relations, the economy, law enforcement, court records, personal information and commercial interests. Similarly, in the US, under the Freedom of Information Act 1966, there are nine exemptions which prevent full disclosure of data in relation to national defence, foreign policy, trade secrets, legal privilege, personnel and medical files, law enforcement, bank supervision and, information about geological sites, such as oil wells. The Australian FOI Act sets out nine criteria for withholding certain information including national security, defence or international relations; law enforcement, public safety, contempt of parliament or the courts; trade secrets and electoral roles.

When an institution is requested by a Freedom of Information Act to release data, it calculates whether any such exemptions apply and, if so, redacts the particular document accordingly (UK National Archives 2012). This is where the media of redaction, its protocols, software, conventions and techniques come into play. Cultural and governmental institutions who are subject to Freedom of Information Acts regularly produce guidelines with recommendations about the media to deploy for redaction. In the case of manual
redaction, for example, the South Australian Government suggests photocopying the original document and then using black marker, correction fluid or, in some cases, a scalpel, to obscure information from this new version which is then released to the public (2010: 1-3). Similarly, a Californian Court advises manual editors to “cut-out (literally) all the text to be redacted and properly dispose of (shred) the clippings“, assuring users that “this method will always be 100% effective“ (United States District Court 2011).

The capacity to guarantee fool-proof obscuration is, of course, central to the protocols of redaction, particularly in relation to electronic formats. In response to widespread news reportage of the failure of electronic modes of redaction to permanently withhold data, the Australian Government’s Department of Defence produced a report entitled ‘An Examination of the Redaction Functionality in Adobe Acrobat Pro’ (2011). Using the open-source tool ‘pdf-parser’, the study used a number of case studies to test whether redacted text could be retrieved both in embedded text and graphic forms concluding that the “redaction function in Acrobat successfully removed information. It was not possible to recover data which had been redacted’ (2011: 3). According to the guidelines issued by the UK National Archives, further protection is provided to portable document formats (pdf) by using a process known as ‘roundtripping’ which converts the original file to another format, for example Windows Bitmap, which does not allow for the storing of metadata, followed by conversion back to the original pdf format (2011: 16).

Most government guidelines on redaction stipulate that redaction must be performed on copies rather than on original documents and that records be kept as to the reason for the redaction. The US National Archives and Records Administration, for example, applies ‘redaction codes’ to declassified documents where certain areas of information have not been released to the public. Likewise, in their ‘Redaction toolkit’ (2012), the UK National Archives provide a sample template for “recording redaction decisions”. Such procedures provide further evidence for the double logic of redaction mentioned earlier, since these protocols actually increase the visibility of withheld information.

**In/visibility as generative**

As Adrian Mackenzie and Theo Vurdubakis point out, the increasing identification of the term ‘code’ with programming and software, “has gone hand-in-hand with an emphasis on the performativity of code, its apparent ability to ‘make things happen’“ (2011: 6). Taken this way, code has a unique illocutionary force, or, as Galloway, whom we quoted earlier, states, “code is the first language that actually does what is says“ (2004: 165). The question of code’s executability remains a moot one in software studies, as Scott Wark details in his paper ‘Literature after Language’s Algorithmic Normalisation: Spam, Code, and The Digitality of Print in Blood Rites of the Bourgeoisie’. Wark productively re-routes this debate in his discussion of Stewart Home’s novel as a “spam-delivery system”, counter-intuitively suggesting that digitality is the key logic of both code and language.

In our examination of tropes of redaction, we have taken a complementary but distinct path, and have viewed code not only as a generative concept, but also one that throws into relief the multifaceted dimensions of presence and absence that characterise current media assemblages. By considering both the transversal logic of code and its varying degrees of opacity, we now hope to connect the formal notion of computational code with its semiotic definition, and in doing so, demonstrate not only that code can obscure as much as enable,
but that the execution of obscuration is itself generative. Thus, we define code as a generative force as much as a subtractive one.

Code, in the semiotic sense, is a negative function, a mechanism that restricts and regulates certain choices and types of conduct. *Thou shalt not*. Code circumscribes the permissible through its prohibitive function, that which is filtered out. Similarly, shifting from the notion of code as a set of prohibitive rules to that of a key for translating a message, code is a means through which a given language or medium is both made sensible and obscured. Cryptography creates arbitrary sets of relations through signs that are only readable, or decoded, by those with the code, or key, itself. Code is thus a system for the prohibition of actions within a given domain, and for the concealment and redistribution of information. Brogan Bunt and Lucas Ihlein discuss their workshop ‘The Human Fax Machine Experiment’ in this issue, itself a reflection on the process of teaching computing students the abstract concepts of programming through a game based on the difficulties of translating different, coded modalities of sight and sound.

