KINETIC POETRY_MANUEL PORTELA
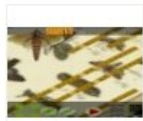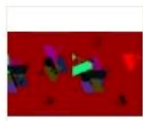

Lluís Calvo e Pedro Valdeolmillos_Inse…

Loss Glazier_COG (2002)

Marko Niemi_60 Letter Dash (2004)

Mez_N.formation.sou… (2002)

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Millie Niss_Oulipoems (2004)

OuLiPo_screen capture (11 Feb 2010)

Pedro Barbosa_Syntext

PennSound_screen capture (11 Fev 2010)

Philippe Bootz_ré_veille 2 (2005)

Philippe Bootz_The set of U (2004)

Po_Ex (2009)

Raymond Queneau_Cent mille milliards de poèm…

Rui Torres_Amor de Clarice (2005)

Stephanie Strickland_Vniverse(20…

Steve Duffy_Dig

RELATÓRIO DE UNIDADE CURRICULAR
MESTRADO EM POESIA E POÉTICA
PROVAS DE AGREGAÇÃO EM
LÍNGUAS E LITERATURAS
MODERNAS
2010

NOTA INTRODUTÓRIA

Este documento constitui o relatório sobre unidade curricular para efeitos de Provas de Agregação na área de Línguas e Literaturas Modernas[1], de acordo com o estipulado na alínea b) do artigo 5º do Decreto-Lei 230/2007, de 19 de Junho.

O relatório 'Poesia Cinética'[2] encontra-se dividido em três partes: (a) reflexões preliminares de contextualização da investigação e do ensino da literatura electrónica [pp. 9-23]; (b) descrição detalhada dos conteúdos do programa e da metodologia de ensino, incluindo planificação semestral, tópicos de aula e exercícios de avaliação [pp. 25-79]; (c) um ensaio final sobre Jim Andrews, um dos autores algorítmicos estudados cuja obra é particularmente relevante para o argumento deste seminário [pp. 80-103].

Este relatório inclui ainda em anexo o CD-ROM *DigLitWeb: Digital Literature Web*, um sítio web pedagógico que desenhei e actualizei entre 2005 e 2010 (http://www.ci.uc.pt/diglit/). A sua estrutura e conteúdo procuram integrar as minhas actividades de investigação e de ensino, tanto a nível graduado como pós-graduado. 'C de Cinéticos/K for Kinetic', uma das secções de *DigLitWeb* (http://www.ci.uc.pt/diglit/DigLitWebCdeCineticos.html), contém um levantamento anotado de obras digitais que fazem parte da unidade curricular sobre a qual incide o presente relatório.

Com excepção da nota bilingue introdutória, todo o texto se encontra redigido em inglês (cf. Artigo 18º do Decreto-Lei 230/2007, de 19 de Junho). A leccionação em inglês é um contributo para o desejável perfil internacional do Mestrado em Poesia e Poética, recentemente criado na Faculdade de Letras da Universidade de Coimbra.[3] Ao seminário semestral 'Poesia Cinética', com uma carga lectiva de 3 horas semanais, estão atribuídos 10 ECTS.

Coimbra, 24 de Fevereiro de 2010

Manuel Portela

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[1] Por se tratar de um novo campo de investigação o programa proposto não se enquadra em nenhuma das especialidades actualmente existentes na FLUC, motivo pelo qual é indicada apenas a área.
[2] 'O Movimento dos Significantes na Poesia Cinética' foi a primeira designação desta unidade curricular. Esta designação foi recentemente abreviada para 'Poesia Cinética'.
[3] Cf. http://www.uc.pt/fluc/ensino/2ciclo/2009_2010/docspdf/2_ciclo_poesia_e_poetica.pdf (20 Fev 2010). Este programa de Mestrado, coordenado por Stephen Wilson, foi concebido como um projecto europeu, que integrará futuramente outras universidades (da Irlanda, Reino Unido e República Checa).

INTRODUCTORY NOTE

This document contains the report on a curricular unit for 'Provas de Agregação' in the area of Modern Languages and Literatures[4], in accordance with the provisions set in paragraph b) of Article 5 of Decree-Law 230/2007 of 19 June.

'Kinetic Poetry'[5] is divided into three parts: (a) introductory contextualizing reflections on the research and teaching of electronic literature [pp. 9-23]; (b) detailed description of the course syllabus and of its teaching methodology, including semestral plans, class topics, and evaluation assignments [pp. 25-79]; (c) a final study on Jim Andrews, one of the algorithmic authors whose work is especially relevant for this seminar's argument [pp.80-103].

This report contains a CD-ROM, *DigLitWeb: Digital Literature Web*, a pedagogical website that I have designed and maintained between 2005 and 2010 (http://www.ci.uc.pt/diglit/). In terms of structure and content, *DigLitWeb* aims to integrate my research and teaching at both undergraduate and postgraduate levels. 'C de Cinéticos/K for Kinetic', one of the sections of *DigLitWeb* (http://www.ci.uc.pt/diglit/DigLitWebCdeCineticos.html), includes a survey of digital works that are part of the 'Kinetic Poetry' syllabus.

Except for a bilingual introductory note, all text is written in English (cf. Article 18º of Decree-Law 230/2007 of 19 June). The use of English as language of instruction is a contribution to the international profile of the MA Program in Poetry and Poetics, recently established at the Faculty of Arts at the University of Coimbra.[6] 10 ECTS credits have been allocated to the 'Kinetic Poetry' semestral course, with 3 weekly contact hours.

Coimbra, February 24, 2010

Manuel Portela

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[4] At present there is no specialization within Modern Languages and Literatures at the Faculty of Arts for the research area covered by this course.

[5] The first name of this seminar course was 'The Motion of Signifiers in Kinetic Poetry'. It was recently abbreviated to 'Kinetic Poetry'.

[6] Cf. http://www.uc.pt/fluc/ensino/2ciclo/2009_2010/docspdf/2_ciclo_poesia_e_poetica.pdf (20 Feb 2010). This MA program, coordinated by Stephen Wilson, was designed as an international project which will include other E.U. universities (from Ireland, UK, and Czech Republic) as future partners.

TABLE OF CONTENTS

PROLOGUE

Researching and Teaching Electronic Literature

> The electronic literature community is increasingly global, as networks of practice and scholarship become more interconnected and communicative with each other across national and generic boundaries. Although the French, Spanish, German, Dutch, Brazilian, Scandinavian, English, American, and Canadian electronic literature communities, for example, don't necessarily speak the same languages, we are all becoming increasingly aware of each other's work. The field of electronic literature is a network of networks, and we are only beginning to learn how to work together.
>
> Scott Rettberg, 'Communitizing Electronic Literature', in *Digital Humanities Quarterly*,
> Spring 2009, Volume 3, Number 2, §5
> http://www.digitalhumanities.org/dhq/vol/3/2/000046/000046.html (20 Feb 2010)

This prologue aims to briefly sketch the current context for researching and teaching electronic literature. I look at examples of new media syllabi at university level in an international and national context. I also place this particular syllabus within the context of my own research and teaching in the field of new media and digital literature. In the final paragraphs I write about the difficulties and rewards of teaching these materials, and I argue for the importance of digital literary studies for humanities research and teaching in the information society.

Scott Rettberg's view, quoted above, provides a good starting point for making sense of the course described as 'Kinetic Poetry'. This seminar course is part of the new multilingual MA program in 'Poetry and Poetics', and is one of the very first in Europe devoted exclusively to one genre of digital poetry. As will become clear in the following paragraphs, 'Kinetic Poetry' reflects the current highly networked field of electronic literature, at production, research, and teaching levels. Awareness of digital forms across cultures, languages, and disciplines is clearly marked by the multicultural, multilingual, and multidisciplinary corpus of selected works [see '2.6. Semestral Plan', below, pp. 37-44]. It is also reflected in ongoing scholarly production and in teaching syllabi across Europe and America (U.S.A., Canada, Brazil), even if U.S. institutions have led and continue to lead this field. Digital poetry does have the potential for an international and intercultural reception, in part because of the software applications that execute the works' code. Networked distribution and shared software create a new formal layer

in literary forms and genres, one that depends on digitality as the medium-specific materiality of computers. And those software codes, particularly the multimodal forms that dominate networked hypermedia environments, are similarly processed by the machines and similarly accessed by the readers. Platforms and software function as a common techno-cultural layer that interacts with linguistic and other cultural codes.

The teaching of electronic literature, and of digital poetry in particular, has been growing steadily since the early 2000s, particularly in universities across the U.S.A.[7] The first courses and seminars on electronic literature were introduced in universities in the early 1990s. Today there are at least one or two offerings in major research universities and institutes of technology. It goes without saying that the study of digital art and digital design started earlier and spread faster, but digital literature has gradually entered higher education curricula. A recent signal of its institutionalization was the publication of *Electronic Literature: New Horizons for the Literary* (Notre Dame, Indiana: University of Notre Dame Press, 2008) by N. Katherine Hayles. Hayles's book is the first attempt to provide an overview of the field which uses electronic works to propose a new theory of intermediation, i.e, a theory of the relationship between human beings and computers as a specific cognition system. *Electronic Literature* comes with a CD-ROM anthology containing 60 poetry and fiction works produced between the early 1990s and 2005: *The Electronic Literature Collection*, Volume I. This collection has been hailed as one of the first canons of electronic literature and an invaluable tool for bringing digital literature into the classroom.[8]

The decentred nature of World Wide Web publication of electronic works – sometimes commissioned by artistic and academic institutions, but more often self-published by the authors themselves and distributed freely over the internet – is one of the reasons for its relative invisibility. Scattered around servers all over the world, they may seem not just hard to come by,

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[7] For a large sample of different approaches to the teaching of courses on digital media, see the section 'Syllabi' in the webpage 'Humanidades Digitais/ Digital Humanities' http://www.ci.uc.pt/diglit/DigLitWebHumanidadesDigitais.html (20 Feb 2010), cf. *DigLitWeb*, online and CD-ROM.
[8] See, for instance, the review by Mark C. Marino, '*The Electronic Literature Collection. Volume I:* A New Media Primer', in *Digital Humanities Quarterly*, Summer 2008, Volume 2, Number 1 http://www.digitalhumanities.org/dhq/vol/2/1/000017/000017.html (20 Feb 2010). Volume II is under preparation and is scheduled to appear in 2010. Volume I is also published online at the site of the Electronic Literature Organization: http://collection.eliterature.org/1/ (20 Feb 2010).

but hard to relate to each other. They also seem to require a strange combination of what

Katherine Hayles (2008) describes as 'deep attention' (i.e., immersive literary reading on the

page) and 'hyper attention' (i.e., negotiating multiple foci competing for attention on the screen).

And yet communities of writers and readers have formed, and a growing body of works, now

numbered in the thousands, has been slowly developing into new forms and genres of

literature. Many of these works are aggregated by individual and group effort in sites and

journals that explore the creative possibilities of digitality as a new writing and signifying space.

Electronic writing centres, with institutional support, have been established, such as the

Electronic Poetry Center (Buffalo, SUNY http://wings.buffalo.edu/epc/) or the Center for Literary

Computing (West Virginia University; http://www.clc.wvu.edu/). Some world-class research

institutes such as the Maryland Institute for Technology in the Humanities (University of

Maryland, http://www.mith2.umd.edu/) have also opened up their resources – initially centred

on digital editing and archival projects – to the creation and preservation of new works.

With the establishment of digital poetry festivals[9], the organization of conferences on new media

literature, and the rapid expansion of Web 2.0 hypermedia publication and collaboration

platforms and tools, the 2000s have seen significant changes in production, distribution,

research, and teaching. 'Technology Platforms for Twenty-First Century Literature', the 1999

conference at Brown University, prefigured many of the current developments.[10] Another

important early conference was held in 2002 at the University of Iowa: 'New Media Poetry

Conference: Aesthetics, Institutions & Audiences'.[11] Because electronic literature tools and

platforms were often conceived and developed within academic environments, they were never

entirely divorced from research projects and curricular issues. Writers, programmers, and

humanist scholars have been working together ever since the new media field began to take

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[9] The 'E-Poetry: An International Digital Poetry Festival', for instance, has been held every two years since 2001 (Buffalo, NY, 2001; Morgantown, WV, 2003; London, 2005; Paris, 2007; Barcelona, 2009). Those locations also reflect the intense activity of major electronic writing centres and groups, mostly based in universities. Cf. E-Poetry Festival Archive: http://epc.buffalo.edu/e-poetry/archive/index.html (20 Feb 2010), published at the Electronic Poetry Center website.

[10] This conference, organized by Robert Coover, brought together pioneers in the field of hypertext writing. It advertised itself as 'A Three-Day Conference and Workshop for Writers, Publishers, and Technologists To Shape the Authoring, Publishing, and Reading Tools of the Next Century For Interactive Fiction, Poetry, and Creative Nonfiction'. http://www.stg.brown.edu/conferences/TP21CL/ (20 Feb 2010).

[11] Cf. http://www.uiowa.edu/~iareview/tirweb/feature/conference/ (20 Feb 2010). What is still the most important single book on digital poetics came out of that conference: Adalaide Morris and Thomas Swiss, eds., *New Media Poetics: Contexts, Technotexts, and Theories*. Cambridge, Mass: MIT Press, 2006.

shape. Their collaboration resulted in the creation of a large body of work, in the establishment of a highly specialized critical vocabulary, and in teaching courses and programmes that address the issues raised by new media materialities, practices, and forms.[12]

Assembling and describing available electronic works, with the collaboration of the authors who index and describe their own productions, has been one of the main tasks of the Electronic Literature Organization (ELO). Founded in 1999, and presently headed by Joseph Tabbi, its mission is described as 'to foster and promote the reading, writing, teaching, and understanding of literature as it develops and persists in a changing digital environment.' (http://www.eliterature.org/about/) Initially based at UCLA, ELO moved to the Maryland Institute of Technology in the Humanities in 2006. Emergent and established online and print journals, such as *The Iowa Review*, have also devoted special issues to digital poetry and electronic literature.[13] Many groups of digital writers have developed their own sites, blogs, and journals, published in both private and institutional servers. The selection of works that I have assembled for this seminar course is but one example of several ongoing attempts at mapping literature on the web and highlighting some of the best and most representative creations.[14]

That many of these new works are now carefully described and indexed in databases – particularly in the U.S.A. – is a sign that electronic literature is becoming an established subject for research and teaching. Writers, scholars, and readers of electronic literature gradually expand their production and reception communities with the help of many of the same web tools that are used for publishing the works online. Scott Rettberg, digital writer, researcher, teacher at the University of Bergen and one of the founders of ELO, offers the following description of the current state of the field:

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[12] Kineticism seems to be emerging as a trans-generic feature across media and disciplines. The 'Kinetica Museum' was founded recently in London, and the 'Kinetica Art Fair', held in 2009 for the first time, described itself on these terms: 'Kinetica Art Fair is produced by Kinetica Museum and is the first of its kind in the UK. It provides collectors, curators and the public with a unique opportunity to view and purchase artworks from leading contemporary arts organisations and artists specialising in kinetic, electronic, robotic, light, sound, time-based and interdisciplinary new media art.' http://www.kinetica-artfair.com/ (20 Feb 2010) Galleries have also held exhibitions of digital and kinetic poetry. See, for instance, 'Words on the Move' (2008, Dumfries & Galloway Arts Association) http://texthouse.typepad.com/dgaakineticpoetry/ (20 Feb 2010).
[13] See *The Iowa Review Web*, Volume 9, no. 1 (2007): 'Multi-Modal Coding: Jason Nelson, Donna Leishman, and Electronic Writing', edited by Stephanie Strickland and Marjorie Coverley Luesebrink. http://research-intermedia.art.uiowa.edu/tirw/vol9n1/ (20 Feb 2010)
[14] See the sections *Visual and Sound/ Kinetic/ Hyperfiction* linked from the webpage 'Digitais/ Digital' http://www.ci.uc.pt/diglit/DigLitWebDdeDigitais.html (20 Feb 2010), cf. *DigLitWeb*, online and CD-ROM.

In comparison to other literary cultures, e-lit culture is still marginal, produced by a comparatively small group of writers dispersed around the globe, often working in isolation. Yet at this point there is a fairly large corpus of creative work and an ever-growing body of critical and theoretical scholarship that addresses and closely reads electronic literature. Every year innovative work is produced, dissertations are written, and scholarly articles and monographs about electronic literature are published. Electronic literature is slowly but surely working its way into academic contexts as literature programs, digital culture programs, and other academic departments hire new faculty with specializations in digital textuality.[15] (Rettberg 2009: §4)

This is an accurate description, above all, of institutions in the U.S.A., and to a lesser extent in Canada and in some parts of Europe. Elsewhere in the world, it is not only electronic literature that is marginal, courses and programs continue to be rare and exceptional even in 2010. Although digital media have been, for several years, an important component of curricula in areas such as design, art, journalism, media studies, and in the educational sciences, they have hardly featured in literature programs. The majority of digital projects relevant for humanities disciplines in Portugal, for instance, consist of archives or editions that represent print and manuscript texts in digital format. Even the most interesting of these projects for digitizing library treasures and special collections as digital facsimiles show little representational and editorial sophistication.[16] With the exception of the Centre for the Study of Informatic Text and Cyberliterature (CETIC, http://cetic.ufp.pt/), established at the University Fernando Pessoa, Porto, in the early 2000s, there is no single specific institutional setting concerned with contemporary digital literature.[17] Likewise, very few Ph.D. dissertations have been written on

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[15] Scott Rettberg, 'Communitizing Electronic Literature', in *Digital Humanities Quarterly*, Spring 2009, Volume 3, Number 2, http://www.digitalhumanities.org/dhq/vol/3/2/000046/000046.html (20 Feb 2010)
[16] The 'Arquivo Pessoa' (published by the Institute for the Study of Modernism, at the New Lisbon University of Lisbon, in 2008; http://arquivopessoa.net/) and the 'Biblioteca Geral Digital' (published by the University of Coimbra Library, 2008-2010; http://web.bg.uc.pt/Bibliotecadigital/) exemplify the lack of editorial sophistication of current text-based and image-based approaches in many digitization projects. An excellent review and assessment of the state of the art in electronic textual editing is Peter L. Shillingsburg, *From Gutenberg to Google: Electronic Representation of Literary Texts*, Cambridge: Cambridge University Press, 2006.
[17] The two most important authors of generative and hypermedia works in Portugal – Pedro Barbosa and Rui Torres – have been involved in the creation and development of this centre. This research centre, which was recently integrated into the Centro de Estudos Culturais, da Linguagem e do Comportamento

digital literature in Portuguese universities.[18]

During the past decade, both European Union and national government initiatives have substantially improved Information and Communication Technology infrastructures in education, particularly in higher education. Major initiatives include the following programmes: 'Programa Operacional da Sociedade do Conhecimento' [*Operational Programme for the Knowledge Society*], 'Programa e-U, Campus Virtual' [*e-U, Virtual Campus*] and 'Plano Tecnológico Nacional' [*National Technological Plan*].[19] Academic wireless networks have helped to turn online knowledge bases and online collaboration into the new backbone of teaching and research. Generalization of computerized devices and internet access in economic, social, educational and administrative activities has increased the number of computer-mediated practices. Human-machine intermediation thus becomes a working system, a communication environment, and a new cultural practice available for technical, social, and philosophical research. New media syllabi were introduced across a broad range of human and social sciences curricula (education, sociology, communication, art). Despite this fact, digital literary studies and digital writing still remain marginal fields within Portuguese universities.[20]

My own research work can be described as 'digital' in two related ways. It is 'digital' because I have been concerned with the ongoing transformations in the technologies of communication and reproduction as they impact on our social, educational, and artistic practices. As reflected in my work, this implies a strong interest in the migration of our cultural and literary archive into the

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(CECLICO), publishes *Cibertextualidades*, the only Portuguese journal specifically devoted to the critical examination of digital materialities and literary practice. Cf. http://cetic.ufp.pt/cibertextualidades/

[18] Pedro Reis, a member of CETIC, authored one of the first extended studies of electronic poetry, centred on the French group L.A.I.R.E. (Lecture, Art, Innovation, Recherche, Écriture): *Repercussões do Uso Criativo das Tecnologias Digitais da Comunicação no Sistema Literário: O Caso da Poesia Intermediática Electrónica [Repercussions of the Creative Use of Digital Communication Technology in the Literary System: The Case of Electronic Intermedia Poetry]* (University of Lisbon, 2005). In Brazil, one of the leading researchers is Jorge Luiz Antonio, author of the book *Poesia Electrônica: Negociações com os Processos Digitais [Electronic Poetry: Negotiations with Digital Processes]* (FAPESP/ Veredas e Cenários, 2009).

[19] Cf. www.posc.mctes.pt/index.php (2000-2006); http://www.e-u.pt/ (2003-present); http://www.planotecnologico.pt/ (2005-present).

20 If we exclude cyberjournalism, only three programmes offer cyberliterature and hypermedia writing courses: 'Culture, Literature, and Hypermedia' (MA, University Fernando Pessoa, started in 2008), 'Communication Sciences – Contemporary Culture and New Technologies' (MA, New University of Lisbon, started in 2008) and 'New Media and Web Practices' (MA, New University of Lisbon, started in 2009). The Research Centre on Communication and Languages (CECL) at the New University in Lisbon publishes *Interact: Journal of Art, Culture, and Technology* http://www.interact.com.pt/ Launched in 2000, this online journal is edited by Maria Augusta Babo.

electronic networked space; and an equally strong interest in the expressive possibilities opened up by digital media. These twin interests have been the basis of several postgraduate seminars and undergraduate courses that I have started since 2003, and they are subsumed as the organizing principle behind my own pedagogic site *DigLitWeb* – which combines a selection of electronic archival projects with contemporary digital works. Moreover, both 'digital' threads in my academic work ('electronic textual editing' and 'digital literature/art') are firmly grounded in my knowledge of print technology and bibliographic structures, on the one hand, and of twentieth-century experimental literature, on the other.