In emphasising cryptographic and semiotic senses of code, our aim is return this negative-yet-generative definition of code to the assumption of computer code’s supposedly perfect calculation and execution, found in Peter J. Bentley’s claim that, in code:

There are no ambiguities, no hidden meanings. Problems are delicately pulled apart by master dissectors, and solutions are formed that magically instruct the computer to perform the necessary tasks. (2003: 33)

This perspective is also evident in Galloway’s (2004) reliance on the equivalence of source code and executable code in his formulation of executability, code’s pure logic of command. Chun usefully problematises this collapse in her essay ‘On “Sourcery”, or Code as Fetish’, exploring how “code does not always automatically do what is says, but does so in a crafty manner“ (2008: 9). Similarly, Kittler reminds us that, “As a word that in its early history meant ‘displacement’ or ‘transferral’ - from letter to letter, from digit to letters, or vice versa, code is the most susceptible of all to faulty communication” (Kittler 2008: 45). Reinforcing the ‘crafty’ nature of codes, computational or otherwise, not only retrieves the material and performative processes of contingency for code’s analytical framework, but as Christian McCrea (2012) and Esther Milne and Anthony McCosker (2014, forthcoming) demonstrate, also the critical politics of the labour of *coding*. It also suggests what we might call a ‘critical cybernetics’ approach - which contributor Justine Humphry deploys via the work of Jussi Parikka and Tony Sampson (2009) in her piece ‘Demanding Media: Platform Work and the Shaping of Work and Play’. Her study of the otherwise hidden labour of ‘platform work’, draws attention to the way in which disruption, blockage and noise within media systems are not so much hindrances but expressive, reproductive forces.

We are not only suggesting here that the operation of code may be obscured by various interfaces, a point that is now widely accepted, but also that this operation itself inherently involves forms of masking and erasure. Perhaps the most apposite proof of computing code’s essentially negative function is in the ubiquity of algorithmic filtration systems online, in which what we are presented with in a search engine results page or social media feed - let alone on the internet itself in the case of an ISP-level filter - ostensibly transparent, ‘neutral’ and ‘tailored’, is precisely the inverse of a vast amount of information that is purposefully not shown to us, mobilised through an automated but no less political function of selection and subtraction. In their study of filtering cases such as *WikiLeaks* and Google’s ranking
algorithm, Tama Leaver, Michele Willson and Mark Balnaves have shown how filters, commonly understood as “a mechanism or technique for managing, blocking or controlling the behaviours or properties of something” (2012), are becoming increasingly pervasive as they are normalised, and call for a greater degree of transparency around their operation.

Whereas Mackenzie and Vurdubakis (2011) complicate the increasing ubiquity of code as the favoured model for various facets of the current era - political, ecological and technological - with the argument that the cognisable systematicity code implies is always and everywhere accompanied by an excess leading to crisis, we have taken a related but inverse path. Code’s execution is not only complicated by its production of excess, but also its inherent ties with concealment and contingency. From this perspective, code, in all its manifestations, both carries and obscures, and it is the generative function of these dimensions that we underline here.

**Code: composite and transversal**

If we are to overturn the problematic notion of code as fundamental, we must also free it from its restrictive, sole definition as the language of the digital. Designating both an operative technical process and a cultural framework, code’s significance extends far deeper and wider than its role in digital computing. Code permeates all aspects of society, then and now; from codes of conduct and practice to institutional orthodoxies, from semaphores and ciphers to programs and algorithms, from linguistic codes to legal codes and copyrights, not to mention the ‘universal’ code of DNA, explored in Andre Brodyk’s artist statement on his work GUAG. Jason Wilson’s innovative contribution, ‘White Lines: Code and the Aesthetics of Intimacy’, deals directly with the deeper (pre)history of code, invoking the media archaeological gaze implicit in Walter Benjamin’s ‘constellational’ thinking to trace the artistic history of the creation of interiorities through the ‘white lines’ of interactive and systematic media forms. Wilson draws unlikely yet intuitive connections between everything from Web 2.0 proselytising to Nam June Paik’s scan lines and early arcade and mobile games *Pong* and *Snake*, studying this genealogy as a Sloterdijkian ‘spherology’ of intimate mediotechnological interiors.