My work is 'digital' also in the sense that I am interested in exploring digital platforms and digital tools as research, teaching, and creative tools. Textual representation, visualisation and simulation are just three of several techniques/practices that have changed the way we do research in the Arts and Humanities. As a series of overlapping cultural archives and communication environments, electronic networked spaces further offer the possibility for creative experiments in teaching and learning.[21] Our ability to think critically about the nature of digital virtuality/materiality is crucial if we want to keep the Humanities methodologically relevant for understanding contemporary culture and society. Of particular importance is the creative use of digital media as a powerful recombinatory technology that allows for the exploratory integration of various media, and of different cultural and artistic forms. This use of vast amounts of information resources as data for generating art is the subject of the new research field of 'database aesthetics' (Manovich 2007). New media are also changing the documentability of human experience and thus making possible what Lev Manovich refers to as 'cultural analytics'.

I have designed several undergraduate courses and postgraduate seminars that address electronic representation and electronic textuality. Those syllabi have attempted to translate into teachable topics and materials my knowledge of the rapidly expanding and changing ecology of digital media. Platform and software changes have multiplied the productive and distributive

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[21] A major component of 'Literature and Media in the Digital Age' and 'Introduction to New Media', for instance, is writing and collecting online materials for publication in the course blog. Cf. *DigLitMedia* (2006-2009), http://www.diglitmedia.blogspot.com/ (20 Feb 2010); and *DigArtMedia* (2009-2010), http://digartmedia.wordpress.com/ (20 Feb 2010). In 'Literature and Media in the Digital Age', one of the assignments is the conception/production of a digital poem or a hypertextual fiction.

capabilities of the network environment where more and more of our research and

teaching/learning interactions take place. *DigLitWeb: Digital Literature Web* (see ANNEX; also

online at http://www.ci.uc.pt/diglit/), the html website that began to take shape in my first digital

culture seminars in 2003-2004, is my personal attempt at mapping this vast new territory. I

believe the meta-structure reflected in the 6x3 sections of the website is illuminating about the

larger cultural, institutional, and textual context for research and teaching literature in the

electronic writing space. The 'Kinetic Poetry' syllabus has to be understood as just one piece of

this personal curricular web and of the sustained pedagogical experiment that it embodies.

Technological changes have produced whole new fields of synchronous and asynchronous

textuality and sociality, and these, in turn, require us to rethink how we define and model our

objects and methods of study, and what to teach and how to teach it.[22]

The 'Kinetic Poetry' seminar is better understood as one unit within a larger cluster of research

and teaching interests in digital media that have come together in the following seminars and

courses:

> **Digital Culture and Literary Studies** [MA seminar, 2003-2004, 2005-2006]
> Textual theorists have used hypertext both as a model for the production and
> transmission of texts, and as tool for creating digital archives. Search engines, and
> indexing and retrieval systems have made it possible to structure and analyse all sorts of
> texts in new ways, including those that combine words and images in hypermedia
> archives. Identification of patterns in large textual databases is a particularly useful
> instrument in linguistic and literary analysis. Hypertext has also been used to represent
> textual variability, caused by manuscript and typographic transmission, and, more
> recently, by electronic reproduction itself. Available as CD-ROM or as online editions,
> such digital projects are changing our perception of textuality and our access to literary
> history. We will study the remediation of the bibliographic archive – i.e., the transition from
> codex to computer – by looking at various ongoing electronic editing projects [to be
> analysed in the seminar Electronic Editions and Archives,

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[22] The need for rethinking the Humanities curriculum in a digital literacy world has been felt since the early 1990s. See, for instance, Richard A. Lanham, *The Electronic Word: Democracy, Technology, and the Arts*, Chicago: Chicago University Press, 1994; and also his online articles: "The Implications of Electronic Information for the Sociology of Knowledge" (1993), at http://www.cni.org/docs/tsh/Lanham.html (20 Feb 2010); and "A Computer-based *Harvard Red Book:* General Education in the Digital Age" (1997), at http://www.rhetoricainc.com/harvard.html (20 Feb 2010).

http://www.ci.uc.pt/diglit/DigLitWebEdeEdicaoElectronicaEnsaio02.html#ElectronicEdition
sandArchives]. Selected papers and other course assignments will be published in the
seminar website *DigLitWeb: Digital Literature Web*, http://www.ci.uc.pt/diglit/

Electronic Editions and Archives [MA seminar, 2003-2004, 2005-2006]
Electronic editions and archives change the transmission and uses of texts. Digital culture
is transforming the ways in which we read, teach, and study literature. After an extended
examination of electronic reproduction and digital textuality (issues addressed in the
previous seminar, 'Digital Culture and Literary Studies',
http://www.ci.uc.pt/diglit/DigLitWebCdeCodiceeComputadorEnsaio01.html#DigitalCulturea
ndLiteraryStudies), this seminar intends to explore and analyse online resources devoted
to English and North-American literature. Testing textual theory in hypertext environments
will mean observing and handling various archives and editions. Attention will be paid to
such issues as forms of presentation, file and hyperlink structure, textual authenticity and
stability, producers and consumers, property and access. This seminar also expects to
encourage the critical use of electronic texts and digital resources for learning, teaching,
and research purposes. Selected archives and editions will be analysed in terms of
specific problems of literary history in its electronic transmission. Students are required to
present and analyse one electronic edition or archive in class. This edition or archive will
then be critically assessed, both in textual terms, and in terms of its achievements and/or
shortcomings for learning, teaching, and research purposes. Selected papers and
assignments written for the seminar will be published in the seminar website, *DigLitWeb:
Digital Literature Web*, http://www.ci.uc.pt/diglit/

Literature and Media in the Digital Age [undergraduate course, 2005-2006, 2006-2007,
2008-2009]
The specific materiality of media has been a continuing concern for artistic and literary
practices in the twentieth century. An interest in the materiality of signifying processes has
also become a major issue across disciplines that study the production of meaning. Such
is the case, for instance, of literary studies, cultural studies, art studies, media studies,
and book history. For the past two decades, the development of digital technology and
networked media has opened a new field for both experimentation and reflection upon the
nature of technical and discursive mediation.
The aim of this course is to develop forms of awareness and analysis of digital literature
and of its specific materiality. Digital remediation of literature will be considered at two
levels: a) by means of bibliographic objects that migrated into digital space; b) by means
of intermedia objects that originated in digital media (kinetic poetry, hyperfiction, and other
hypertextual genres). Another aim of the course is to encourage the use of digital tools for
the creation of works that explore the specific properties of electronic textuality. Students
are required to write for the class blog (at least one entry per week on the works

discussed in class) (50%) – *DigLitMedia: Literatura e Média na Era Digital* http://diglitmedia.blogspot.com/ They also have to create one electronic work, or a detailed description of a project for a work (50%). The language of instruction is Portuguese, but most of the works and texts analysed are written in English.

Introduction to New Media [undergraduate course, 2008-2009, 2009-2010]
Digital technology has changed the ecology of media by processes of remediation of earlier genres and forms, and by generating digital genres and forms. This change has affected mass media (newspapers, radio, television), as well as the modes of artistic production, from painting to the performing arts. Networked production, distribution, and reception of digital forms reinforce modes of social interaction mediated by computers, with consequences for the representation of the self and for the structure of social space. This course has two main objectives: to reflect upon the specific nature of digital mediation, in its various dimensions; and to formalize concepts and tools for describing and analysing digital artistic forms, which will be considered also in their institutional dimension. We will look at a selection of works of theatre, cinema, music, painting, drawing, photography, video, installation, radio, television, graphic arts, literature, etc., in which digital mediation plays an important role, whether in the production, distribution, or reception. Assessment is continuous, including one test (50% of final grade), blog participation (c. 3000 words, 25%) in *DigArtMedia* http://digartmedia.wordpress.com/ , and analysis of a digital work or a digital social practice (c. 2000 words, 25%).

These syllabi (which introduced the teaching of those topics in Literary Studies at the University of Coimbra) represent my own attempt at engaging with the late twentieth- and early twenty-first-century changes in the materialities of communication.[23] The materialities of the networked information society have far-reaching consequences in all social practices concerned with mediation and documentation. The transmission of our literary archive through electronic media, and the creation of born-digital literature are central techno-cultural issues of our present condition. In order to address them we need to understand how to use computational capabilities and the electronic writing space to redefine our methods and reconstruct our objects of study. We also need to address digital objects and practices themselves as part of the

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[23] This attempt is further reflected in several Ph.D. and M.A. theses that I have supervised, and which were concluded in 2008, 2009, and 2010, in the areas of English Literature (1), Anglo-American Studies (3), and Communication Science (1). All of my research students have worked or are working within the domain of digital media (electronic editing, digital self, hyperfiction and electronic literature, digital culture, concepts of interactivity, book structure and screen display, etc.). A new Ph.D. program (co-authored with Osvaldo Manuel Silvestre), 'Advanced Studies in the Materialities of Literature', scheduled to start in 2010-2011, is another recent curricular engagement with changes in writing and recording technologies.

human-machine intermediation that defines contemporary culture in high-tech societies. New methods and new objects, in turn, impact on the content and form of our research and teaching practices.

Jerome McGann, one of the most outspoken voices for the need to bring humanities up to date with the digital present, has written eloquently about the fact that the representation of cultural and literary artefacts in digital forms will entirely change the way we conduct research and the way we teach.[24] Once libraries and other knowledge repositories become fully searchable databases, we will be asking other kinds of questions and using other kinds of methods:

> The library, especially the research library, is a cornerstone if not the very foundation of modern humanities. It is undergoing right now a complete digital transformation. In the coming decades—the process has already begun—the entirety of our cultural inheritance will be transformed and re-edited in digital forms. Do we understand what that means, what problems it brings, how they might be addressed? Theoretical as well as very practical discussions about these matters have been going on for years and decisions are taken every day. Yet digital illiteracy puts many of us on the margin of conversations and actions that affect the center of our cultural interests (as citizens) and our professional interests (as scholars and educators). (2005a: 109)

Digital Humanities (or Humanities Computing) is a mode of inquiry that responds to the representational and modelling capabilities of digital media for marking-up texts, visualising natural and human landscape, visualizing data, simulating phenomena, and aggregating, structuring, searching, and retrieving information.[25] Willard McCarty's diagram represents Humanities Computing as a common methodological ground that works in retroactive feedback

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[24] See Jerome McGann, *Radiant Textuality: Literature After the World Wide Web.* New York: Palgrave, 2001; 'Information Technology and the Troubled Humanities', in *Text Technology*, Number 2 (2005a): 105-121 [also at http://texttechnology.mcmaster.ca/pdf/vol14_2/mcgann14-2.pdf (20 Feb 2010)]; 'Culture and Technology: The Way We Live Now, What Is to Be Done?', in *New Literary History*, 36 (2005b): 71–82. See also my review of *Radiant Textuality*, in *Comparative Critical Studies,* eds. Elinor Shaffer and Andrea Brady, Volume I, Issue 3 (2004): 371-376. [also at http://www.euppublishing.com/doi/abs/10.3366/ccs.2004.1.3.371 (20 Feb 2010)].
[25] A major survey of the field by the leading experts was published in 2004: Susan Schreibman, Ray Siemens, and John Unsworth, eds., *A Companion to Digital Humanities*, Oxford: Blackwell, 2004. Also available online at http://www.digitalhumanities.org/companion/ (20 Feb 2010).

with each discipline. Computational models receive methodological and theoretical input from

specific disciplines. Conversely, the act of formalizing and designing digital models and analytic

tools feeds back into the discipline. At the same time, computational methodologies are

exchanged across disciplines. Interdisciplinary exchanges, which take place through this

'methodological commons', call upon broader areas of knowledge. Intersections, feedbacks and

feed forwards map the ensemble of knowledge exchanges that define humanities computing:
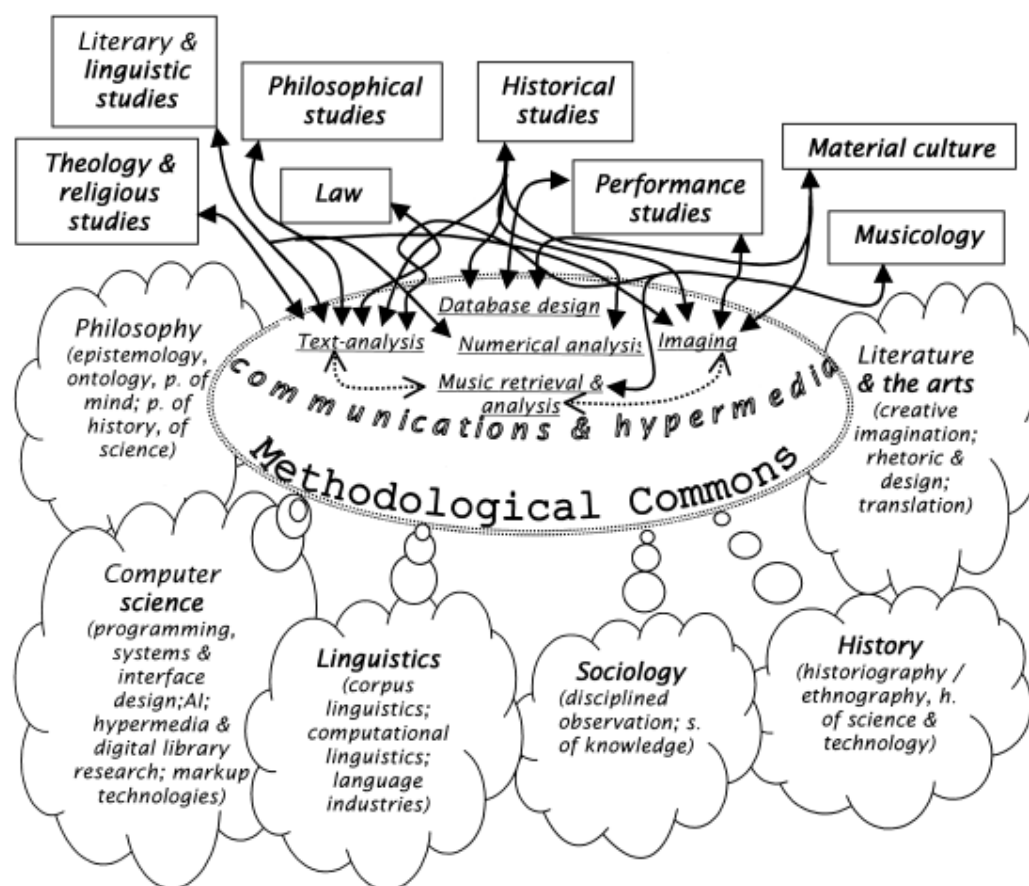
FIGURE 1. 'A rough intellectual map for humanities computing.' (W. McCarty and H. Short.) [26]

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[26] This is Willard McCarty's explication of the diagram: 'Consider a rough intellectual map of humanities computing. At the center of this map is a large "methodological commons" of computational techniques shared among the disciplines of the humanities and closely related social sciences, e.g., database design, text analysis, numerical analysis, imaging, music information retrieval, communications. Picture the disciplines ranged above the commons in groups, such as literary and linguistic studies, historical studies, material culture, musicology, performance studies, and so on. Connecting each disciplinary group to the relevant techniques are double-headed arrows indicating that these techniques are variously exported from individual fields of study into the commons and from the commons into others. The agency that sees to this import/export trade is humanities computing in its dual role as collegial service to the disciplines and as research enterprise directed to investigate their evolving methodologies, devise new computational approaches, study the effects, and tease out the implications. Below the commons are broad areas of learning that such interdisciplinary work calls on: philosophy (especially epistemology, ontology, and the

The key issues for digital humanities are (1) our ability to model sophisticated analyses of cultural and artistic artefacts in digital media; and (2) our ability to translate that research into new interdisciplinary teaching practices. This implies (a) devising digital methods for engaging with both digital and non-digital materialities – these tools and models should reflect specific humanistic modes of inquiry (cf. McGann 2005a, Schreibman *et al.* 2004, Drucker 2009, Kirschenbaum 2008); (b) studying current social, cultural and artistic practices that depend upon digital materiality ('digital culture' as an object of study); (c) encouraging the expressive use of digital media for literary and artistic production in all forms ('digital' as a creative material environment); (d) developing a critical theory of the digital information society that raises individual awareness about its historical and political aspects ('digital data' as social and discursive forms).

Using computers for modelling humanities data, applying humanities perspectives to digital artefacts, and developing a critical language for studying the instrumental fetichisation of technology that dominates social discourses on digitality – all of these should be part of a 'digital humanities' agenda. In other words, the study of human-machine retroaction and intermediation should not be explored in strictly instrumental terms, but in a wider context that addresses the digitisation of culture itself as a social fact of contemporary life, as we can see in the fields of software studies or social informatics.[27] Awareness of this need for a cultural study of digital culture is embedded in many current projects. *Transcriptions: A Digital Humanities Project on the Cultures of Information* (http://transcriptions.english.ucsb.edu/; established in 1998 at the University of California, Santa Barbara), for example, defines its mission as follows:

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philosophy of mind), historiography and ethnography, science studies, sociology of knowledge, media studies, literary criticism, linguistics, and aspects of computer science, including markup technologies, digital library research, and the language industries.' Willard McCarty, 'Humanities Computing', in *Encyclopedia of Library and Information Science*, New York: Marcel Dekker, 2003, p. 1224, DOI: 10.1081/E-ELIS 120008491 (20 Feb 2010).
[27] A new book series from MIT Press, *Platform Studies* (http://platformstudies.com/), edited by Ian Bogost & Nick Montfort, was started in 2009. This series looks at the 'base hardware and software systems that are the foundation of computational expression'. For an example of social informatics as the study of how cultural and social factors interact with technology, see the Ph.D. Program in Social Informatics at Indiana University: http://xavier.informatics.indiana.edu/gradsites/social/phd/ (20 Feb 2010). Two of the leading series in the field of new media theory have been published by MIT Press – 'Leonardo Books' (54 titles, founded 1993) http://mitpress.mit.edu/catalog/browse/browse.asp?btype=6&serid=4 (20 Feb 2010) – and by the University of Minnesota Press – 'Electronic Mediations Series' (31 titles, founded 1999) http://www.upress.umn.edu/byseries/electronic.html (20 Feb 2010).

Transcriptions is a NEH-funded curricular development and research initiative started in 1998 by the English Dept. at UC Santa Barbara to focus on literary study and information society. The goal of *Transcriptions* is to demonstrate a paradigm—at once theoretical, instructional, and technical—for integrating new information media and technology within the core work of a traditional humanities discipline. Transcriptions seeks to "transcribe" between past and present understandings of what it means to be a literate, educated, and humane person.[28]

Digital Literary Studies, a growing field within Digital Humanities, is concerned with the integration of 'new information media and technology within the core work of a traditional humanities discipline', but also with the study of new literary artefacts that depend on digitality.[29] Both concerns are methodologically crucial when it comes to defining a research paradigm and a teaching syllabus associated with that paradigm. Traditional methods like close reading, for example, can be enhanced and transformed by software applications such as concordancers and visualisation tools. Relational databases and automated structured searches performed on specific marked-up corpora offer new insights into otherwise difficult-to-find textual patterns. Editing and collating xml-encoded texts can also be formalized and automated with the help of digital editing tools. The web itself offers a vast resource of literary and cultural data that can be tagged and annotated by different kinds of collecting tools.[30]

At the same time, critical analysis of digital artefacts opens up new theoretical perspectives, as I hope to demonstrate in the 'Kinetic Poetry' syllabus. Media theory and the conceptualization of writing and reading processes benefit from the critical engagement with technotexts that self-

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[28] Cf. http://transcriptions.english.ucsb.edu/index_netscape.asp (20 Feb 2010). Another relevant project, also based at the University of California, Santa Barbara, has examined digital literacy: *Transliteracies - Research in the Technological, Social, and Cultural Practices of Online Reading* (2005) http://transliteracies.english.ucsb.edu/category/conference-2005 (20 Feb 2010).

[29] The publication of the first companion to digital literary studies marks the coming of age of digital matters and methods within the discipline. Cf. Ray Siemens and Susan Schreibman, eds., *A Companion to Digital Literary Studies*, Oxford: Blackwell, 2008. Also available online at http://www.digitalhumanities.org/companion/DLS/ (20 Feb 2010). The three-part structure of the volume captures the changes in traditional textual practices brought about by electronic philology ('Traditions'), analyses digital literary forms and genres based on hypertext and multimedia textualities ('Textualities'), and describes scholarly, archival, and creative methods that depend on algorithms and computer codes ('Methodologies').

[30] A sample of different kinds of software tools used in digital humanities and in digital literature can be found in *DigLitWeb*, in the section 'T for Tools' http://www.ci.uc.pt/diglit/DigLitWebFdeFerramentas.html (20 Feb 2010).

reflect on their formal mechanisms for meaning production. My experience of teaching new media and electronic literature courses has proved the importance of the subject for developing a social and historical awareness of our technocultural present. It has also demonstrated its enormous potential for improving students' writing and critical skills. Many students are surprised when they realize that the naturalized and nearly invisible medium they take for granted – as mostly a social networking and a multimedia entertainment and information environment – can be used for very complex aesthetic and literary experiments. Their initial scepticism gives way to enthusiasm as they gradually realize that these strange digital objects feed their curiosity and foster their cognitive and intellectual development. Research and teaching in this still uncharted territory may be difficult and challenging but ultimately rewarding for students and teachers alike.

KINETIC POETRY

2.1. Course Description

The use of digital animation changes the presence and the representation of time and space within the poem. The seminar 'Kinetic Poetry' looks at kinaesthesia as a poetics of the signifier. We will look at ways in which the motion in the chain of signifiers, one of the structural features of language, is simulated in several kinetic poems. We will see how specific forms of animating texts symbolize both the instability of signifiers and the instability of meaning. This reflection on the electronic and graphic materiality of reading and writing in new media will be based upon works by British, North-American, Canadian, Australian, Spanish, French, Portuguese, and Brazilian authors. Hyperlinks for a selection of digital works can be found at the following webpage: http://www.ci.uc.pt/diglit/DigLitWebCdeCineticos.html. Besides proposing a typology of kinetic poems, the seminar also makes a brief archaeology of computer poetry. Specific issues of human-machine interaction in electronic literature will be examined in the context of late 20th-century and early 21st-century poetics. Analysis of digital works will draw upon specific theories language, theories of writing and reading, and theories of media.

2.2. Course Objectives

By the end of this seminar course students should be able to:

a) understand the specific nature of various genres and practices of 20th-century experimental poetry;

b) contextualize the kinetic poem within the tradition of experimental poetry, including the concrete poem, the visual poem, the object-poem, and the algorithmic poem;

c) describe the poetics and rhetoric of the digital poem and its relation to other poetic technologies;

d) understand the role of software in electronic literature and in contemporary culture;

e) describe retroaction and intermediation between human beings and digital tools;

f) describe the graphic and electronic materiality of writing and reading as seen through digital

and kinetic processes of signification;

g) demonstrate critical awareness of new media through their ability to describe and analyse

digital objects.

2.3. Teaching Methodologies

Lecture; screening of sound and multimedia works; commentary and analysis of online digital

works; seminar discussion; group work; oral presentation; collective writing for the course blog;

and individual storyboard project. Professor and students will use the 'Web-On-Campus' UC

platform (https://woc.uc.pt/fluc/), 'DigLitWebLog' (http://diglitweblog.blogspot.com/, the seminar

blog), and other online resources devoted to experimental literary practices, including the

following digital archives: *UbuWeb, PennSound, NetPoetic, Po-Ex*, and *DigLitWeb.*

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Wittern, Christian (2008). 'Character Encoding', in *A Companion to Digital Literary Studies*.
Oxford: Blackwell. Also in
http://www.digitalhumanities.org/companion/view?docId=blackwell/9781405148641/97814
05148641.xml&chunk.id=ss1-6-12&toc.depth=1&toc.id=ss1-6-
12&brand=9781405148641_brand (20 Feb 2010)

Wittgenstein, Ludwig (1974): *Philosophical Investigations*, Oxford: Basil Blackwell [1953]. At
http://users.rcn.com/rathbone/lw1-10c.htm (20 Feb 2010)

Encyclopedia entries [further readings]:

Stanford Encyclopedia of Philosophy, Metaphysics Research Lab, Centre for the Study of
Language and Information, Stanford University, 2009.

Derrida, Jacques http://plato.stanford.edu/entries/derrida/

Foucault, Michel http://plato.stanford.edu/entries/foucault/

Wittgenstein, Ludwig http://plato.stanford.edu/entries/wittgenstein/

Wikipedia, Wikimedia Foundation, 2009

Barthes, Roland http://en.wikipedia.org/wiki/Barthes,_Roland

Benjamin, Walter http://en.wikipedia.org/wiki/Walter_Benjamin

Bolter, Jay David http://en.wikipedia.org/wiki/Jay_David_Bolter

Chomsky, Noam http://en.wikipedia.org/wiki/Chomsky

Derrida, Jacques http://en.wikipedia.org/wiki/Derrida,_Jacques

Foucault, Michel http://en.wikipedia.org/wiki/Michel_Foucault

Hayles, N. Katherine http://en.wikipedia.org/wiki/N._Katherine_Hayles

Kittler, Friedrich http://en.wikipedia.org/wiki/Friedrich_Kittler

McLuhan, Marshall http://en.wikipedia.org/wiki/McLuhan

Saussure, Ferdinand de http://en.wikipedia.org/wiki/Ferdinand_de_Saussure

Searle, John http://en.wikipedia.org/wiki/John_Searle

Wittgenstein, Ludwig http://en.wikipedia.org/wiki/Wittgenstein

2.5 Online Works

1.

DigLitWeb

   www.ci.uc.pt/diglit

netpoetic.com

   http://netpoetic.com/

UbuWeb

   http://www.ubu.com/

OuLiPo

   http://www.oulipo.net/

PennSound

   http://www.writing.upenn.edu/pennsound/

2.

Steve Duffy

   Dig

   http://www.epimone.net/pieces/dig/index.html

Lang, Dorothee

   Time Train

   http://www.epimone.net/pieces/timetrain/index.html

3.

Waber, Dan

   Strings (1999)

   http://collection.eliterature.org/1/works/waber__strings.html

Burgaud, Patrick

   Jean-Pierre Balpe ou Les Lettres Dérangées (2005)

   http://collection.eliterature.org/1/works/burgaud__jean-

   pierre_balpe_ou_les_lettres_derangees/jp2.htm

Uribe, Ana Maria

   Deseo Desejo Desire

   http://www.epimone.net/pieces/deseo/index.html

Leonard, Tom

   THE a *this*

   http://texthouse.typepad.com/dgaakineticpoetry/files/the_a_this_no_cred.swf

4.

Rodrigues, Tiago Gomez

   'Concretus' (2002, CD-ROM)

Knoebel, David

    Click Poetry (1998-2006)

    http://home.ptd.net/~clkpoet/

    Words in Space (2006)

    http://home.ptd.net/~clkpoet/cpwis.html

5.

Niemi, Marko

    Twelve Digital Poems (2007)

    http://www.unlikelystories.org/niemi0107.shtml

Miekal And

    reCURSION stereoSCAPE (1998)

    'The text is the sound is the text.'

    http://english.umn.edu/joglars/radio_caterpillar/recursion/allthetextframe.html

6.

Queneau, Raymond

    Cent mille milliards de poèmes [1961]

    http://x42.com/active/queneau.html

Niss, Millie (with Martha Deed)

    Oulipoems (2004)

    http://www.uiowa.edu/~iareview/tirweb/feature/sept04/oulipoems/index.html

Miekal And

    Mesostics for Dick Higgins (1998)

    http://www.cla.umn.edu/joglars/mesostics/index.html

    after emmet (1998)

    http://english.umn.edu/joglars/afteremmett/voyage.html

Morgan, Edwin

    one fly

    http://texthouse.typepad.com/dgaakineticpoetry/files/one_fly...34.swf

bpNichol

    First Screening: Computer Poems (1984)

    http://www.vispo.com/bp/javascriptversion.htm

Campos, Augusto de

    http://www2.uol.com.br/augustodecampos/home.htm

7.

Po-Ex: 1964-1969_Poesia Experimental Portuguesa - Cadernos e Catálogos

    http://www.po-ex.net/

Melo e Castro, E.M. de

Signagens (1986-1989, VHS)

Campos, Augusto de

http://www2.uol.com.br/augustodecampos/home.htm

8.

Barbosa, Pedro

*Sintext: (*1999)

http://www.pedrobarbosa.net/SINTEXT-pagpessoal/SINTEXT.HTM

Valdeolmillos, Pedro

Tant de rêves (2005)

http://www.epimone.net/pieces/tantderevescast/index.html

Calvo, Lluís e Pedro Valdeolmillos

Isopoema (2005)

http://www.epimone.net/pieces/isopoema/index.html

Calvo, Lluís e Pedro Valdeolmillos

Insects (2005)

http://www.epimone.net/pieces/insects/index.html

9.

Cayley, John

imposition (2007)

http://homepage.mac.com/shadoof/impose/

windsound (2006)

http://homepage.mac.com/shadoof/net/in/windsound.html

riverIsland (2002; QuickTime version, 2007)

http://homepage.mac.com/shadoof/net/in/riverislandQT.html

translation (2004)

http://collection.eliterature.org/1/works/cayley__translation.html

Glazier, Loss Pequeño

C·O·G (2002)

http://epc.buffalo.edu/authors/glazier/e-poetry/cog/

Io Sono at Swoons (2002)

http://epc.buffalo.edu/authors/glazier/java/iowa/

Mez

pro][tean][.lapsing.txts (2002)

http://www.hotkey.net.au/%7Enetwurker/txts/

:terror(aw)ed patches: A Google Wave(let) Transformation by Shane Hinton + Netwurker
Mez (2009)

http://netwurker.livejournal.com/

10.

Nelson, Jason

   The Poetry Cube (2006)

   http://www.secrettechnology.com/poem_cube/poem_cube.html

   game, game, game, and again game (2006)

   http://www.secrettechnology.com/gamegame/gamegame.html

   Hymns of the Drowning Swimmer (2004) http://secrettechnology.com/hymns/navigate.html

Torres, Rui

   1 Corvo Nunca + (2009)

   http://telepoesis.net/pessoa/menu.html

   Mar de Sophia (2005-2006)

   http://telepoesis.net/sophia

   Amor de Clarice (2000-2005)

   http://www.telepoesis.net/amor

11.

Waber, Dan

   I, You, We (2005)

   http://collection.eliterature.org/1/works/waber_pimble__i_you_we.html

Drucker, Johanna

   The Experience of the Medium (1978)

   http://www.artistsbooksonline.org/works/expm.xml

   The Word Made Flesh (1989)

   http://www.artistsbooksonline.org/works/wmfl/edition1.xml

12.

Memmott, Talan

   Self Portrait(s) [as Other(s)] (2003)

   http://www.uiowa.edu/~iareview/tirweb/feature/memmott/spo_Memmott/index.html

   Lexia to Perplexia (2000)

   http://www.uiowa.edu/~iareview/tirweb/hypermedia/talan_memmott/index.html

Alan Sondheim

   Projects for Mobile Phone (2000)

   http://beehive.temporalimage.com/content_apps33/sondheim/0.html

13.

Bootz, Philippe

   ré_veille poetique (2005)

   http://www.sitec.fr/users/akenatondocks/DOCKS-
   datas_f/collect_f/auteurs_f/B_f/BOOTZ_F/Animations_F/reveilbootz_F/re_veille.htm

Strickland, Stephanie

    slippingglimpse (2007)

    http://slippingglimpse.org/

    V: Vniverse (2002)

    http://vniverse.com/

Stephans, Brian Kim

    The Dreamlife of Letters (2000)

    http://www.arras.net/RNG/flash/dreamlife/dreamlife_index.html

14.

Andrews, Jim

    Arteroids Version 3.11 (2006)

    http://vispo.com/arteroids/arteroids311.htm

    Stir Fry Texts (1999)

    http://www.vispo.com/StirFryTexts/

    enigma n (1998)

    http://www.vispo.com/animisms/enigman/meaning.html

    Nio (2001)

    http://collection.eliterature.org/1/works/andrews__nio.html

15.

Bootz, Philippe

    The Set of U (2004)

    http://collection.eliterature.org/1/works/bootz_fremiot__the_set_of_u.html

Howe, Daniel C.

    a software toolkit for generative literature (2009)

    http://www.rednoise.org/rita/

2.6. Semestral Plan

MA in Poetry and Poetics: Kinetic Poetry [seminar course]

Week	Summaries	Readings	Online works
1	**1. experimental poetics in the 20th century** 1.1. Futurist/ Vorticist/ Suprematist/ Constructivist 1.2. Dada 1.3. Surrealism 1.4. Lettrism 1.5. Concrete 1.6. OuLiPo 1.7. L=A=N=G=U=A=G=E	Armand, Louis, ed. (2007). *Contemporary Poetics.* [excerpt] Havelda, John, Isabel Patim e Manuel Portela, eds. (2010). *Pullllllllllllllllllllllllll. Poesia Contemporânea do Canadá* [excerpt] McCaffery, Steve & bp Nichol (1973). 'The Book as Machine' Silliman, Ron, ed. (1999). *In the American Tree.* [excerpt] Watten, Barrett (2006). 'Poetics in the Expanded Field: Textual, Visual, Digital…',	**DigLitWeb** www.ci.uc.pt/diglit **netpoetic.com** http://netpoetic.com/ **UbuWeb** http://www.ubu.com/ **OuLiPo** http://www.oulipo.net/ **PennSound** http://www.writing.upenn.edu/pennsound/
2	**2. theories of language:** Saussure/ Chomsky/ Wittgenstein/ Searle 2.1. differential signs 2.2. the productivity of syntax: recursion and permutation 2.3. language-games 2.4. speech acts and script acts	*On language:* Chomsky, Noam (1957): *Syntactic Structures* [excerpt] Saussure, Ferdinand de (1916): *Cours de linguistique générale* [excerpt] Searle, John R. (1969): *Speech Acts: An Essay in the Philosophy of Language* [excerpt] Wittgenstein, Ludwig (1953): *Philosophical Investigations* [excerpt: 1-10] http://users.rcn.com/rathbone/lw1-10c.htm	**Steve Duffy** Dig http://www.epimone.net/pieces/dig/index.html **Lang, Dorothee** Time Train http://www.epimone.net/pieces/timetrain/index.html

3	**3. theories of writing and reading:** Barthes/ Foucault/ Derrida
	3.1 the death of the author/ the birth of the reader
	    3.1.1. text as multidimensional space
	    3.1.2. the intertextual plurality of writing
	    3.1.3. the book as a texture of signs
	    3.1.4. the reader as inscription surface
	    3.1.5. the concepts of 'work' and 'author'
	    3.1.6. author as a discursive function
	    3.1.7. the socialization of texts
	3.2. the productivity of writing and the proliferation of meaning
	    3.2.1.the cluster of phonic, graphic, semantic, syntactic, and pragmatic elements of language and writing
	3.3. poststructuralist tropes: rhizome, labyrinth, network, lexias of multiple entry
		On writing and reading:
		Barthes, Roland (1968): 'The Death of the Author'
		Derrida, Jacques (1967): 'Linguistics and Grammatology', in *Of Grammatology* [excerpt]
		http://www.marxists.org/reference/subject/philosophy/works/fr/derrida.htm
		Foucault, Michel (1969): 'What is An Author?'
		Wittern, Christian (2008): 'Character Encoding'
		http://www.digitalhumanities.org/companion/view?docId=blackwell/9781405148641/9781405148641.xml&chunk.id=ss1-6-12&toc.depth=1&toc.id=ss1-6-12&brand=9781405148641_brand
			Waber, Dan
			    Strings (1999)
			    http://collection.eliterature.org/1/works/waber__strings.html
			Burgaud, Patrick
			    Jean-Pierre Balpe ou Les Lettres Dérangées (2005)
			    http://collection.eliterature.org/1/works/burgaud__jean-pierre_balpe_ou_les_lettres_derangees/jp2.htm
			Uribe, Ana Maria
			    Deseo Desejo Desire
			    http://www.epimone.net/pieces/deseo/index.html
			Leonard, Tom
			    THE a *this*
			    http://texthouse.typepad.com/dgaakineticpoetry/files/the_a_this_no_cred.swf

4	**4. theories of media:** Benjamin/ McLuhan/ Kittler/ Bolter
	4.1. reproducibility and recontextualization
	4.2. technological mediation
	4.3. reform as remediation
	4.4. cyber author /cyber reader/ cybertext
		On media:
		Benjamin, Walter (1935): 'The Work of Art in the Age of Mechanical Reproduction'
		Bolter, David J. (2001). 'Writing as Technology'
		Kittler, Friedrich (1986): *Gramophone, Film, Typewriter* [excerpt]
		McLuhan, Marshall (1964): *Understanding Media* [excerpt]
			Rodrigues, Tiago Gomez
			    'Concretus' (2002, CD-ROM)
			Knoebel, David
			    Click Poetry (1998-2006)
			    http://home.ptd.net/~clkpoet/
			    Words in Space (2006)
			    http://home.ptd.net/~clkpoet/cpwis.html

5	**5. human-machine intermediation** 5.1. retroactivity, reactivity, and interactivity 5.2. cybertext, technotext, ergodic text 5.3. reading as game and performance	Aarseth, Espen (1997). *Cybertext. Perspectives on Ergodic Literature* [excerpt] Hayles, N. Katherine (2008). *Electronic Literature: New Horizons for the Literary* [excerpt] *The Iowa Review Web*, Volume 9, no. 1 (2007): Interviews with Jason Nelson and Donna Leishman	**Niemi, Marko** Twelve Digital Poems (2007) http://www.unlikelystories.org/niemi0107.shtml **Miekal And** reCURSION stereoSCAPE (1998) 'The text is the sound is the text.' http://english.umn.edu/joglars/radio_caterpillar/recursion/allthetextframe.html
6	**6. an archaeology of computer poetry: remediating print, animating type, recording sound** 6.1. Constellated/visual poetry 6.2. Generative/permutational poetry 6.3. Hypermedia/intermedia poetry 6.4. Sound/performance poetry	Funkhouser, Chris (2007). *Prehistoric Digital Poetry: An Archaeology of Forms, 1959-1995* [excerpt] Funkhouser, Chris (2008).'Digital Poetry: A Look at Generative, Visual, and Interconnected Possibilities in its First Four Decades' Glazier, Loss Pequeño (2002). *Digital Poetics: The Making of E-Poetries*. [excerpt] Hartman, Charles O. (1996). *Virtual Muse: Experiments in Computer Poetry*. [excerpt] Ikonen, Teemu (2003). 'Moving Text in Avant-Garde Poetry:Towards a Poetics of Textual Motion'	**Queneau, Raymond** *Cent mille milliards de poèmes* [1961] http://x42.com/active/queneau.html **Niss, Millie** (with Martha Deed) *Oulipoems* (2004) http://www.uiowa.edu/~iareview/tirweb/feature/sept04/oulipoems/index.html **Miekal And** *Mesostics for Dick Higgins* (1998) http://www.cla.umn.edu/joglars/mesostics/index.html *after emmet* (1998) http://english.umn.edu/joglars/afteremmett/voyage.html **Morgan, Edwin** *one fly* http://texthouse.typepad.com/dgaakineticpoetry/files/one_fly...34.swf **bpNichol** *First Screening: Computer Poems* (1984) http://www.vispo.com/bp/javascriptversion.htm **Campos, Augusto de** http://www2.uol.com.br/augustodecampos/home.htm

| 7 | **7. windows and mirrors: representation and reflexivity in electronic poetry**
7.1. transparency and opacity
7.2. interactivity and immersion
7.3. potentiality and actuality | Peterson, Tim (2006). 'New Media Poetry and Poetics. From Concrete to Codework: Praxis in Networked and Programmable Media'
Portela, Manuel (2006). 'Concrete and Digital Poetics'
Portela, Manuel (2009). 'Flash Script Poex: A Recodificação Digital do Poema Experimental' | **Po-Ex: 1964-1969**_Poesia Experimental Portuguesa - Cadernos e Catálogos
http://www.po-ex.net/
Melo e Castro, E.M. de
Signagens (1986-1989, VHS)
Campos, Augusto de
http://www2.uol.com.br/augustodecampos/home.htm |
| 8 | **8. software as culture**
8.1. platforms, applications, versions
8.2. computer language and digital discourse
8.3. software as social engineering | Manovich, Lev (2001). *The Language of New Media* [excerpt]
Manovich, Lev (2008). *Software Takes Command* [excerpt] | ActionScript, Processing, Generative Text, HTML/DHTML, etc.

Barbosa, Pedro
*Sintext: (*1999)
http://www.pedrobarbosa.net/SINTEXT-pagpessoal/SINTEXT.HTM
Valdeolmillos, Pedro
Tant de rêves (2005)
http://www.epimone.net/pieces/tantderevescast/index.html
Calvo, Lluís e Pedro Valdeolmillos
Isopoema (2005)
http://www.epimone.net/pieces/isopoema/index.html
Calvo, Lluís e Pedro Valdeolmillos
Insects (2005)
http://www.epimone.net/pieces/insects/index.html |

9	**9. code-poetry** 9.1. natural languages as programmed codes 9.2. writing and transwriting 9.3. intersemiotic translations	Cayley, John (2006). 'Time Code Language: New Media Poetics and Programmed Signification' Glazier, Loss Pequeño (2006). 'Code as Language' Mez (2006). '_Net.Drenching -- Creating The Co[de][i]n.Text_,'	**Cayley, John** *imposition* (2007) http://homepage.mac.com/shadoof/impose/ *windsound* (2006) http://homepage.mac.com/shadoof/net/in/windsound.html *riverIsland* (2002; QuickTime version, 2007) http://homepage.mac.com/shadoof/net/in/riverislandQT.html *translation* (2004) http://collection.eliterature.org/1/works/cayley__translation.html **Glazier, Loss Pequeño** *C·O·G* (2002) http://epc.buffalo.edu/authors/glazier/e-poetry/cog/ *Io Sono at Swoons* (2002) http://epc.buffalo.edu/authors/glazier/java/iowa/ **Mez** *pro][tean][.lapsing.txts* (2002) http://www.hotkey.net.au/%7Enetwurker/txts/ *_:terror(aw)ed patches:_ A Google Wave(let) Transformation by Shane Hinton + Netwurker Mez* (2009) http://netwurker.livejournal.com/

10	**10. the poem as a hypermedia construct** 10.1. Jason Nelson, or new media as sign game 10.2. Rui Torres, or poetry as algorithm 10.3. modularity, permutation, generativity, and multi-modal coding	*The Iowa Review Web* Volume 9, no. 1 (2007): 'Multi-Modal Coding: Jason Nelson, Donna Leishman, and Electronic Writing' http://research-intermedia.art.uiowa.edu/tirw/vol9n1/	**Nelson, Jason** *The Poetry Cube* (2006) http://www.secrettechnology.com/poem_cube/poem_cube.html *game, game, game, and again game* (2006) http://www.secrettechnology.com/gamegame/gamegame.html *Hymns of the Drowning Swimmer* (2004) http://secrettechnology.com/hymns/navigate.html **Torres, Rui** 1 Corvo Nunca + (2009) http://telepoesis.net/pessoa/menu.html Mar de Sophia (2005-2006) http://telepoesis.net/sophia Amor de Clarice (2000-2005) http://www.telepoesis.net/amor
11	**11. from circuits to screens: what is digital materiality?** 11.1. forensic materiality 11.2. formal materiality 11.3. inscription as cascading abstraction 11.4. codex and computer as self-reflexive mechanisms	Drucker, Johanna (2009): *SpecLab. Digital Aesthetics and Projects in Speculative Computing* [excerpt] Kirschenbaum, Matthew (2008): *Mechanisms* [excerpt] McGann, Jerome (2004): 'Marking Texts of Many Dimensions' http://www.digitalhumanities.org/companion/view?docId=blackwell/9781405103213/9781405103213.xml&chunk.id=ss1-3-4&toc.depth=1&toc.id=ss1-3-4&brand=default	**Waber, Dan** I, You, We (2005) http://collection.eliterature.org/1/works/waber_pimble__i_you_we.html **Drucker, Johanna** *The Experience of the Medium* (1978) http://www.artistsbooksonline.org/works/expm.xml *The Word Made Flesh* (1989) http://www.artistsbooksonline.org/works/wmfl/edition1.xml