In any given context, multiple technical and cultural codes frame action, raising questions about the continuities and discontinuities of various codes. Lawrence Lessig’s *Code and Other Laws of Cyberspace* (1999) presciently argued that digital code, as instantiated in technical protocols such as digital rights management, may disastrously overextend the limited protections of copyright and intellectual property as dictated by legal codes. In doing so, Lessig called attention to the incongruity or contradictions of different codes as they come into contact. Similarly, the papers in this issue demonstrate how fruitful an analysis of the ways in which different codes meet, overlap, extend and contradict one another can be. Robbie Fordyce draws attention to the complexities in multiple layers of codes in his paper ‘Code, Democracy, and DDoS attacks’. Fordyce argues that, in the mobilisation of code for online activist DDoS attacks, there are no hierarchies of significance between social, software and network codes, and, in doing so, places the process of hierarchising code as a form of redaction for obscuring the ways in which various layers of code may interrelate with other layers in the political mobilisation of software. In ‘Through the Screen: Deconstructing Spatial Dualism in Augmented Reality Games’, Kyle Moore argues that augmented reality game players interact with composite layers of material, informational and social code simultaneously. Metaphors along the lines of the ‘screen as window’ in descriptions of augmented reality games obfuscate, and reduce down to a problematic real and virtual binary,
the experience of ‘multi-layered’, ‘data dense spaces’. Such metaphors ignore the agency of
the player in engaging with and co-creating the transversal space of the game, a concern that
is also present in Michael Skolnik’s paper ‘Code-Breaking and Video Game Engrossment’. 
Skolnik investigates the double-layered involvement with code that players undertaking
puzzle-solving segments in games engage in, arguing that through linking work and reward,
these systems foster novel forms of engrossment. Similarly, Emily van der Nagel emphasises
the complex navigation of technological and social codes in user’s engagement with the
reddit gonewild bulletin board. In her paper ‘Faceless Bodies: Negotiating Technological and 
Cultural Codes on reddit gonewild’, van der Nagel demonstrates that anonymity requires
conscious negotiation of multiple layers of code, further emphasising the multiplicity of code
in social practices.

Within and beyond these contributions, code becomes a composite concept that can diagram
the complex tessellations and contradictions of the cultural and technical. Simultaneously,
given that the execution of code draws into relation a vast network of actors and materialities,
code operates as a transversal analytical figure, allowing us to study the theoretical and actual 
means of translation, movement and connection between different levels and different
domains of contemporary media formations. In this sense, code pinpoints a “neighbourhood
of relations” (Mackenzie 2006: 169; Chun 2011: 6). Code in its general definition brings into 
focus the connections and movements between micro-level operations at the material and
ecological substrate and of machine code, meso-level operations of source code itself, and the
varied and wide-reaching cultural codes that circulate at the macro-level.

Indeed, the CODE exhibition, which ran in association with the CODE conference, was
aimed at highlighting the transformative and transversal nature of contemporary media
formations. Fifteen artists and creative practitioners were invited to present works which
engaged with the conference theme. Featured artworks traversed a range of art forms
including audio/visual performances, software art, interactive projects, and games. A survey
of the exhibition by curators Dean Keep and Laura Crawford frames the ‘Information
Articles’ section of this issue, illustrating the range of these works. We draw further attention
to the implicit connections between critical and artistic accounts of the role of code in
contemporary media, by also including in this section a selection of commentaries from
artists and creative practitioners featured in the CODE exhibition.

Code, so often seen as immaterial and disembodied, emerges most fully when we consider
the ways in which embodied practice and machine communication are deeply co-constitutive.
In her discussion of her performance piece error_in_time(), involving live coding, and video
installation ism | breath | she | who | with | I, Nancy Mauro-Flude pinpoints how bodies get
into code, and code into bodies, through a process of sensitising. Her work and commentary
directly touch on the elision of code via the GUI, and suggest that it can resurface through an
embodied performance of the welcome abstractions of command line coding.

Studying the transversal mechanics and aesthetics of code shares a commonality with
Mitchell Whitelaw’s concept of transmateriality (2008; 2011), which he extends further in his
contribution to this issue, ‘Sheer Hardware: Material Computing in the Work of Martin
Howse and Ralf Baecker’. Transmateriality “treats the digital as always and everywhere
material … while maintaining a sense of how the digital functions as if it were immaterial“
(Whitelaw 2008), holding in tension the generality that is required for the digital to function
by translating patterns across material substrates, and the specificity that always intervenes
both materially and in local contexts of practice, quotidian and artistic.
Similarly, as Hayles writes, “[source] code is deep“ (2004: 75), enabled only, moving down, by its correspondence to machine code, and below that, the binary fluctuations of electronic polarities on a material substrate, and on the other hand, moving up, as noted, its manifestation at the level of the interface and within a vast network of materialities. Yet code operates as if it were autonomous, re-writing the world in its image. This is why such a material focus on code’s composite, transversal features is crucial in an era in which the logics and processes of software algorithms and data continue to seep deeper into and rebuild everyday life, as developments such as ubiquitous computing, the rise of haptic interfaces, and ‘Big Data’ demonstrate (Kitchin and Dodge 2011; boyd and Crawford 2012).

Code’s ubiquity is demonstrated precisely by its joining and folding with the complex materialities that make up the contemporary world. We have argued for a perspective that treats code as always and everywhere composite and transversal, to be analysed and executed never in isolation, but always in relation to myriad layers and environments. The papers in this special issue of Scan take up this challenge, and in this introduction we have also laid the groundwork for a further thinking through of the complexities of code as a conceptual framework. The transversal mechanics of in/visibility and the aesthetics of redaction intimate code as an analytical figure that locates both flows and frictions, connections and breaches, links and gaps, within the varying assemblies that define contemporary media. In this guise, as it moves through various processes and pathways, code is always implicated in generative forms of opacity, negation and silence.

Works Cited


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