12	**12. the reader as cyborg: the distributed self in computer poetry** 12.1. fragmenting the self 12.2. assembling the self 12.3. virtualizing the self	Hayles, N. Katherine (2002). *Writing Machines* [excerpt] Memmott, Talan (2006). 'Beyond Taxonomy: Digital Poetics and the Problem of Reading',	**Memmott, Talan** *Self Portrait(s) [as Other(s)]* (2003) http://www.uiowa.edu/~iareview/tirweb/feature/memmott/spo_Memmott/index.html *Lexia to Perplexia* (2000) http://www.uiowa.edu/~iareview/tirweb/hypermedia/talan_memmott/index.html **Alan Sondheim** *Projects for Mobile Phone* (2000) http://beehive.temporalimage.com/content_apps33/sondheim/0.html
13	**13. executable time: the performance of the computer** 13.1. text as executable code 13.2. text as event: machine text as social text 13.3. reading the time of reading	Hayles, N. Katherine (2006). 'The Time of Digital Poetry: From Object to Event' Hillner, Matthias (2006). '"Virtual Typography": Time Perception in Relation to Digital Communication' Perloff, Marjorie (2006). 'Screening the Page/ Paging the Screen: Digital Poetics and the Differential Text'	**Bootz, Philippe** *ré_veille poetique* (2005) http://www.sitec.fr/users/akenatondocks/DOCKS-datas_f/collect_f/auteurs_f/B_f/BOOTZ_F/Animations_F/reveilbootz_F/re_veille.htm **Strickland, Stephanie** *slippingglimpse* (2007) http://slippingglimpse.org/ *V: Vniverse* (2002) http://vniverse.com/ **Stephans, Brian Kim** *The Dreamlife of Letters* (2000) http://www.arras.net/RNG/flash/dreamlife/dreamlife_index.html

14	**14. meaning as an emergent phenomenon** 14.1. the digital poetry of Jim Andrews 14.2. the computer poem as a model for the hermeneutic circle 14.3. indeterminacy and meaning	Portela, Manuel (2009): 'The Battle of Poetry against Itself: On Jim Andrews's Digital Poetry'	**Andrews, Jim** *Arteroids* Version 3.11 (2006) http://vispo.com/arteroids/arteroids311.htm *Stir Fry Texts* (1999) http://www.vispo.com/StirFryTexts/ *enigma n* (1998) http://www.vispo.com/animisms/enigman/meaning.html *Nio* (2001) http://collection.eliterature.org/1/works/andrews__nio.html
15	**15. digital literary studies** 15.1. analysing moving letters 15.2. the rhetoric of kinetic poetry 15.3. forms and genres in digital poetry	Liu, Alan (2008). 'Imagining the New Media Encounter' Rettberg, Scott (2009). 'Communitizing Electronic Literature' Simanowski, Roberto (2009). 'Teaching Digital Literature Didactic and Institutional Aspects' Wardrip-Fruin, Noah (2008). 'Reading Digital Literature: Surface, Data, Interaction, and Expressive Processing'	**Bootz, Philippe** *The Set of U* (2004) http://collection.eliterature.org/1/works/bootz_fremiot__the_set_of_u.html **Howe, Daniel C.** *a software toolkit for generative literature* (2009) http://www.rednoise.org/rita/

2.7. Seminar Abstracts

This section contains short descriptions of the topics addressed in the weekly seminars. A list of required and further readings provides a theoretical and critical background for specific issues. For each seminar topic there is also a selection of relevant online works to be analysed in class [cf '2.6. Semestral Plan', above, pp. 37-44]. The theoretical and critical texts provide the current research context for each weekly seminar, but my intention is that watching, listening, manipulating, and interpreting the works themselves may generate renewed insights about the questions under examination. Aesthetic and formal issues raised by the works should lead us to re-examine and refine the available concepts and critical vocabulary. Presentation and initial discussion of at least one relevant text and work in each seminar class will be made by the students [cf. '2.8. Attendance, Assessment, and Assignments', below, pp 77-79]. Most seminar classes are structured into three-parts (c. 45-50 minutes for each subtopic/ work/ group of works).

The aim of classes 1, 2, 3, and 4 is to provide a broader context for the issues of poetics, language, writing, reading, and technological mediation that will come up in different forms in later classes when we see/read/play with animated poetry. Familiarity with 20th-century experimental poetics – as well as with concepts in linguistics, media theory, and literary theory – is important for a productive analysis of electronic poetry. Classes 5 through 14 develop a sustained argument about kineticism in poetry as a probe into the production of meaning. They are based upon a significant corpus of different types of digital works in various languages (English, Portuguese, French, Spanish, and Catalan). During these ten weeks students will learn about current approaches and topics of research in the field of new media, electronic literature and digital poetry, while reading and analysing a careful selected corpus of electronic texts. Many theoretical questions will be inferred and derived from close reading digital works. The last class (on the 15th week), which concludes the course, discusses the medium-specific perspective and methodology of digital literary studies, and underscores the critical value of kinetic texts for asking new questions about literary practices in a software culture.

SEMINAR 1

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1. Experimental Poetics in the 20th Century

1.1. Futurist/ Vorticist/ Suprematist/ Constructivist

1.2. Dada

1.3. Surrealism

1.4. Lettrism

1.5. Concrete

1.6. OuLiPo

1.7. L=A=N=G=U=A=G=E
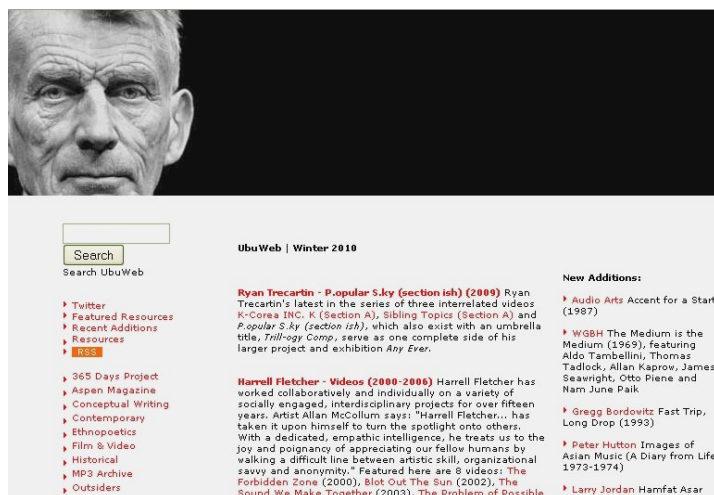
FIGURE 2. *UbuWeb* [screen capture].

With the help of the electronic archives *UbuWeb* (http://www.ubu.com/), *OuLiPo*

(http://www.oulipo.net/) and *PennSound* (http://www.writing.upenn.edu/pennsound/), we start by

reading, seeing, and listening to 20th-century experimental poetry produced in Europe and

America. A selection of image, text, video, and sound files from those archives will document

different kinds of poetic practices (sound poetry, performance poetry, visual poetry, computer

poetry, found poetry, procedural poetry, etc.). Students are expected to understand issues of

experimental poetics in the chosen works as representative of specific social and technological

contexts. Particular attention will be given to questions of materiality (voice, body, writing, typewriting, printing, sound recording, computer processing, etc.) as they interact with verbal language. 20th-century experimental poetics will be presented as a creative research into language and media, and into the relation of verbal discourse to other sign systems. In later classes of this seminar course, we will see how several meta-poetic, self-reflexive and intertextual concerns of 20th-century poetry and poetics have taken a renewed configuration in the genres of digital and kinetic poetry of the last two decades (1990-2010).

FIGURE 3. *OuLiPo* [screen capture].
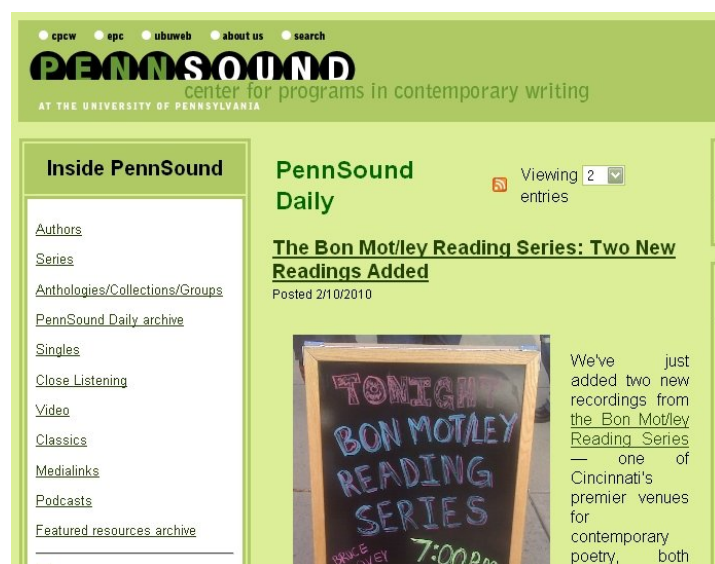
FIGURE 4. *PennSound* [screen capture].

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2. Theories of Language: Saussure/ Wittgenstein/ Chomsky/ Searle

2.1. differential signs

2.2. the productivity of syntax: recursion and permutation

2.3. language-games

2.4. speech acts and script acts
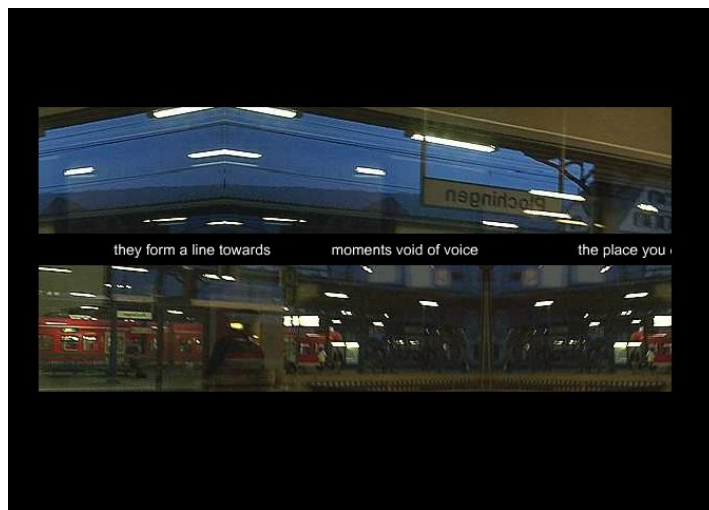
FIGURE 5. Dorothee Lang_*time train* [screen capture].

This class explores concepts in 20th-century theories of language that are relevant both for

thinking about machine-processing of natural languages, and for more general issues related to

the production and interpretation of signs. While Saussure's concept of language as a system of

differences and Chomsky's structural approach to syntax are useful for linking natural and

artificial languages, Wittgenstein's and Searle's emphases on use help us understand the social

and pragmatic dimension of linguistic meaning. Concepts derived from their groundbreaking

works will be applied to a selected corpus of digital texts. On the one hand, we will look at the

phonological, semantic, and syntactic levels of language structures as algorithmically

formalizable properties of a semiotic system. On the other hand, we will focus on the discursive

and pragmatic situatedness of knowledge and sign interpretation. The permutational and

recursive play of language units and structures is dependent upon language-games as cultural

and social artefacts and discourses. Specific acts of writing and reading construe the work as a

particular kind of speech act or script act.[31]

FIGURE 6. Steve Duffy_*Dig* [screen capture].

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[31] I use the notion 'script act' in the sense defined by Peter L. Shillingsburg: 'Script act theory emphasizes the idea that each copy of a work is the local focus of three distinct types of scripting actions, each in some measure occluded from the others: authoring, producing, and reading. […] For a study of literary works for which the genesis, production, and reception of the work become relevant aspects, script act theory provides a theoretical framework for representing the work as a series of related historical events, each leaving its record in manuscripts, books, revisions, reprintings, and translations.' (2006: 50).

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3. Theories of Writing and Reading: Barthes/ Foucault/ Derrida

3.1 the death of the author/ the birth of the reader

3.2. the productivity of writing and the proliferation of meaning

3.3. poststructuralist tropes: rhizome, labyrinth, network, lexias of multiple entry

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FIGURE 7. Ana Maria Uribe_*Deseo Desejo Desire* (2000) [screen capture].

Tropes used by writers and critics of electronic literature in the 1990s were either borrowed or
related to fundamental concepts of poststructuralist theory. These early apologetic theories of
the electronic writing space stressed the 'decentering of text' and the 'participation of the
reader', often using tropes like 'labyrinth', 'rhizome', and 'network' to represent hypertext as an
embodiment of readerly textuality. This seminar class reviews poststructuralist and
deconstructionist ideas about the productivity of writing, including Barthes' detailed attention to
the acts of reading as instances of textual production, Foucault's redefinition of the author as a
specific discursive function within language, and Derrida's emphasis on the singularity of writing
as an engine for activating the infinite differential chain of signifiers. As we will see, this
emphasis on the productivity of the written sign through the productivity of reading provides a

model for the retroaction between sign fields and interpretations. This understanding of writing and reading is useful for the analysis of kinetic poetry, particularly for those texts that contain simulations of writing and/or reading motions and actions.
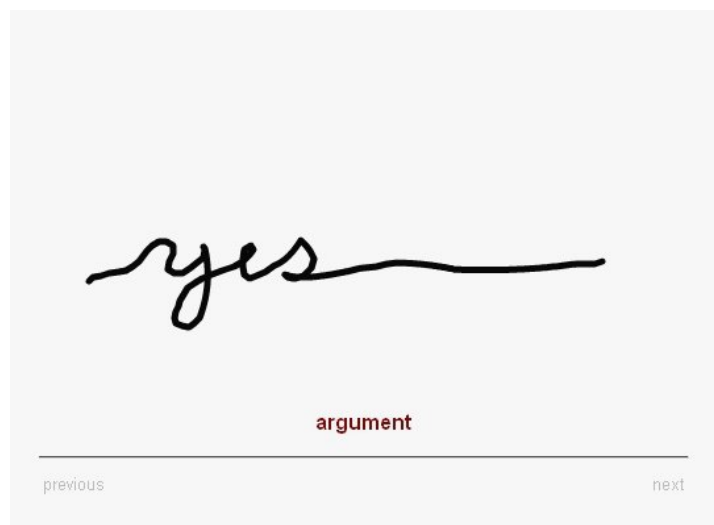
FIGURE 8. Dan Waber_*strings* (1999) [screen capture].
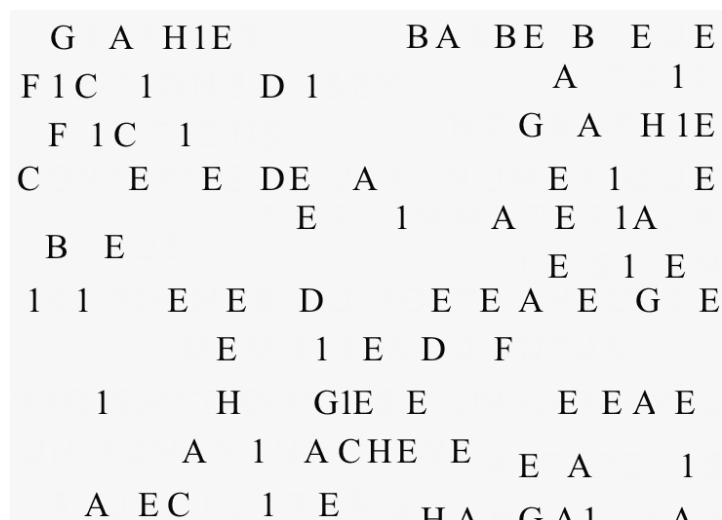
FIGURE 9. Patrick Burgaud, *Jean-Pierre Balpe ou Les Lettres Dérangées* (2005) [screen capture].

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4. Theories of Media: Benjamin/ McLuhan/ Kittler/ Bolter

4.1. reproducibility and recontextualization

4.2. technological mediation

4.3. reform as remediation

4.4. cyber author /cyber reader/ cybertext

FIGURE 10. David Knoebel_*Click Poetry* (2006) [screen capture].

Walter Benjamin produced a powerful theory of technical reproducibility as a continuous process of decontextualization and recontextualization of the work of art. Digital technology has intensified reproduction and technological mediation in human experience. Marshall McLuhan described mediation as a process of remediation by which the content of a new medium is always another medium. Jay David Bolter and Richard Grusin have elaborated McLuhan's theories into a sophisticated general theory of remediation. Digital media remediate all previous media, and this reform of mediation can be described in terms of a dialectical tension between immediacy (or transparency) and hypermediacy (or opacity). Friedrich A. Kittler's opposition between the symbolic regime of art (literature, painting, sculpture) and the mechanical regime of

media (phonography, photography, cinematography) is also useful for understanding the role of human-computer interaction. Electronic literature often plays with this tension between presence and absence of the medium in highly sophisticated forms. Digital poetry delights in signalling the multilayered material instantiation of the digital medium as the product of both computer and human processing. By self-referring to their own materiality as a cascading process that co-involves automated signal processing and human symbolic processing, kinetic poems link programming codes to other writing and reading codes. Ideas about mediation explored in this class should help students to analyse kinetic works as aesthetic reflections on digital media and database culture.

FIGURE 11. Tiago Gomez Rodrigues_*concretus* (2002) [screen capture].

S<small>EMINAR</small> 5

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5. Human-Machine Intermediation

5.1. retroactivity, reactivity, and interactivity

5.2. cybertext, technotext, ergodic text

5.3. reading as game and performance
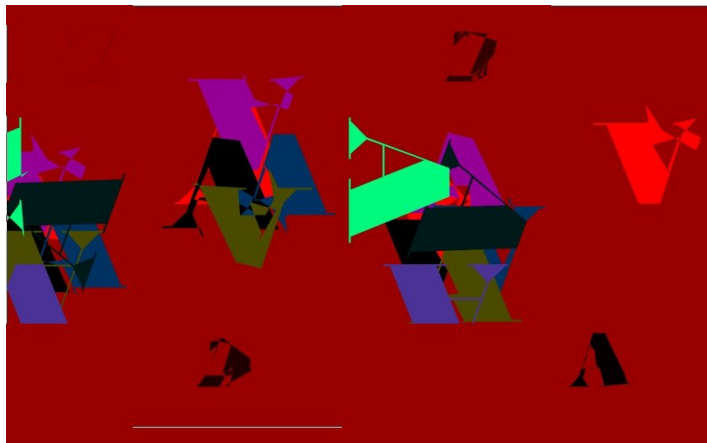
F<small>IGURE</small> 12. Miekal And_ *recursion stereoscape* (1998) [screen capture].

In *Writing Machines*, Hayles defined 'technotexts' as texts (executed electronically or printed on paper) that self-reflect upon their own material properties and operations as devices that allow meaning to emerge. The technotext is a material or textual machine, 'a device capable of manipulating itself as well as the reader' (Hayles 2002: 24). 'Cybertext' (in Aspen Aarseth's definition) is a similar concept: cybertexts are (paper or electronic) texts that require a 'non-trivial effort' on the part of the reader to co-generate the textual field. Aarseth calls this type of literature 'ergodic' (Aarseth 1997). While Hayles's definition highlights works that depend upon self-referential codes, Aarseth's concept captures the algorithmic potential of modes of textuality that call upon certain types of reader intervention in the textual field. What 'technotexts' and 'cybertexts' have in common is the fact they work as self-conscious textual machines, i.e., texts for generating texts. As a mechanism for generating texts, they establish a relation between *texton*, or scriptural algorithm, and *scripton*, or textual instance of that algorithm. Textual

configuration and textual content can be an emergent property because textual fields are not

entirely pre-constituted at their formal level. Interaction between the author's field, the reader's

field, and the text's field develops in unpredictable patterns according to a network of intentions

embodied in a code. This seminar discusses human-machine intermediation, distinguishing

reactive retroactivity from interactive retroactivity.

FIGURE 13. Marko Niemi_*60 Letter Dash* (2007) [screen capture].

SEMINAR 6

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6. An Archaeology of Computer Poetry: Remediating Print, Animating Type, Recording

Sound

6.1. Constellated/visual poetry

6.2. Generative/permutational poetry

6.3. Hypermedia/intermedia poetry

6.4. Sound/performance poetry

FIGURE 14. Millie Niss_*Oulipoems* (2004) [screen capture].

Various modernist and postmodernist poetic forms have gone beyond the conventions of the printed page, exploring new visual patterns, new intermedia forms, and new live practices. Beginning in the second half of the 19th century, innovations include the constellated poem, the collaged poem, the found poem, the randomized poem, the performed poem, the sound poem, and many other genres. The formation of the OuLiPo group in 1960 anticipates the complete integration of computer and literary creation. Members of OuLiPo examined the rule-based structures in writing and produced new texts by mathematical procedures. Many permutational and constraint-based works conceived by the members of OuLiPo established the basic

grammar of algorithmically structured narrative and poetry. This seminar looks at the history of computer poetry, and at the automation of sign processing and sign display. It will also briefly sketch the history of kinetic texts in animation movies and film titles. Computer-generated texts are part of the general automation of the so-called information societies. Changes in the modes of textual production reflect the cultural and artistic productivity of late capitalism as its mode of production extends to the cultural sphere.

FIGURE 15. Raymond Queneau_*Cent mille milliards de poèmes* (1961) [screen capture]. Computer version by Magnus Bodin (1997).

FIGURE 16. bpNichol_*First Screening: Computer Poems* (1984) [screen capture]. Recreated by Jim Andrews, Geof Huth, Lionel Kearns, Marko Niemi, and Dan Waber (2007).

7. Windows and Mirrors: Representation and Reflexivity in Electronic Poetry

7.1. transparency and opacity

7.2. interactivity and immersion

7.3. potentiality and actuality

FIGURE 17. *Po-Ex_* Salette Tavares_algarismos alfinetes (1964) [screen capture].

There is a close connection between concrete poetics as a theory of the medium (i.e., of language, of written language, and of poetical forms) and digital poetics as a theory of poetry for the digital medium. This link is clearly seen in the use of concrete poems as storyboards and scripts for electronic texts, both in composing text for graphic interface static display and for animation. It is as if the concrete approach to language and form, because of its constructivist and objectivist emphasis, anticipated the kind of reflection on media set in motion by the electronic page. Close attention to the visibility of language and to the materiality of reading, two of the central tenets of concretist texts, also underlie many of the poetic attempts to use the specific properties of electronic textuality in digital forms. This seminar looks at the electronic recoding of visual and other experimental texts. We examine the extent to which digital poetics is responding to the consciousness of language and forms in the digital medium in ways that relate to the tension between representation and self-reflexivity in concrete texts. As

remediations and recodings of print texts these digital animations are poised between

transparency and opacity, interactivity and immersion, potentiality and actuality.

FIGURE 18. Augusto de Campos_*cidadecitycité* (1975) [screen capture].

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8. Software as Culture

8.1. platforms, applications, versions

8.2. computer language and digital discourse

8.3. software as social engineering
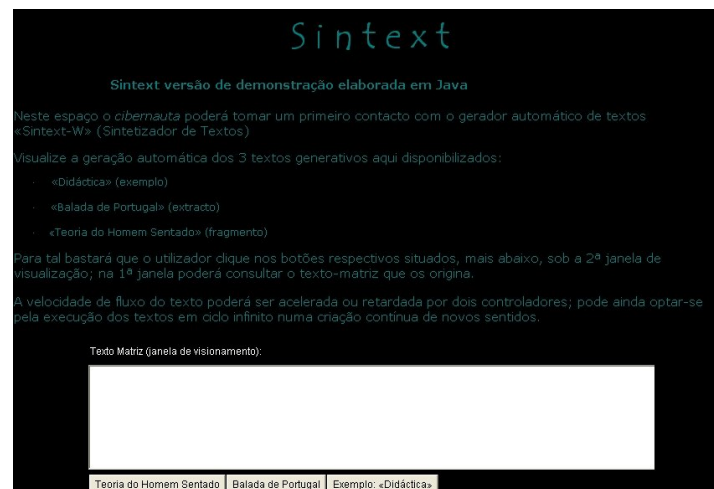
FIGURE 19. Pedro Barbosa_*Sintext* (2000) [screen capture].

In *The Language of New Media* (2001), Lev Manovich isolated five principles in order to define digital media: numerical representation (i.e., new media objects can be described mathematically and can be subject to algorithmic manipulation); modularity (i.e., as discrete modular elements they can be assembled and combined at different scales); automation (i.e., 'operations involved in media creation, manipulation and access' can be automated); variability (i.e., they 'can exist in different, potentially infinite, versions'); and cultural transcoding (i.e., the fact that media have become computer data implies continuous interaction between two layers - the computerized layer and the cultural layer). This fifth principle has far-reaching consequences because it connects hardware and software to social practices. According to Manovich, the computerized layer, particularly in the form of software, is the driving force behind the globalization of the information society. The new field of software studies is concerned

precisely with what produces the 'information society', that is, with the software itself (Manovich 2007, 2008).[32]

FIGURE 20. Lluís Calvo e Pedro Valdeolmillos_*Insects* (2005) [screen capture].

The aim of this class is to make the software visible in electronic literature. Many display features are enabled by the software used for programming/writing the works. Digital literary analysis should look at software applications and tools as part of the rhetoric of the poem. Platforms, programming languages, applications, versions – all of these elements are culturally significant. Digital media can be analysed as a discursive practice. We will examine automated text generation and ActionScript language as rhetorical devices.

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[32] In *Software Takes Command*, Lev Manovich writes: '[…] if we limit critical discussions to the notions of "cyber", "digital", "Internet," "networks," "new media," or "social media," we will never be able to get to what is behind new representational and communication media and to understand what it really is and what it does. If we don't address software itself, we are in danger of always dealing only with its effects rather than the causes: the output that appears on a computer screen rather than the programs and social cultures that produce these outputs.' (2008: 4-5)

SEMINAR 9

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9. Code-Poetry

9.1. natural languages as programmed codes

9.2. writing and transwriting

9.3. intersemiotic translations

FIGURE 21. John Cayley_*translation* (2004) [screen capture].

This seminar class deals with the poetics of the programmable poem. John Cayley and Loss Pequeño Glazier, among others, have extended the meaning of digital poetry to include the programming code itself. Displayed language and other visual and sonic forms have to be executed by code, which means that code is an important layer in the modes of inscription of digital materiality. John Cayley has developed a poetics of programming that considers the poetic function of the code itself. Several of his digital poems work on the basis of trans-sonification between the sound materialities of different languages, and trans-literation between the writing materialities of different writings (English and Chinese, for instance). Through this sound and graphical morphing, forms are translated between two systems of differences, i.e., between two different codes. The double codification of poetry as patterned verbal and written language is played against the underlying computer code which determines textual displays.

Other artists, such as Mez, have been writing pseudo-code, and producing hybrid writing codes. By inserting markup characters and other characters used in artificial codes into the alphabetic writing code of the English language, Mez also draws our attention to the cultural and ideological nature of computer code as a particular way of structuring and producing meaning.
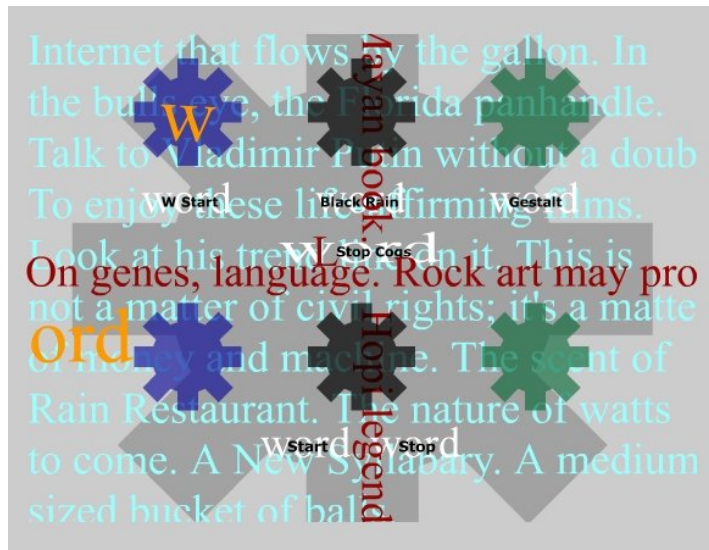
FIGURE 22. Loss Pequeño Glazier_*COG (I): An Interactive Kinetic Textual Composition* (2002)
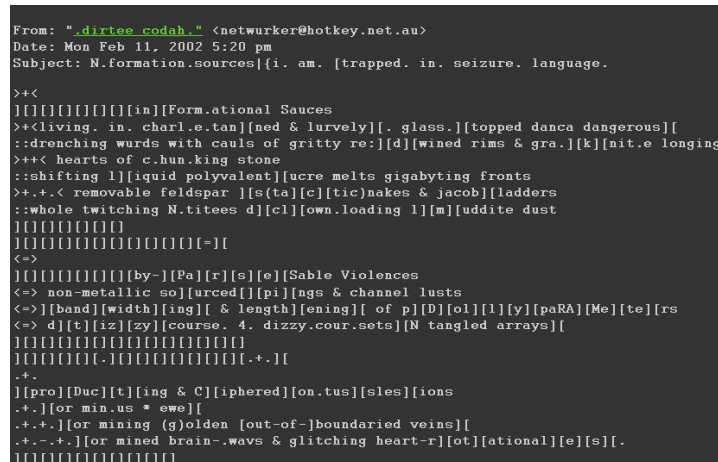
FIGURE 23. Mez_*pro][tean][.lapsing.txts* (2002) [screen capture].

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10. The Poem as Hypermedia Construct

10.1. Jason Nelson, or new media as a sign game

10.2. Rui Torres, or poetry as algorithm

10.3. modularity, permutation, generativity, and multi-modal coding

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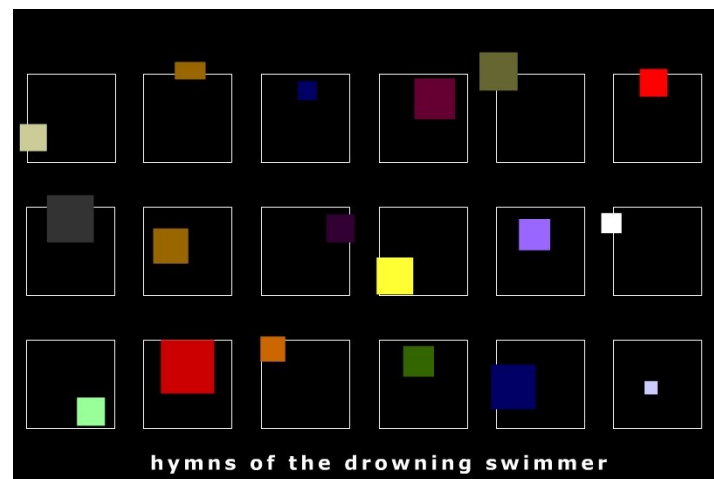
FIGURE 24. Jason Nelson_*hymns of the drowning swimmer* (2004) [screen capture].

N. Katherine Hayles (2008) lists four major characteristics of digital text: 'computer-mediated text is layered'; 'computer-mediated tends to be multimodal'; 'in computer-mediated text, storage is separate from performance'; and 'computer-mediated text manifests fractured temporality' (2008: 163-164). The layered nature of digital text has to do with cascading processes of abstraction that link the deep layer of alternating voltages in electronic circuits to the screen layer of symbolic representations. Multimodality and intermediality are consequences of binary code, which enables the integration of different media. Separation between storage and performance is another fundamental element of digital textuality: the work cannot be accessed unless it is performed by the code, i.e., executed by a machine, and files played locally can be assembled from different locations. Finally, the fracturing of time describes the fact that in electronic display the timing of texts is variable and not entirely controlled by the

reader. While the first and third properties follow from the ontology of the computer as a binary machine, the second and the fourth describe aspects of its formal materiality as phenomenologically experienced by a human subject.

Works by Jason Nelson and Rui Torres will be analysed as hypermedia engagements with digital materiality. In its multimodal coding, Jason Nelson's hypermedia art/poetry uses the intermedia features of digital technology and programming codes to explore the perception of form and meaning in a fragmented labyrinth of playable signs. In Jason Nelson's technotexts, digital technology reveals the specificity of its mode of computing and cultural inscription. Rui Torres starts from a structural syntactic and semantic analysis of writers' textual mechanisms. His textual automata combine textual generation with randomized video, voice, and music fragments, sometimes in 3-D graphic environments. The multimodal interactive tropes of both artists give us the digital kinetic poem as a hypermedia construct. Their gaming and playable functions show us programmability as one of the rhetorical levels of digital media.
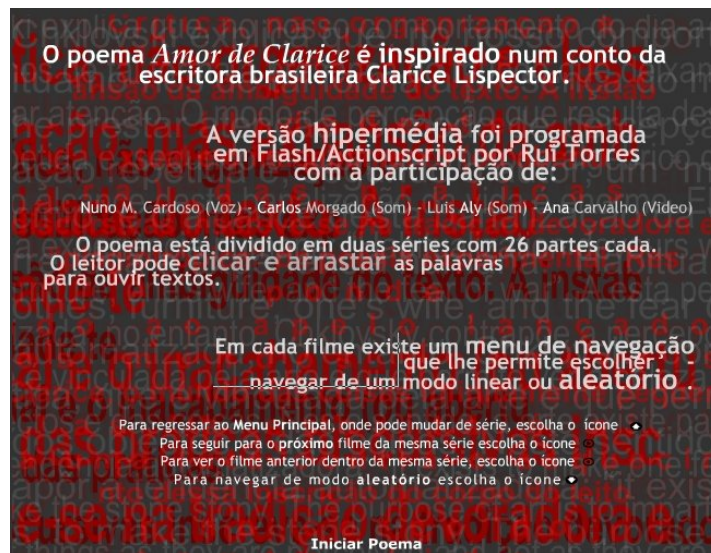
FIGURE 25. Rui Torres_*Amor de Clarice* (2005) [screen capture].

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11. From Circuits to Screens: What is Digital Materiality?

11.1. forensic materiality

11.2. formal materiality

11.3. inscription as cascading abstraction

11.4. codex and computer as self-reflexive machines
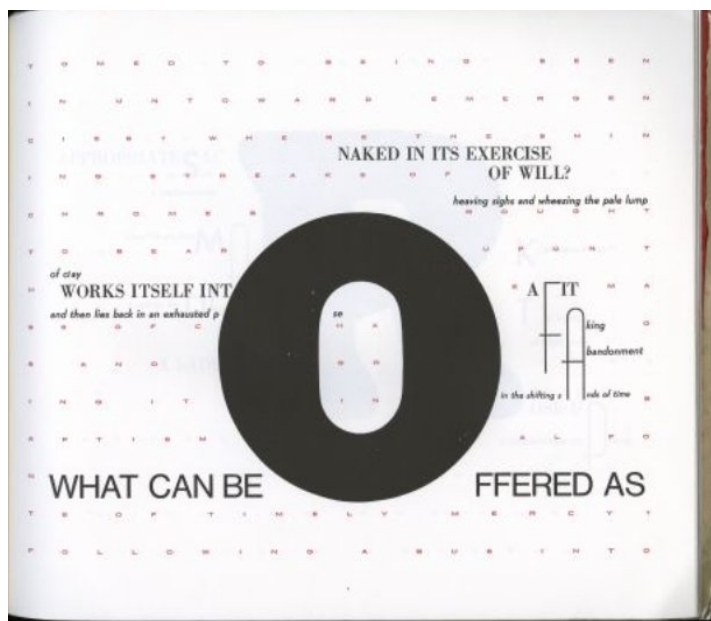
FIGURE 26. Johanna Drucker, *The Word Made Flesh* (1989), page 23 [screen capture].

Kirschenbaum distinguishes the forensic materiality level of magnetic inscription on the disk from the formal materiality level of executed code as presentation. Computational materiality is seen as a series of cascading physical processes of storage and deletion, writing and overwriting. He describes this process in terms of a tension between inscription and abstraction, and between digitality and volatility. Digital information becomes abstract because it is susceptible to allographic manipulation of discrete units (substitution, deletion, insertion, transposition, relocation, and repetition) – the property described by Lev Manovich (2001) as modularity. Kirschenbaum's analysis thus adds an important layer to media-specific analysis:

the consideration of the relation between hardware inscription, on the one hand, and software configurations, formal modelling, and presentational display, on the other, i.e., between forensic materiality and formal materiality. A series of multiple-order representations (or translations) allow for the inscription, processing, and presentation of data.

This class considers the forensic properties of digitality (Kirshchenbaum: 88-96): *random access* ('instantaneous access to any portion of the physical media'); *signal processor* ('writing and reading to and from the disk are ultimately a form of digital to analog and analog to digital signal processing'); *differential* ('the read/write head measures reversals between magnetic fields rather than the actual charge of an individual magnetic dipole'); *volumetric* ('a hard-disk drive is a three-dimensional writing space'); *rationalized* ('the volumetric space of the drive' is mapped 'by an intricate planar geometry comprised of tracks and sectors'); *motion-dependent* ('motion and raw speed are integral aspects of their operation as inscription technologies'); *planographic* ('the surface of the disk, in order to fly scant nanometers beneath the air bearings, must be absolutely smooth'); and *nonvolatile but variable* ('just as important as magnetic disk storage's nonvolatility was the fact that its same volumetric area could be overwritten').

Referring back to previous analyses (weeks 5-10), we sum up the following features of formal materiality: *hypertextuality* (internal and external links that maximize associative paths within and between files); *topographicality* (topographic and topological use of the screen pixel grid as a writing space); *iconicity* (presence of iconic graphic representations at textual, paratextual, and metatextual levels); *kineticism* (use of sign and image animation); *intermediality or multimodality* (integrated processing of various media – alphanumeric characters, sound files, image files, video files, etc. – as a defining feature of digital literacy); *retroactivity* (certain pre-programmed behaviours of digital objects have to activated by user/reader's haptic interventions); *reticularity* (networked distribution and execution of the codes that generate the graphical, sonic, visual, and kinetic representations from computer files); and *temporality* (temporized works create a representation/experience of the flow of time through sign motions and screen changes).

Jerome McGann's (2004) description of the multi-dimensionality of books as autopoietic

inscriptional and interpretive spaces provides a powerful theoretical representation of the

materialities of print and codex at their various levels. McGann's 'many dimensions'

[dementians] are compared to the relations between forensic and formal materialities in digital

mechanisms. Drucker's (2009) argument for speculative computing as a humanities approach

to computer modelling – one that takes into account the role of subjectivity and interpretation in

sign processing – opens up a mode of inquiry that is more akin to the aesthetic explorations of

digitality being made by digital writers and artists. In this class we analyse both bibliographic

codes and computer codes in order to make sense of the various material levels involved in the

instantiation of a given form. This includes artists' books by Johanna Drucker and a selection of

works by Dan Waber.

FIGURE 27. Dan Waber_*i you we* (2005) [screen capture].

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12. The Reader as Cyborg: Distributed Self in Computer Poetry

12.1. fragmenting the self

12.2. assembling the self

12.3. virtualizing the self
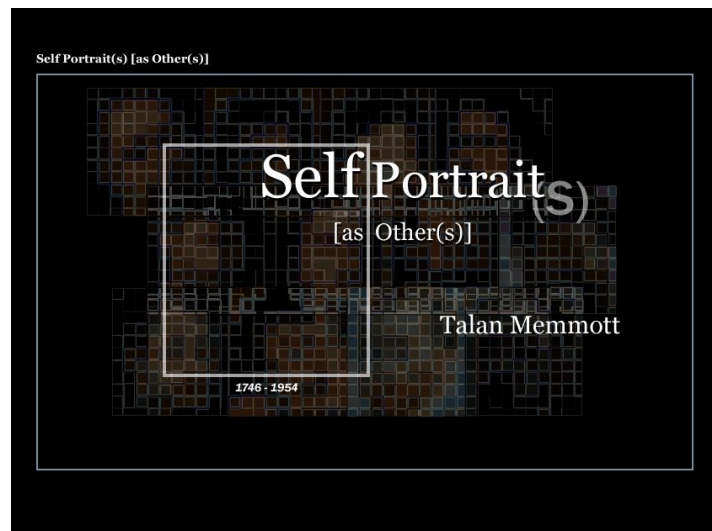
FIGURE 28. Talan Memmott_*Self-Portrait(s) [as Other(s)]* (2003) [screen capture].

Human-computer interaction is now so ubiquitous that it may be said to be changing the nature of human culture and the technologies of the self.[33] Software culture is accelerating the globalization of cultural and financial capital, and is bringing about new powerful forms of social engineering and social control. Computers are also disciplining the body and, like print, they constitute a new technology of the self, in the sense put forward by Foucault.[34] Synchronous

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[33] A series of four books, resulting from an ongoing MIT research project on technology and self, has recently addressed this issue from psychological, sociological, and anthropological perspectives: Sherry Turkle, ed., *Evocative Objects: Things We Think With,* MIT Press, 2007; Sherry Turkle, ed., *Falling for Science: Objects in Mind*, MIT Press, 2008; Sherry Turkle, ed., *The Inner History of Devices*, MIT Press, 2008; and Sherry Turkle, ed., *Simulation and Its Discontents*, MIT Press, 2009. Sherry Turkle has been the director of the *MIT Initiative on Technology and Self* (http://web.mit.edu/sturkle/www/techself), established in 2001. See also Sherry Turkle, *The Second Self: Computers and the Human Spirit*, Cambridge, Mass: MIT Press, 2004 [1st ed. 1984].

[34] '[…]technologies of the self, which permit individuals to effect by their own means or with the help of others a certain number of operations on their own bodies and souls, thoughts, conduct, and way of being,

continuous remote communication, for instance, is changing the way human beings construct

the relationship between self and self, and between self and social order. The networked self

embodies new forms of self-understanding and new imaginings of the self. Social software tools

and artificial environments profit from this plasticity of the self, by developing new computer-

mediated social relations and simulated virtual worlds. The recursive loops that take place

inside the machine and the recursive loops that constitute a human subject's cognition

processes become linked in human-computer interaction. In electronic literature this dynamics

between body and machine takes place both at the level of writing and reading. Cascading and

interacting processes make human and machines part of a single system of emergent cognition

(Hayles 2008: 56). This self-machine intermediation and the self as cyborg will be analysed in

works by Talan Memmott and Alan Sondheim that address changes in self-consciousness

brought about by the projection of the self in digital objects.

FIGURE 29. Alan Sondheim_*Projects for Mobile Phone* (2000) [screen capture].

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so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection, or immortality.', in Michel Foucault, 'Technologies of the Self ', *Technologies of the Self : A Seminar With Michel Foucault*, edited by Luther H. Martin, Huck Gutman, and Patrick H. Hutton. Amherst: University of Massachusetts Press, 1988, p. 17.

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13. Executable Time: The Performance of the Computer

13.1. text as executable code

13.2. text as event: machine text as social text

13.3. reading the time of reading

FIGURE 30. Philippe Bootz, *ré_veille* (2005) [screen capture].

The aim of this class is to examine the concept of eventuality in textual production and performance. Theorists of electronic literature, including N. Katherine Hayles (2006, 2008) and Marjorie Perloff (2006), have stressed the eventuality of computer text because it has to be executed by code. Textual execution depends on how and when it takes place, i.e., on its hardware and software environment. The temporal eventuality of 'flickering signifiers' on the screen is a consequence of the fact that files are being distributed and executed across a network. However, from a social text perspective, the notion of text as an event has to do with the interpreter's encounter with a textual object. In my view, the dynamics of digital writing that occurs when code is executed has to be related with the dynamics of reading. The eventuality in the processing of signs in computer texts, when seen from a reading perspective, is not

significantly different from other reading mechanics. If the dynamics of the textual field is primarily a function of the interpreter's interaction with that field, it cannot be determined exclusively by the physical properties or the formal conventions of the medium: it has to be both a function of formal operations performed upon those physical properties and of readers' interactions with those operations.
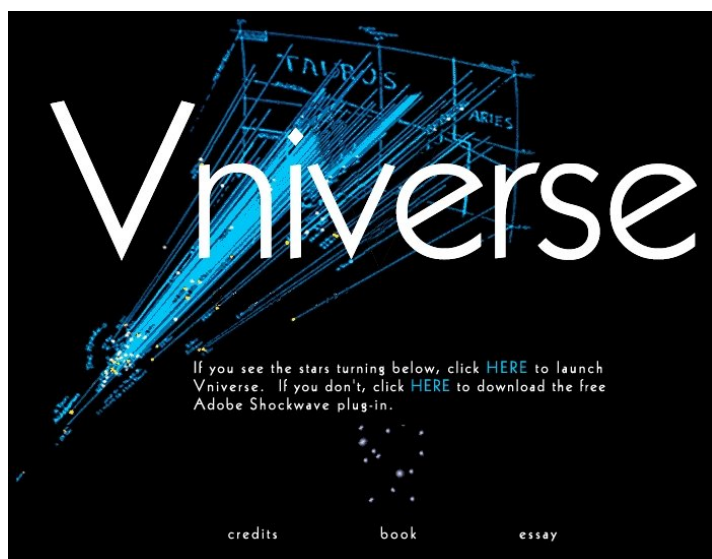
FIGURE 31. Stephanie Strickland_Vniverse (2002) [screen capture].

The degree of readers' participation in the eventuality of that machine-text encounter may be heightened by specific formal operations – embodied as structural features in what Espen Aarseth has defined as cybertexts – but it cannot be simplistically equated with either digitality or printness. Eventuality is a feature of hermeneutical indeterminacy, i.e., it is an expression of the situated encounter between subject and object. Procedural and generative processes, as well as machine processing, may foreground, or even explicitly thematize, the eventuality of meaning production, but only as a general feature of linguistic, literary, and aesthetic signifying practices. Eventuality has a social non-textual dimension that depends on the encounters between interpreters and texts. Machine operations, per se, do not share this type of eventuality: texts have to be generated each time they are displayed, and their material instantiation may be slightly different, but this variation is akin to any other documentary variation. We will look at works by Phillipe Bootz, Stephanie Strickland, and Brian Kim Stephans

in order to question the dichotomies page/screen, static/dynamic, object/process, text/event, and space/time.
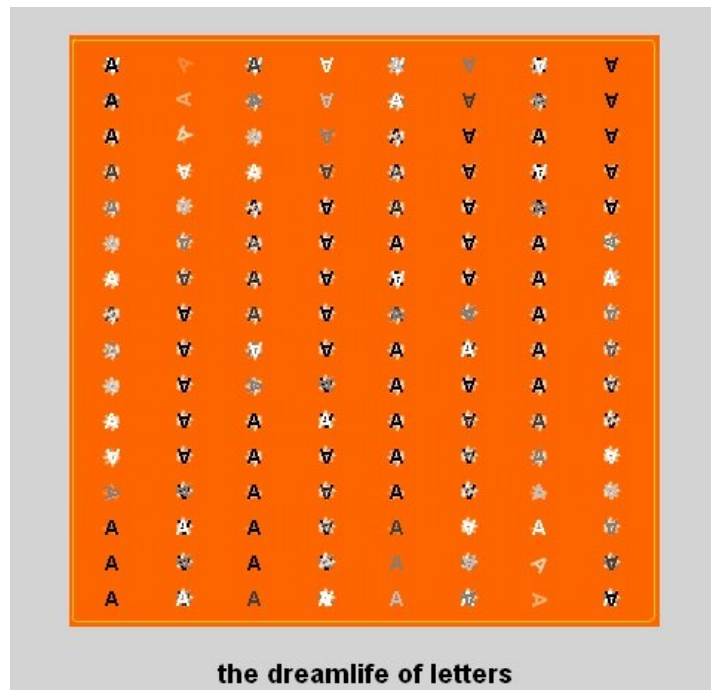
FIGURE 32. Brian Kim Stephans_*the dreamlife of letters* (2000) [screen capture]..

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14. Meaning as an Emergent Phenomenon

14.1. the digital poetry of Jim Andrews

14.2. the kinetic poem as a model for the hermeneutic circle

14.3. indeterminacy, instability, and meaning
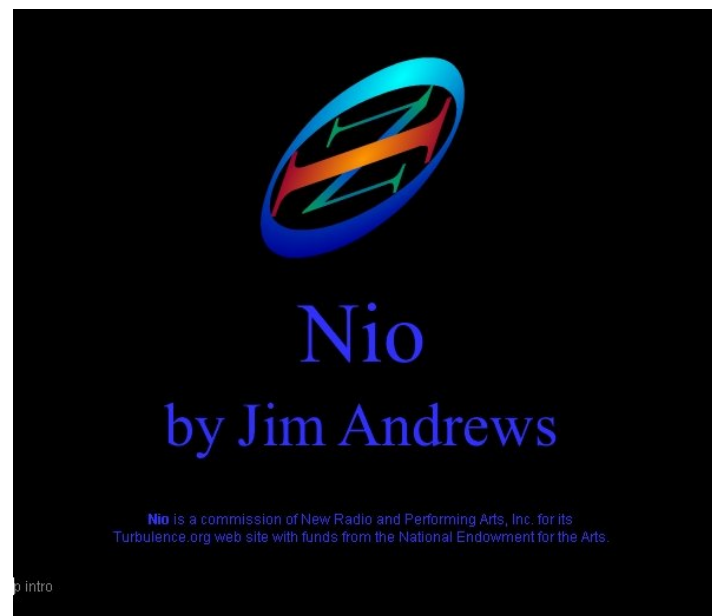
FIGURE 33. Jim Andrews, *Nio* (2001) [screen capture].

Jim Andrews, a Canadian artist and programmer based in Victoria, British Columbia, has been developing new digital web-based forms and genres since 1995. His works investigate computer programming code as an expressive means for integrating image, sound, and word. In this class, we look at the electronic poetry of Jim Andrews as a reflection upon the materiality of digital media and also as an exploration of the World Wide Web as writing and reading space. Jim Andrews's digital poetics transforms interactive, kinetic, and multimedia features of digital literacy into poetical tropes. Feedback loops between reader's interventions and textual displays highlight the co-dependence between the poem as algorithmic machine and the interpretative operations of reading as part of the signifying field [see below, pp. 80-90].

S<small>EMINAR</small> 15

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15. Digital Literary Studies

15.1. analysing moving letters

15.2. the rhetoric of kinetic poetry

15.3. forms and genres in digital poetry
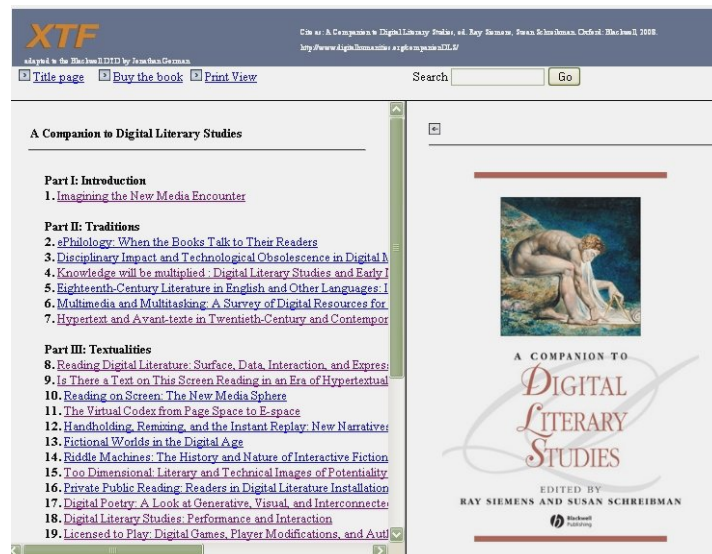
F<small>IGURE</small> 34. Susan Schreibman and Ray Siemens, eds. (2008). *A Companion to Digital Literary Studies*. Oxford: Blackwell, 2008, online edition [screen capture].

The course ends with an introduction to digital literary studies as they have been applied to computer poetry. It starts by a brief reference to some of the major articles, books and journals that, for the past decade, have helped to establish this new field within literary studies. Drawing examples from the texts that we have analysed during the semester, we tentatively define rhetoric devices and tropes of kinetic poetry. Finally, we sketch a typology of forms and genres in digital poetry. This typology is based upon descriptive categories that include hardware and software (such as computer platform, operating system, application, version, etc.), but also material features of the formal materiality of display (such as verbal language, animation, multi-modal codes, hypertext, etc.). Mapping of the different genres and forms will be based on the

close readings made during the semester. This class focuses on the methodological relevance of digital literary studies for the research and teaching of electronic literature.

By the time this 15-week seminar comes to a close, its multi-layered argument should have become clear. As an introduction to electronic literature and digital poetry, 'Kinetic Poetry' will have acquainted students with a significant canon of artistic and critical works in this field. As a critical reflection on the materiality of digital forms, it will have demonstrated the relevance of the technical and aesthetic use of computer codes and forms as tools for investigating media, language, writing, and reading. As a specific research and teaching practice, 'Kinetic Poetry' will have made a point about the undeniable relevance of literature in the Humanities curriculum of the digital age. As a sustained engagement with the poetics of the digital signifier, 'Kinetic Poetry' will have opened new perspectives on digital objects. It will also have raised our awareness about software as cultural form and discursive practice. The critical methods and practices tested here, in the open-ended form of the seminar, should also have provided the sound knowledge required for further research.
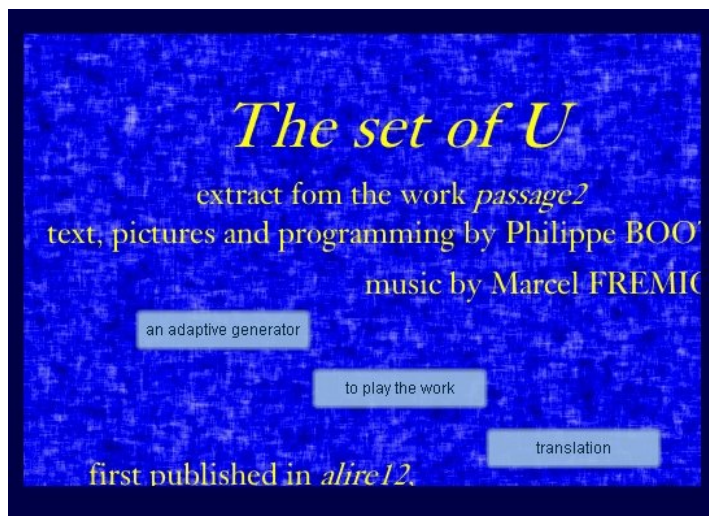
FIGURE 35. Philippe Bootz_*The set of U* (2004) [screen capture].

2.8. Attendance, Assessment, and Assignments

Weekly attendance and participation is expected and assumed. According to the Assessment
regulations, students with less than 75% attendance will fail the course. Continuous assessment
will be based on the following assignments: (1) one presentation of a theoretical/critical reading
[20%]; (2) weekly entries for the seminar blog [20%]; (3) seminar paper [c. 2000-2500 words,
40%]; (4) storyboard for a kinetic poem [20%].

2.8.1. Class Presentation (20%)

Every member of the seminar is responsible for presenting an article or book chapter. A
presentation should consist of: (a) a summary of the argument; (b) an evaluation of the
significance and uses of the argument in relation to other critical work and to digital poems
previously discussed and analysed; and (c) a series of questions for initiating discussion.
Presentations will be primarily oral, but students may use handouts, digital slides, or other
supplementary material. Presentations should not be longer than 15-20 minutes.

2.8.2. Blog Writing (20%)

Every member of the seminar is required to write one weekly entry for the seminar blog –
DigLitWebLog (http://diglitweblog.blogspot.com/) – either on a topic addressed in the previous
seminar, or on a kinetic poem (c. 150-250 words). Blog entries should be published within 5
days after the class.

2.8.3. Seminar paper (40%)

Students are required to produce a piece of scholarly writing on one of the topics listed below.[35]

Length should be approximately 2000-2500 words. All essays should link theory to a close

reading of one poem or group of poems.

TOPIC 1

When a programmer/writer creates an executable file, the process reengineers the

writer's perceptual and cognitive system as she works with the medium's possibilities.

Alternating between writing modules and testing them to ensure they run correctly, the

programmer experiences creation as an active dynamic in which the computer plays a

central role. (Hayles 2008: 56)

Explain N. Katherine Hayle's concept of 'intermediating dynamics' between humans and

machines.

TOPIC 2

My argument, then, is this: computers are unique in the history of writing technologies in

that they present a pre-meditated material environment built and engineered to propagate

an illusion of immateriality; the digital nature of computational representation is precisely

what enables this illusion – or else call it a working model – of immaterial behavior.

(Kirschenbaum 2008: 135)

Explain Matthew Kirschenbaum's conceptualization of digital materiality.

TOPIC 3

I call "generative literature" a literature where the texts are produced through a computer

by means of a set of formal rules, the use of any kind of algorithm, specific dictionaries

and eventually knowledge representations. That means a literature of which the author

---

[35] NB: In case a student would like to propose a topic of his/her choice, he/she should begin discussing ideas with me as early as possible in the semester.

does not write the final texts but which only works at the level of the high rank

components such as: conceptual models, knowledge rules, dictionary entries and rhetoric

definitions. (Jean-Pierre Balpe, 'Principles and Processes of Generative Literature'; in

dichtung digital, 2005, Issue 1, http://www.brown.edu/Research/dichtung-

digital/2005/1/Balpe/index.htm)

Discuss the function/presence of the author in generative literature.

TOPIC 4

Most critical work in digital literature — whether focused on hypertext or other forms —

proceeds from an implicit model that takes audience experience to be primary. The main

components of the model are the surface of the work (what the audience sees) and the

space of possible interactions with the work (ways the audience may change the state of

the work, and how the work may respond).

Wardrip-Fruin, Noah (2008). 'Reading Digital Literature: Surface, Data, Interaction, and

Expressive Processing'.

Discuss Noah Wardrip-Fruin's models for reading digital literature.

TOPIC 5

Write an analysis of one kinetic poem (one that has not been studied in class). This

analysis should integrate relevant critical readings for the work in question.

2.8.4. Storyboard for a Kinetic Text (20%)

Students are required do write/draw a storyboard for a short 'kinetic text', and a 300-word

synopsis. The storyboard should detail all animation sequences, including the main frames for

each sequence. Time and resources permitting, these storyboards will be turned into

ActionScript animations.

EPILOGUE

Meaning as an Emergent Phenomenon

The purpose of this epilogue is to demonstrate the theoretical relevance of kinetic poetry for studying the interaction between language, digital media, and signifying processes. This final essay corresponds to week 14 of the seminar, and it brings together, in one single argument, several topics explored during the previous weeks. As is made clear in the seminar abstracts for the weeks 7 through 13, this syllabus explores the idea that many writers have been using digital poetry to investigate meaning production as a function of formal operations upon linguistic, computational, and other cultural codes. Interactive kinaesthesia, the main algorithmic trope examined here, enacts the temporality of writing and the temporality of reading in medium-specific forms and genres that call attention to the way their machine and human processing happens. The cinematic enactment of time in the combined motions of computer-executed code and human-activated display is observed in digital poems by Jim Andrews. The selected cybertexts are analysed as models for semiotic and interpretive processes.

'Codework' is a generic term used to describe works of electronic literature that make expressive use of computer code or pseudocode. This term is particularly apt to describe the creations of those artists who are also the programmers of their own work, exploring the potential of programming languages at the level of code. Jim Andrews is one of those artists. Several of his works are aesthetic and mathematical investigations of the materiality of digital textuality as both a representation and a performance of reading. His texts generally integrate computer game functions and structures, such as iterations at increasing levels of complexity or difficulty. Readers are required to interact with the textual field by means of buttons that execute a number of operations upon sets of objects and of events.

Two formal features distinguish his works. On the one hand, they show a minimalist and a serialist approach to poetic form: each work is composed by a relatively small number of constituent elements which are then subject to a large number of permutations. The generative

properties of natural language are thus mirrored in the generative properties of computer language. Digital textuality is investigated as an extension of the material space of phonological and grammatological difference, i. e, as writing and reading space. On the other hand, most of his works combine deterministic with randomized patterns: they have several pre-programmed sequences of events, each of which has to be activated by the reader/player, but the actual patterns displayed on the screen are always a random instantiation of a large number of potential occurrences. Minimalism, serialism, determinism, and randomness are connected by readers' interventions in those sign fields.

This programmed interaction is often used to make the reader perform the meaning of the text. As happens in many visual and concrete texts, the operation of reading the text becomes part of the referential meaning of the text. By creating a feedback loop between interpretation and material form, such works direct the reader's attention to the perceptual and conceptual processing of the signifiers themselves. Reading is materialized on the surface of the text because the text makes the reader perform what it says. As textual reference points to the action of constructing meaning, the very act of reading stands out as the major signifier in the work's field of signs. Readers see themselves performing the act of reading and that particular performance becomes the meaning of the text. Their semiotic intervention at the textual level is also a simulation of the interpretative re-production of the textual field. Meaning can only be re-produced as the effect of a specific reading motion or act. Programmed interaction in Jim Andrews's computer poems enacts the drama of reading as a turbulent field of motions from sign to sign, and from sign to self.

Enigma n (1998, 2004, http://www.vispo.com/animisms/enigman/meaning.html) and *Arteroids* (2001-2006, http://vispo.com/arteroids/onarteroids.htm) are two works in which we can see the performance of reading being enacted by the text. As in other works by Jim Andrews, reader's interventions co-determine certain aspects of the display, including readability, sequentiality, and spatiality of textual fragments. Andrews is particularly interested in exploring the programming features of digital media in order to make the playfulness of art and poetry into a formal element of the works themselves. He uses certain conventions and tools of computer

games as rhetorical devices in his digital multimedia works. Digital textuality allows him to edit

sound, image, motion, and writing in both patterned and randomized permutations. Reading

thus becomes a self-conscious play with the ensemble of material and formal elements of a

given work. Interactivity is programmed in ways that enhance self-consciousness of reading

acts as part of the signifying field. The reader becomes entangled in the sign field that s/he is

trying to process.
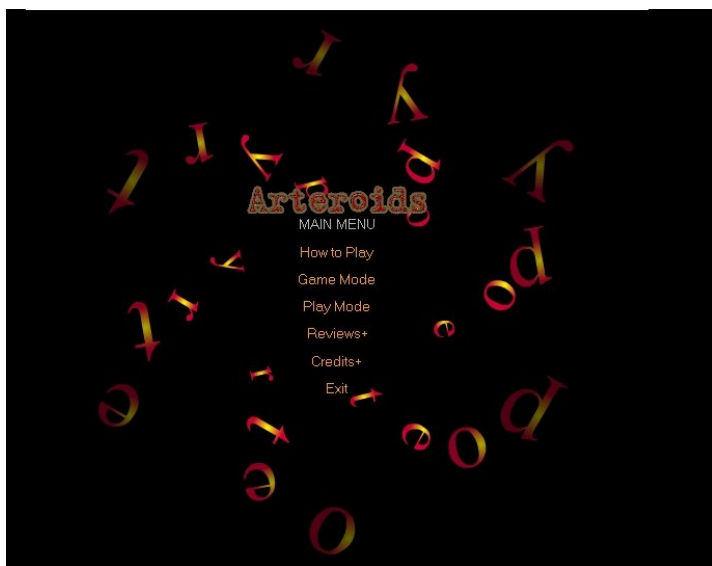
FIGURE 36. Jim Andrews, *arteroids* (version 3.11, 2006): main menu [screen capture].

Arteroids, a 'visualkineticaudio text', is a formal parody of *Asteroids*, an early computer

videogame, originally designed for the Atari computer in 1979.[36] Like software applications and

computer games, *Arteroids* now exists in three major versions, developed over a period of five

years: version 1.0 (2001-2002), version 2.0 (2003-2004), and version 3.0 (2005-2006).[37]

Changes and additions to the original code have extended its interactive capabilities. One of the

functionalities imagined by Andrews (but still unrealized in the work's latest version, 3.11) is the

possibility of saving and e-mailing textual sequences generated by readers. Andrews has

---

[36] From the *Wikipedia* entry: "*Asteroids* is a video arcade game released in 1979 by Atari Inc. It was one of the most popular and influential games of the Golden Age of Arcade Games. *Asteroids* uses vector graphics and a two-dimensional view that wraps around in both screen axes. The player controls a spaceship in an asteroid field which is periodically traversed by flying saucers. The object of the game is to shoot and destroy asteroids and saucers while not colliding with either, or being hit by the saucers' counter-fire." http://en.wikipedia.org/wiki/Asteroids_(video_game) (accessed 12 Nov 2009).
[37] The first version is divided into two cantos: 'Canto 1: Streaming (Texts)' and 'Canto 2: Writing (Arteroids)' [controls: Space Key-bomb mot; S-forward, A-backward, K-left, L-right]. Later this binary structure is redefined as 'play mode' and 'game mode', a distinction that Andrews elaborates in terms of the difference between art and game.

described this work as "a literary computer game for the web" (version 1.0, 2001) and "a literary

shoot-em-up computer game — the battle of poetry against itself and the forces of dullness"

(version 2.5, 2003).

The poem is structured in two modes: the "game mode" and the "play mode". In the game mode

the player-reader has no control over the four parameters (velocity, density, friction, and

mortality) that define the behaviour of his/her entity. In play-mode, those four parameters as well

as the textual fragments that the player-reader has to shoot at may be adjusted according to

predefined controls. The number of permutations is also different: in the game mode, the game-

poem has 216 combinations (levels), while in the play mode it has 3360 levels [12*20*14=3360].

The role of the original shooting spaceship is played by the word 'desire' in play mode (as well

as by other words introduced by the player) and by the word 'poetry' in game mode.[38] Textual

asteroids are organized into four sets of lines (inner green, outer green, inner blue, outer blue).

Players can define both textual asteroids and shooting word by overwriting the default elements.
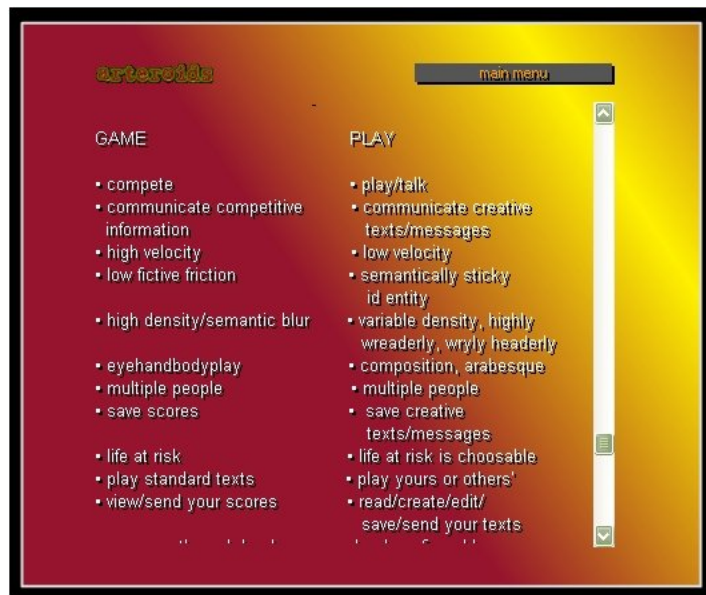
FIGURE 37. Jim Andrews, *arteroids* (version 3.11, 2006): game mode versus play mode [screen captures].

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[38] This distinction also comes from computer games: in the *play mode* players can configure the spatial architecture, characters etc, customising certain display features of the graphical interface, while in the *game mode* they use the predefined controls to interact with the programmed objects, trying to get to the end of each stage and move on to the next level.

Andrews uses the semiotics of the computer game as a way of probing into the dynamics of language and signification in general. He describes *Arteroids* in this way: '*Arteroids* is about cracking language open'. This description captures the dynamics of his work as both a self-reflective engagement with the digital materiality and an exploration of the combinatorial properties of verbal language. Digital code makes it possible for all sorts of objects to be treated as 'material objects of information that have editable properties' (not just alphabetic writing, but sound, image, motion, and any other spatial or temporal material component).The editability of digital entities is foregrounded in the lettristic explosions of words and phrases into visual constellations that are accompanied by sound explosions.[39] Language is decomposed into its graphemic and phonemic elements. As minimal constituent elements of a signifying process that translates their system of material differences into a syntactic and semantic layer, they also resemble the operations that translate computer code into readable and interpretable forms.

Shootings and collisions point to the dynamics of creation and destruction of meaning as a function of semiosis, that is, the process of substituting signs for other signs. While this dynamics is inherent in the way language works, we are often unaware of such inner workings as the formal and material source for the possibility of meaning, and thus for the creation and redefinition of the human. Naturalization of certain discursive structures prevents us from being aware of the extraordinary fluidity and power of language as an infinitely renewable source for the transformation of meaning. In its disarming simplicity, *Arteroids* offers us a digital simulation of those deep furnaces of language.

---

[39] Jim Andrews on the editing and organization of sound in *arteroids 3.11:* 'The sounds of exploding arteroidal texts are male, female, young and old, human and semi-human, semi-human and animal. Every sound in Arteroids is my voice and nothing but--with a little help from Sound Forge. The sounds range from cartoonish to adult, sound poetry to computer game, Kurt Schwitters to Mel Blanc and Gregory Whitehead in their associations.
When the player executes a text, one of 21 sounds is selected. A random pitch-change is then made to the sound anywhere between ten semitones above the original pitch and 20 semitones below the original pitch. It is the pitch-change that gives Arteroids its sonic range into the animal and semi-human, the female, and the child, primarily. Pitch-change also provides greater variety with 21 petit death sounds, so that the sound is suitably rich in variety.
As you can hear in the MP3's linked to the Arteroids home page, sound recordings I made of games I played, the audio, when the game is played well, is listenable in its own right as a kind of sound poetry punctuated into different 'verses' between the explosion of poetry.
Part of the idea of the audio is to create a high energy sound track for a game, and make it ultra human, or hyperhuman, as the case may be. Really alive, in any case, and lively.'
http://vispo.com/arteroids/onarteroids.htm (20 Feb 2010).
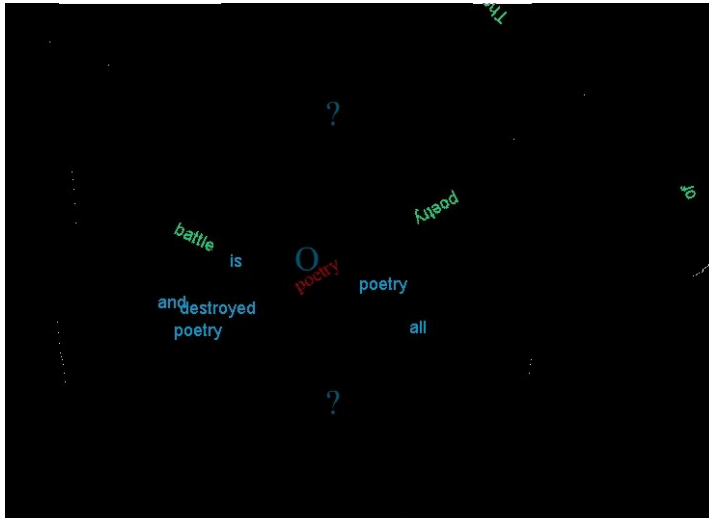
F<small>IGURE</small> 38. Jim Andrews, *arteroids* (version 3.11, 2006): game mode [screen captures].

The battle of poetry against itself is a suggestive image of our linguistic predicament as symbolic creatures who have to constantly struggle and fight with language in order to produce ourselves as subjects. By making words shoot at words on the computer monitor, Andrews has turned certain features of digital textuality into literary and artistic tropes. The reader is required to perform retroactivity as part of the work's content and not just as a tool for achieving a set of goals or for producing a series of effects. The tension between the immersive and the interactive is formally enacted at each level of the game by the tension between readability and the fragmentation of textual elements into their sound and graphic particles.

The player experiences the correlation between the inner motions of language in its formal workings and the outer motions of reading as yet another layer in the constitution of the textual field. While the player can abandon him/herself to the pleasures of the game, s/he can also become aware of playfulness itself as the source for new forms and new perceptions. The text becomes a series of quantum states that respond to the reader's interventions in its dynamic field. In Andrews's programmed poems reader's interventions take place not just at the level of interpretation. Readers become co-producers of the text's semiotic texture whose particular formal and material instantiation is not entirely constituted before readers intervene. Meaning is a function of the potentiality of semiotic structures in their response to actual haptic actions by the reader-player. Random fluctuations allow for the emergence of new kinaesthetic patterns.
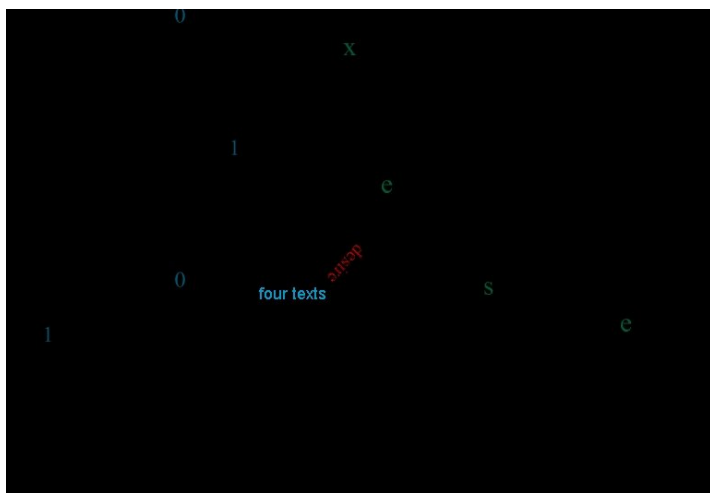
FIGURE 39. Jim Andrews, *arteroids* (version 3.11, 2006): play mode [screen captures].

Another work by Andrews, *Enigma N* (1998), is a magnificent simulation of the autopoietic features of the textual field. Instability of meaning arising from the textual instability of signifiers is the specific theme of *Enigma n*. In this poem, readers can perform eight different iterations on seven letters ('Prod', 'Stir', 'Tame', 'Spell', '0/1', 'Colour', 'Discombobulate', and 'Speed'). The letters (which are the same of the poem title, 'enigma n') move according to different trajectories and they can be stopped at any time, forming multiple and unpredictable patterns. When stopped they sometimes form the word 'meaning', in various configurations, or just a constellation of its letters. The order of interactions of the letters can vary, changing both the sequence of kinetic events and the sequence of display screens resulting from the readers' interventions. Variations affect several textual properties, including speed, trajectory, size, colour, and 3d effects. The sequence of those changes can, in turn, be recombined in multiple ways, raising the number of occurrences of textual patterns.

This work may be seen as a cybertext, in Espen Aarseth's definition (1997). To the extent that this text is also textual engine, i.e., an algorithm for generating semi-determined textual objects, the outcome partly depends on a non-trivial textual intervention by the reader. This type of textual action combines a hermeneutical (interpretive) and a semiotic dimension (sign manipulation). In effect, the act of reading is the very process of engaging in the textual game as much as it is any particular textual state produced by that game. What does it mean to read a

work like this? It means that the reader, interacting with a pre-programmed field of textual

possibilities, generates part of the textual forms that he/she sees and reads. The reader

actualizes a certain number of potential configurations. The play of signifiers in the process of

differentiation that generates meaning takes place at both material and interpretational levels,

suggesting the correlative materiality of semantic and graphical form. In programmed works, the

representation or display of writing is dependent on the lines of code that determine movement

and textual changes. It is also dependent on the operations of reading as semiotic recoding

rather than just hermeneutical decoding.

FIGURE 40. Jim Andrews, *Enigma n* (1998): 'Enigma n start'. [screen capture].
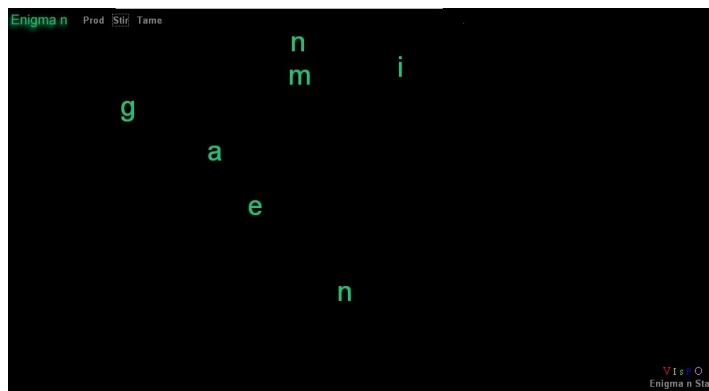
FIGURE 42. Jim Andrews, *Enigma n* (1998): 'stir' [screen capture].

Enigma n is not fully produced without the reader's intervention in its field of signifiers. This text

asks readers to produce certain instances of itself. By using the text's commands readers

generate a number of unique textual occurrences. Although these are ultimately performed by

the underlying code, readers' interventions randomly select certain textual constellations. And it is these constellations that constitute their text, a specific enactment of many potential formal instantiations. The code is generating the text for the reader but, at the same time, the reader is asked to generate certain textual occurrences by intervening in the stop/motion procedure. The textual forms of 'Enigma n' remain partially undetermined before readers' interventions. Once an intervention has occurred, the text reveals its dynamical co-dependence on a particular intervention. The source code [of which a sample is given below, see 'Appendix', pp. 91-103] is the meta-text that generates the display text which is further subject to readers' textual interventions to realize the potential textual semiotic coding contained in its meta-textual possibilities.
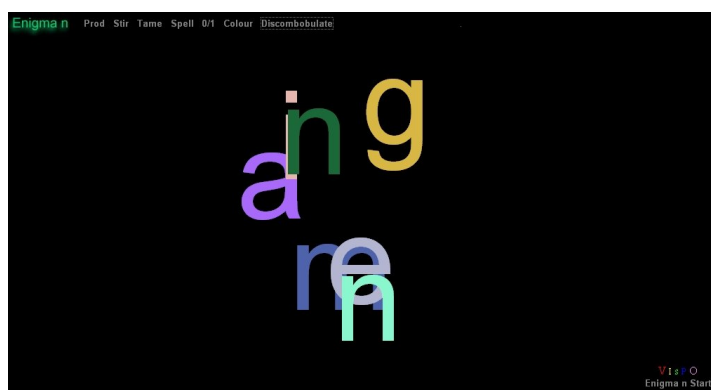
FIGURE 43. Jim Andrews, *Enigma n* (1998): 'discombobulate' [screen capture].

Jim Andrews's animated ideogram wants the reader to perform the enigma of meaning. Twentieth-century linguistics and philosophy of language have unveiled some of the properties that make it possible for language to mean. Saussure has described language as a system of differences. Signifiers cut up conceptual and referential space as a function of their phonological differences. Relations between signifier and signified, as well as relations between signifier and referent, are stabilized by the way social conventions and discourse formations enact the language contract. However such relations remain open to the turbulent generative processes that constitute language at the phonological, syntactic, and semantic levels, and which allow for the continuing formation and transformation of self and society within language. Even if we subscribe to certain universal evolutionary properties of language structures and thought

processes, such as mental categories and language structures, the possibilities for recombination and proliferation of meaning seem endless. Culture and ideology, for example, operate by stabilizing certain modes of reference and meaning, and by naturalizing certain kinds of privileged associations. For poststructuralism, this instability of connections between signs and meaning is seen as inherent to signification, since meaning stems from the very motion in the chain of signifiers. The ability to reassociate and resignify is at the core of the way human beings use the engine of language which constantly converts literal into metaphorical, and vice versa.

Cinema, phonography, and typewriting separated optical, acoustic, and written data flows. According to Friedrich A. Kittler, the media ecology of the early twentieth century disrupted any straightforward association between signifier and signified as function of the 'inner self', the 'soul' or the 'individual'. These 'were only the effects of an illusion, neutralized through the hallucination of reading and widespread literacy' (151) which were maintained by the particular literary and educational practices of the nineteenth century.[40] The standardized letters of the typewriter severed the connection between paper and body, and typewriting became part of the technologizing of information: 'From the beginning, the letters and their arrangement were standardized in the shapes of type and keyboard, while media were engulfed by the noise of the real – the fuzziness of cinematic pictures, the hissing of tape recordings' (Kittler: 14). Jim Andrews's spiralling letters seem to externalize the symbolic grid of writing as a self-recursive stream of signs ready for human and machine processing. Their motion highlights the materiality and differentiality of linguistic and written signs, while the interface involves the human reader in the stochastic disorder of letters.

In the semiotic and hermeneutic exercise proposed by Jim Andrews, to make sense is both to stop and to restart the motion of letters. This dialectics produces 'meaning', that is, the graphemic and phonological string we recognize as the word 'meaning'. But it can also result in

---

[40] Meaning as a 'reading hallucination' depended on the particular performance required of print before the invention of optical and acoustic media: 'As long as the book was responsible for all serial data flows, words quivered with sensuality and memory. It was the passion of all reading to hallucinate meaning between lines and letters: the visible and audible world of Romantic poetics.' Friedrich A. Kittler, *Gramophone, Film, Typewriter*, Transl. Geoffrey Winthrop-Young and Michael Wutz, Stanford, CA: Stanford University Press, 1999, p.10.

various sequences and random combinations of the letters themselves – not just in the visual patterns they form but in their graphic materiality (size, colour, speed, trajectory, etc). Paradoxically, to produce 'meaning' seems be the very act of stopping the motion of meaning which is the defining characteristic of meaning. Making sense, as a frozen material instantiation of form on computer screen, is suggested as both a redundancy and a tautology: that is, it is played out as the coincidence of the word 'meaning' with itself. On the other hand the animation frames where letters take their proper orthographic and orthophonic order are challenged by those frames where their random arrangement suggests endless possibilities in their chaotic and turbulent motions. Thus, this may be the answer the poem offers to its own enigma 'n': meaning may be defined by its exponential proliferation to the potency n. It is always materially enacted through the motion of an unstoppable signifying textual production and reception process. This process, while it subjects us to its own pre-constituted relations of meaning production and consumption, it also gives us the chance to step into the gap between signifier and signified, in order to find and produce other meanings. In other words: multiple meanings rather than any singular meaning.

Enigma N (1998, 2004), *Arteroids* (2001-2006) and other works by Jim Andrews have turned certain features of computer programs into new kinds of literary tropes. Poetry is enacted and embodied in his digital texts as the battle of language against itself, and the battle of self against its language. Retroactions between self and language are emulated as retroactions between reader and machine. The loop in the code becomes a self-referential device for playing out the game of meaning. Readers/players experience the co-dependence between a given field of signs and their own interventions in that field. As he/she responds to the programmed iterations, he/she also modifies the textual and visual patterns available for reading. From those unanticipated and semi-determined patterns meaning emerges. As an emergent phenomenon, meaning is produced by the differential relations within the work's syntactic and semantic structures, and by the retroaction between human subject and computer code through the computerized algorithms. Jim Andrews's interactive kinetic poems require readers to materially perform the patterns and motions of meaning. Readers become aware of the ensemble made by signs and the human-machine processing of those signs.

Appendix

HTML and JavaScript Code for *Enigma n* [41]

© Jim Andrews, 1998, revised 2004.

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<!--
Enigma n
Jim Andrews (jim@vispo.com), 1998

Welcome to the 'neath text of Enigma n. Enigma n is a
philosophical poetry toy for poets and philosophers
from the age of four up.

If you want to link to Enigma n from your site, please link to
http://vispo.com/animisms/enigman

Revised in 2004, based on Marko Niemi's upgrade of the code
so that it now runs on most PC and Mac browsers. The original
version was such that meaning.html did some browser sniffing
and branched either to enigman.htm, which was for Netscape 4, or
branched to enigmanie.htm, which was for IE 4. Marko's code
does not require two different versions, however, and runs on
most Mac and PC browsers. Thanks very much, Marko!
-->

<HTML>
<HEAD>
<TITLE>Enigma n -- Jim Andrews</TITLE>
<META http-equiv=Content-Type content="text/html; charset=iso-8859-1">
<STYLE type=text/css>
.j {
        FONT-WEIGHT: normal; FONT-SIZE: 40px; Z-INDEX: 4; COLOR: #14c878; FONT-
FAMILY: "Arial"; POSITION: absolute; TEXT-ALIGN: left; TEXT-DECORATION: none
}
.k {
        FONT-WEIGHT: bold; FONT-SIZE: 10pt; Z-INDEX: 300; VISIBILITY: visible; COLOR:
gray; FONT-FAMILY: Arial; POSITION: relative; TEXT-DECORATION: none
}
.k:visited {
        COLOR: gray
}
.k:hover {
        COLOR: #14c878
}
.k:active {
        COLOR: #14c878}
.lj {
        TEXT-DECORATION: none
}
.bt {
        FONT-WEIGHT: bold; FONT-SIZE: 10pt; Z-INDEX: 300; VISIBILITY: visible; COLOR:
gray; FONT-FAMILY: Arial; TEXT-DECORATION: none
}
```

---

[41] Interlinear explanatory notes and comments by the author have been highlighted in red.

```
.bt:visited {
          COLOR: gray
}
.bt:hover {
          COLOR: #14c878
}
</STYLE>

<SCRIPT language=JavaScript>
<!--

function SymError()
{
  return true;
}

window.onerror = SymError;

//-->
</SCRIPT>

<SCRIPT language=JavaScript><!--
window.status="by Jim Andrews, 1998";
var doit  = false;                      // When doit=false, enigma n stops.
var speed = 60;                                 // The delay speed in milliseconds between
rethinkings.
var colorletters = false;       // Whether or not letters will be colored on rethink.

// This variable ranges 0-2. 0 is normal, 1 means the letters grow and shrink
// at the same rate, and 2 means the letters grow and shrink at different rates.
var combobulate = 0;
var cchange = 0;                 // Used to cycle through color changes.
var moving = false;              // Indicates whether the letters are moving or not.

// The following variables are used to maintain state so that the menu options
// appear at the right times.
var Prodc   = false;
var Stirc   = false;
var Tamec   = false;
var Spellc  = false;
var Speedc  = false;
var Colourc = false;
var Discombobulatec = false;
var RunAwayc = false;
var discounter = 0;

letters  = new Array("m","e","a","n","i","n2","g");
jfontinc = new Array();
rd = new Array();
rdinc = new Array();
gd = new Array();
gdinc = new Array();
bd = new Array();
bdinc = new Array();
theta = new Array();
thetainc = new Array();
radius = new Array();
cx = new Array();
cy = new Array();
clockwise = new Array();
```

```
// This is called in the Body tag.

function jOnLoad() {
        initCustomStyles();
        centerword();
        moveIt();
}


function initCustomStyles() {
        for (i=0; i<letters.length; i++) {
                jfontinc[i] = 1;         /* The increment by which font size changes upon
rethink if discombobulated. */
                rd[i] = 255;                    /* The red dimension of a letter's color */
                rdinc[i] = 1;                   /* The increment by which rd is
increased/decreased on rethink */
                gd[i] = 255;                    /* The green dimension of a letter's color. */
                gdinc[i] = 1;                   /* The increment by which gd is
increased/decreased on rethink */
                bd[i] = 255;                    /* The blue dimension of a letter's color. */
                bdinc[i] = 1;                   /* The increment by which bd is
increased/decreased on rethink */
                theta[i] = 0.1234;      /* radian angle between (left,top)-(cx,cy) and
horizontal */
                thetainc[i] = 0.0524; /* radian increment theta is increased/decreased by
each rethink. Speed. */
                radius[i] = 100.7897;/* radius between (left,top) and (cx,cy) */
                cx[i] = 8.3456;                 /* x component of centre of rotation */
                cy[i] = 45.9876;        /* y component of centre of rotation */
                clockwise[i] = 1;       /* direction of rotation */
        }
}


//+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++++++++++++
// These functions are the color engine used to change the colors dynamically. Thanks
// to Kouichirou@Eto.com for his fade script, which I read and from which I pulled
// makearray(), hex(), and the code for the hex array.


// Called immediately below once only to create the color array.

function makearray(n) {
        this.length = n;
        for(var i = 1; i <= n; i++)
                this[i] = 0;
        return this;
}


// This is run when Enigma n loads to initialize the color array. This sort of stuff is
// necessary because the Math library contains no hex arithmetic/conversion
// routines in v4 browsers.

hexa = new makearray(16);
for(var i = 0; i < 10; i++)
        hexa[i] = i;
```

```
hexa[10]="a"; hexa[11]="b"; hexa[12]="c";
hexa[13]="d"; hexa[14]="e"; hexa[15]="f";
```

```
// This concatenates the two hex digits, ie converts a number in 0-255 to base 16 (as a string).

function hex(i) {
          return "" + hexa[Math.floor(i/16)] + hexa[i%16];
}
```

```
// Rather than changing the red, green, and blue channels of letters all at once,
// this code only changes one of the channels, so the color change is slower.

function colorlet(j) {
          //letter.rd= (parseInt(letter.rd) +parseInt(letter.rdinc))%256;
          //letter.gd= (parseInt(letter.gd) +parseInt(letter.gdinc))%256;
          //letter.bd= (parseInt(letter.bd) +parseInt(letter.bdinc))%256;
          if (cchange == 0)
                    rd[j]= (1 + rd[j])%256;
          else if (cchange ==1)
                    gd[j]= (1 + gd[j])%256;
          else
                    bd[j]= (1 + bd[j])%256;

          cchange= (cchange +1)%3;
          var hr = hex(rd[j]);
          var hg = hex(gd[j]);
          var hb = hex(bd[j]);
          document.getElementById(letters[j]).style.color = "#"+hr+hg+hb;
}
```

```
// This assigns each letter a random color.

function randomcolors() {
          for (i=0; i<letters.length; i++) {
                    rd[i]=Math.round(Math.random()*255);
                    gd[i]=Math.round(Math.random()*255);
                    bd[i]=Math.round(Math.random()*255);
          }
}
```

```
//++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++++++++++
```

```
// hash to an integer between -4 and 4

function randomfontinc() {
          return Math.floor(8.99*Math.random())-4;
}
```

```
// Called by discombobulate() to determine the amount of size change in letters.
// c==0 results in the font size changing by 2
// c==1 results in a random change between -4 and 4
// c==2 results in no change.

function bobulate(c) {
```

```
                    if (c==0)
                            return 2;
                    else if (c==1)
                            return randomfontinc();
                    else
                            return 0;
    }


    // Called when "Discombobulate" is clicked. There are three discombobulate modes:
    // when combobulate==0, no font size change occurs;
    // when combobulate==1, the font size changes the same for all letters;
    // when combobulate==2, the letters change in size differently.

    function discombobulate() {
                    //These first 3 lines just make the "Speed" button visible.
                    discounter += 1;
                    if (discounter > 2)
                            document.getElementById("Speedo").style.visibility="visible";

                    for (i=0; i<letters.length; i++)
                            jfontinc[i]= bobulate(combobulate);

                    if (combobulate != 0) {
                            for (i=0; i<letters.length; i++)
                                    document.getElementById(letters[i]).style.fontSize=40;
                    }
                    combobulate=(combobulate +1)%3;
    }


    // var a and function Work are for the drop down menu that controls the speed of meaning.

    var a = 0;
    function Work(form, a) {
                    if (a.options[a.selectedIndex].value)
                            speed = a.options[a.selectedIndex].value;
    }


    // centers the word 'meaning' on the page. Called in the Body
    // tag and when "Spell" is clicked.

    function centerword() {
                    w=document.body.clientWidth/2;
                    h=document.body.clientHeight/2;
                    letterToScreen("m", w - 131, h);
                    letterToScreen("e", w - 74, h);
                    letterToScreen("a", w - 31, h);
                    letterToScreen("n", w + 14, h);
                    letterToScreen("i", w + 59, h);
                    letterToScreen("n2", w + 86, h);
                    letterToScreen("g", w + 131, h);
    }


    function letterToScreen(letter, x, y) {
                    document.getElementById(letter).style.left= x;
                    document.getElementById(letter).style.top=y;
    }
```

```
// Toggles meaning motion on and off. Called when "0/1" is clicked.

function stopstart() {
          if (!doit) {
                    doit=true;
                    document.getElementById("Co").style.visibility="visible";
                    moving=true;
          }
          else {
                    doit=false;
                    moving=false;
          }
}


// Starts visual meaning in motion (always on in the mind).
// "Prod" calls start(3)
// "Stir" calls start(1)
// "Tame" calls start(2)

function start(geometry) {
          // When doit=true, meaning moves.
          doit = true;
          if (Prodc && Stirc && Tamec) {
                    document.getElementById("Spell").style.visibility="visible";
          }
          if (Spellc && moving) {
                    document.getElementById("Swat").style.visibility="visible";
          }
          //the letters are initialized each time meaning movement is rethunk.

          for (i=0; i<letters.length; i++)
                    jinitialize(document.getElementById(letters[i]), i, geometry);
}


// Called by start(). This function initializes a letter's style properties.
// It initializes the letter's center of rotation (cx,cy), the letter's radius of rotation,
// the angle between the horizontal and the letter (theta, measured in radians), and the speed
// of rotation (thetainc in radians). Bone up on your parameterized
// analytic geometry to get this one.
// When geometry=1, we are stirring meaning. The letters have a common center.
// When geometry=2, we are taming meaning. The letters have a common point of intersection.
// When geometry=3, we are prodding meaning. The letters have no relation to one another.

function jinitialize(letter, j, geometry) {
          if (geometry == 1) {
                    cx[j]= Math.round(document.body.clientWidth/2 -100);
                    cy[j]= Math.round(document.body.clientHeight/2 -100);
          }
          else if (geometry== 2) {
                    cx[j]=Math.round((document.body.clientWidth/2 +
parseInt(letter.style.left))/2) -80;
                    cy[j]=Math.round((document.body.clientHeight/2 +
parseInt(letter.style.top))/2) -80;
          }
          else {
                    xdodad=Math.random();
```

```
                        ydodad=Math.random();
                        if (xdodad < 0.5)
                                        xfactor= -1;
                        else
                                        xfactor= 1;

                        if (ydodad < 0.5)
                                        yfactor= -1;
                        else
                                        yfactor =1;

                        cx[j]= Math.round(parseInt(letter.style.left) + (xfactor * Math.random() *
120));
                        cy[j]= Math.round(parseInt(letter.style.top) + (yfactor * Math.random() *
120));
                }
            temp= Math.sqrt(Math.pow(parseInt(letter.style.left) - parseInt(cx[j]),2) +
Math.pow(parseInt(letter.style.top) - parseInt(cy[j]),2));
            radius[j]= temp;
            if (temp != 0)
                        theta[j]= Math.asin((parseInt(letter.style.left) - parseInt(cx[j]))/temp);
            else
                        theta[j]=0;

            Randomrotationthingy=Math.random();
            if ((Randomrotationthingy <= 0.5))
                        clockwise[j]=1;
            else
                        clockwise[j]=-1;

            ran=Math.random() + 0.9;
            //the theta increment is between .1571 radians and .3316 radians
            thetainc[j]= parseInt(clockwise[j]) * 10*ran*Math.PI/180;
}
```

// Called when "Spell" is clicked. Stops meaning's visual motion and rethinks meaning.

```
function behave() {
            doit=false;
            centerword();
}
```

// Called when "Color" is clicked. Toggles whether letters change color on rethink.

```
function colorl() {
            colorletters=true;
            document.getElementById("Dis").style.visibility="visible";
            randomcolors();
}
```

// moveIt() is always running when Enigma n is loaded because of the recursive
// nature of the call to setTimeout. Called by jOnLoad, which is called in the Body tag.

```
function moveIt() {
            for (i=0; i<letters.length; i++)
                        movealetter(document.getElementById(letters[i]).style, i);
```

```
            if (colorletters) {
                    for (i=0; i<letters.length; i++)
                            colorlet(i);
            }
            setTimeout('moveIt()', speed);
}


// Called by moveIt(). This function moves letters along a circular path.

function movealetter(letter, j) {
            if (doit) {
                    //compute new theta
                    theta[j] += parseFloat(thetainc[j]);

                    //computer the letter's new x component
                    letter.left=Math.round(radius[j] * Math.sin(theta[j]) + cx[j]);

                    //compute the letter's new y component
                    letter.top=Math.round(radius[j] * Math.cos(theta[j]) + cy[j]);

                    if (combobulate!=0) {
                            //letters get no larger than 200pt
                            if (parseInt(letter.fontSize) > 200)
                                    jfontinc[j] = (-1)*jfontinc[j];
                            else if (parseInt(letter.fontSize) < 3)
                                    jfontinc[j] = (-1)*jfontinc[j];

                            letter.fontSize = jfontinc[j] + parseInt(letter.fontSize);
                            letter.zIndex=parseInt(letter.fontSize);
                    }

            }
}


//Used in the function below only to alternate letter groups.

jtimer=0;

// Function Follow has been disabled. Detracted from focus.
// This function controls behavior on mouse moves.
// When you move the mouse, notice that the letters seem
// to separate into two distinct groups.
// When 0<=jtimer<200, the two groups are 'name' and 'gin';
// when 200<=jtimer<400, the two groups are 'image' and 'nn';
// when 400<=jtimer<601, the two groups are 'game' and 'nin'.
// When the mouse moves, the x or y component of the center of
// each letter (cx or cy) moves closer to the mouse.
// The basic formula (algebra added) is cx=cx+(mouseX-cx)/s
// and for y, it's cy=cy+(mouseY-cy)/s
// where s is an integer. The bigger s is, the slower the motion.
// This function is a late addition to Enigma n. I added it
// to increase interactivity and also introduce more riddle.
/*
function Follow(Mouse) {
            Mouse = window.event;
            MousieX= parseInt(Mouse.clientX);
            MousieY= parseInt(Mouse.clientY);
            if (jtimer < 200) {
```

```
                                    e.style.cx= Math.round(0.9*e.style.cx+0.1*MousieX);
                                    m.style.cx= Math.round(0.917*m.style.cx+0.083*MousieX);
                                    aa.style.cx= Math.round(0.929*aa.style.cx+0.071*MousieX);
                                    n.style.cx= Math.round(0.938*n.style.cx+0.063*MousieX);

                                    ii.style.cy= Math.round(0.9*ii.style.cy+0.1*MousieY);
                                    n2.style.cy= Math.round(0.917*n2.style.cy+0.083*MousieY);
                                    g.style.cy= Math.round(0.929*g.style.cy+0.071*MousieY);
                      } else if (jtimer < 400) {
                                    e.style.cx= Math.round(0.9*e.style.cx+0.1*MousieX);
                                    g.style.cx= Math.round(0.917*g.style.cx+0.083*MousieX);
                                    aa.style.cx= Math.round(0.929*aa.style.cx+0.071*MousieX);
                                    m.style.cx= Math.round(0.938*m.style.cx+0.063*MousieX);
                                    ii.style.cx= Math.round(0.948*ii.style.cx+0.055*MousieX);

                                    n2.style.cy= Math.round(0.9*n2.style.cy+0.1*MousieY);
                                    n.style.cy= Math.round(0.929*n.style.cy+0.071*MousieY);
                      } else {
                                    e.style.cy= Math.round(0.9*e.style.cy+0.1*MousieY);
                                    m.style.cy= Math.round(0.917*m.style.cy+0.083*MousieY);
                                    aa.style.cy= Math.round(0.929*aa.style.cy+0.071*MousieY);
                                    g.style.cy= Math.round(0.938*g.style.cy+0.063*MousieY);

                                    n2.style.cx= Math.round(0.9*n2.style.cx+0.1*MousieX);
                                    ii.style.cx= Math.round(0.917*ii.style.cx+0.083*MousieX);
                                    n.style.cx= Math.round(0.929*n.style.cx+0.071*MousieX);
                      }
                      jtimer = (jtimer +1) % 601;
}
 */

function Homemouseover() {
              window.status="Enigma n home.";
}

function Prodmouseover() {
              window.status="Meaning prod. Prod meaning.";
}

function Stirmouseover() {
              window.status="Stir meaning. Meaning stir.";
}

function Tamemouseover() {
              window.status="Repeated tamings collapse meaning within itself.";
}

function Spellmouseover() {
              window.status="Spell meaning out. Spell for literalists.";
}

function StopStartmouseover() {
              window.status="Freeze/thaw meaning.";
}

function Colourmouseover() {
              window.status="Colour meaning.";
}

function Discombobulatemouseover() {
```

```
            window.status="Resize meaning.";
}

function Speedmouseover() {
            window.status="Adjust speed of meaning.";
}

function Aboutmouseover() {
            window.status="About meaning.";
}

function Runawaymouseover() {
            window.status="Dialog with Ted Warnell.";
}
function changespeed() {
            document.getElementById("spdfrm").style.visibility="visible";
}

function disappearform() {
            document.getElementById("spdfrm").style.visibility="hidden";
            document.getElementById("jmail").style.visibility="visible";
            document.getElementById("Run").style.visibility="visible";
}

function lmouseover() {
            //document.getElementById(id).style.color="#14c878";
            window.status="Meaning is yours to discover and create.";
}

function lblur() {
            //document.getElementById(id).style.color='Gray';
            window.status="It is the world that you love, after all, is it not?";
}

function lclick() {
            //document.getElementById(id).style.color="#31c6c6";
            window.status="What is fleeting? What endures?";
}

//-->
</SCRIPT>

<META content="MSHTML 6.00.2900.2523" name=GENERATOR>
</HEAD>
<BODY onresize=moving=false;behave(); text=white aLink=red bgColor=black scroll=no
onload=jOnLoad();>

<TABLE height="100%" cellSpacing=0 cellPadding=0 width="100%" border=0>
  <TBODY>
  <TR>
    <TD vAlign=top colSpan=2>
            <a href="index.htm" onmouseover="Homemouseover();return true;"><IMG
height=26 alt=""
    src="images/Enigman.JPG" width=88 align=middle
    border=0></a>    

            <A onmouseup=lmouseover(); class=k
    onmousedown="javascript:lclick();return true;" id=Prod
    onmouseover="Prodmouseover();return true;"
    onclick=moving=true;Prodc=true;start(3); onmouseout=lblur();
```

href="#">Prod</A></SPAN>

          <A onmouseup=lmouseover(); class=k
onmousedown="javascript:lclick();return true;" id=Stir
onmouseover="Stirmouseover();return true;"
onclick=moving=true;Stirc=true;start(1); onmouseout=lblur();
href="#"><B>Stir</B></A>

          <A onmouseup=lmouseover(); class=k
onmousedown="javascript:lclick();return true;" id=Tame
onmouseover="Tamemouseover();return true;"
onclick=moving=true;Tamec=true;start(2); onmouseout=lblur();
href="#"><B>Tame</B></A>

          <A onmouseup=lmouseover(); class=k onmousedown="lclick();return true;"
id=Spell onmouseover="Spellmouseover();return true;"
style="VISIBILITY: hidden" onclick=moving=false;behave();Spellc=true;
onmouseout=lblur();
href="#"><B>Spell</B></A>

          <A onmouseup=lmouseover(); class=k onmousedown="lclick();return true;"
id=Swat onmouseover="StopStartmouseover();return true;" style="VISIBILITY: hidden"
onclick=stopstart(); onmouseout=lblur();
href="#"><B>0/1</B></A>

          <A onmouseup=lmouseover(); class=k onmousedown="lclick();return true;"
id=Co onmouseover="Colourmouseover();return true;" style="VISIBILITY: hidden"
onclick=colorl(); onmouseout=lblur();
href="#"><B>Colour</B></A>

          <A onmouseup=lmouseover(); class=k onmousedown="lclick();return true;"
id=Dis onmouseover="Discombobulatemouseover();return true;" style="VISIBILITY: hidden"
onclick=discombobulate(); onmouseout=lblur();
href="#"><B>Discombobulate</B></A>

          <A onmouseup=lmouseover(); class=k onmousedown="lclick();return true;"
id=Speedo onmouseover="Speedmouseover();return true;"
style="VISIBILITY: hidden" onclick=changespeed(); onmouseout=lblur();
href="#"><B>Speed</B></A>

          <A onmouseup=lmouseover(); class=k onmousedown="lclick();return true;"
id=jmail onmouseover="Aboutmouseover();return true;"
style="VISIBILITY: hidden" onmouseout=lblur();
href="EnigmanAbout.html">About</A>

          <A onmouseup=lmouseover(); class=k onmousedown="lclick();return true;"
id=Run onmouseover="Runawaymouseover();return true;" style="VISIBILITY: hidden"
onmouseout=lblur();
href="http://www.warnell.com/advexp/advxes.htm"><B>Run away</B></A> <FONT
color=gray>.</FONT> </TD>
  </TR>
  <TR>
    <TD vAlign=top align=left>
    <FORM class=k id=spdfrm style="Z-INDEX: 300; VISIBILITY: hidden">
            <SELECT onchange="Work(this.form, this)" size=10 name=sel>
            <OPTION value=1>Á   </OPTION>
            <OPTION value=10>Â</OPTION>
    <OPTION value=15>Æ</OPTION>
            <OPTION value=20>À</OPTION>
            <OPTION value=25>Å</OPTION>

```
                <OPTION value=30>Ã</OPTION>
                <OPTION value=35>Ä</OPTION>
                <OPTION value=40>Ç</OPTION>
                <OPTION value=45>Ð</OPTION>
                <OPTION value=50>É</OPTION>
                <OPTION value=55>Ê</OPTION>
                <OPTION value=60 selected>È</OPTION>
                <OPTION value=65>Ë</OPTION>
                <OPTION value=70>Í</OPTION>
                <OPTION value=75>Î</OPTION>
                <OPTION value=80>Ì</OPTION>
                <OPTION value=85>Ï</OPTION>
                <OPTION value=90>Ñ</OPTION>
                <OPTION value=95>Ó</OPTION>
                <OPTION value=100>Ô</OPTION>
                <OPTION value=120>Ò</OPTION>
                <OPTION value=150>Ø</OPTION>
                <OPTION value=200>Õ</OPTION>
                <OPTION value=250>Ö</OPTION>
                <OPTION value=300>Þ</OPTION>
                <OPTION value=350>Ú</OPTION>
                <OPTION value=400>Û</OPTION>
                <OPTION value=450>Ù</OPTION>
                <OPTION value=500>Ü</OPTION>
                <OPTION value=999>Ý</OPTION>
                </SELECT><BR>
                <INPUT onclick=disappearform(); type=button value=ZOT! >
      </FORM>
                </TD>
      <TD vAlign=bottom align=right>
        <TABLE align=right border=0 VALIGN="BOTTOM">
         <TBODY>
         <TR>
          <TD vAlign=bottom align=right>
                         <table><tr><td>
                                <div align="center">
                         <A style="TEXT-DECORATION: none" href="../../index.html"><FONT
face="Times New Roman"><FONT color=#ff0000><FONT
        size=+0>V</FONT></FONT> <FONT color=#ffff00><FONT
        size=-1>I</FONT></FONT> <FONT color=#00ff00><FONT
        size=-2>S</FONT></FONT> <FONT color=#0000ff><FONT
        size=-1>P</FONT></FONT> <FONT color=#ff80ff><FONT
        size=+0>O</FONT></FONT></FONT></A><BR>
                                <A class=bt href="index.htm">Enigma n Start</A>
        </FONT>
        </div>
   </td></tr></table>
  </TD>
        </TR></TBODY></TABLE></TD></TR></TBODY></TABLE>
<!--
If you're reading this, I don't know really why. You could be reading it to see how the piece
was done so you can do dhtml yourself or you are looking for the true meaning of the piece or
you're a habitual source viewer or...

I'm not sure whether to talk about the mechanics of the piece here or not. Naw, that's technique,
and technique is hard won but anybody can do it.
-->

<DIV class=j id=m
```

```
style="FONT-SIZE: 40px; Z-INDEX: 7; LEFT: 200px; TOP: -75px; jfontinc: 0; rd: 20; gd: 200; bd:
120; rdinc: 1; gdinc: 1; bdinc: 1">m
</DIV>
<DIV class=j id=e
style="FONT-SIZE: 40px; Z-INDEX: 6; LEFT: 257px; TOP: -75px; jfontinc: 0; rd: 20; gd: 200; bd:
120; rdinc: 0; gdinc: 0; bdinc: 1">e
</DIV>
<DIV class=j id=a
style="FONT-SIZE: 40px; Z-INDEX: 5; LEFT: 300px; TOP: -75px; jfontinc: 0; rd: 20; gd: 200; bd:
120; rdinc: 0; gdinc: 1; bdinc: 0">a
</DIV>
<DIV class=j id=n
style="FONT-SIZE: 40px; Z-INDEX: 4; LEFT: 345px; TOP: -75px; jfontinc: 0; rd: 20; gd: 200; bd:
120; rdinc: 0; gdinc: 1; bdinc: 1">n
</DIV>
<DIV class=j id=i
style="FONT-SIZE: 40px; Z-INDEX: 3; LEFT: 390px; TOP: -75px; jfontinc: 0; rd: 20; gd: 200; bd:
120; rdinc: 1; gdinc: 0; bdinc: 0">i
</DIV>
<DIV class=j id=n2
style="FONT-SIZE: 40px; Z-INDEX: 2; LEFT: 417px; TOP: -75px; jfontinc: 0; rd: 20; gd: 200; bd:
120; rdinc: 1; gdinc: 0; bdinc: 1">n
</DIV>
<DIV class=j id=g
style="FONT-SIZE: 40px; Z-INDEX: 1; LEFT: 462px; TOP: -75px; jfontinc: 0; rd: 20; gd: 200; bd:
120; rdinc: 1; gdinc: 1; bdinc: 0">g
</DIV>

<SCRIPT language=JavaScript>
<!--
//this line calls function Follow onmousemove
// This has been disabled. Detracted from focus.
// To enable this feature, simply uncomment the line below.
//document.onmousemove = Follow;
//document.onmousedown = lclick;
//document.onmouseup = lblur;
//-->
</SCRIPT>
</BODY></HTML>
```