Introduction to Electronic Literature in DH: Research and Practice

Dene Grigar
Davin Heckman
Welcome to DHSI 2018!

Thanks for joining the DHSI community!

In this booklet, you will find essential course materials prefaced by some useful information about getting settled initially at UVic, finding your way around, getting logged in to our network (after you’ve registered the day before our courses begin), and so on.

Given our community’s focus on things computational, it will be a surprise to no one that we might expect additional information online for some of the classes - your instructors will let you know - or that the most current version of all DHSI-related information may be found on our website at dhsi.org.

To access the DHSI wifi network, simply go into your wireless settings and connect to the “DHSI” network and enter the password “dhsi2018”.

And please don’t hesitate to be in touch with us at institut@uvic.ca or via Twitter at @AlyssaA_DHSI or @DHInstitute if we can be of any help ....
Regional Map of Greater Victoria

Average Frequency
- **Regional Route**: 15–60 minute service with limited stops
- **Frequent Route**: 15 minute or better service, 7am-7pm, Mon-Fri
- **Local Route**: 20–120 minute service

Legend
- Direction of Travel
- Route Name
- Transit Exchange
- UVic
- Park & Ride Lot (no overnight parking)
- Major Stop

*Note: The map shows various routes and stops, including major stops, park & ride lots, and transit exchanges.*
The 2018 schedule is just about ready! A very few things to confirm, add, etc, but this is the place to be to find out what is happening when / where ...

Psst: Some Suggested Outings

If you're here a day or two before we begin, or staying a day or two afterwards, here are a few ideas of things you might consider doing ....

▼ Suggested Outing 1, Botanical Beach (self-organised; car needed)
A self-guided visit to the wet, wild west coast tidal shelf (and historically-significant former research site) at Botanical Beach; we recommend departing early (around 8.00 am) to catch low tide for a better view of the wonderful undersea life! Consider bringing a packed lunch to nibble-on while looking at the crashing waves when there, and then have an afternoon drink enjoying the view from the deck of the Port Renfrew Hotel.

▼ Suggested Outing 2, Butchart Gardens (self-organised)
A shorter journey to the resplendently beautiful Butchart Gardens and, if you like, followed by (ahem) a few minutes at the nearby Church and State Winery, in the Saanich Peninsula. About an hour there by public bus from UVic, or 30 minutes by car.

▼ Suggested Outing 3, Saltspring Island (self-organised; a full day, car/bus + ferry combo)
Why not take a day to explore and celebrate the funky, laid back, Canadian gulf island lifestyle on Saltspring Island. Ferry departs regularly from the Schwartz Bay ferry terminal, which is about one hour by bus / 30 minutes by car from UVic. You may decide to stay on forever ....

▼ Suggested Outing 4, Paddling Victoria's Inner Harbour (self-organised)
A shorter time, seeing Victoria's beautiful city centre from the waterways that initially inspired its foundation. A great choice if the day is sunny and warm. Canoes, kayaks, and paddle boards are readily rented from Ocean River Adventures and conveniently launched from right behind the store. Very chill.

And more!

Self-organised High Tea at the Empress Hotel, scooter rentals, visit to the Royal BC Museum, darts at Christies Carriage House, a hangry breakfast at a local diner, whale watching, kayaking, brew pub sampling (at Spinnaker's, Swans, Moon Under Water, and beyond!), paddle-boarding, a tour of used bookstores, and more have also been suggested!

Sunday, 3 June 2018 [DHSI Registration + Suggested Outings]

9:00 to 4:00
▼ Early Class Meeting: 4. [Foundations] DH For Department Chairs and Deans (Hickman 120, Classroom)
Further details are available from instructors in mid May to those registered in the class. Registration materials will be available in the classroom.

3:00 to 5:00
DHSI Registration (MacLaurin Building, Room A100)
After registration, many will wander to Cadboro Bay and the pub at Smuggler's Cove OR the other direction to Shelbourne Plaza and Maude Hunter's Pub OR even into the city for a nice meal.

Monday, 4 June 2018

Your hosts for the week are Alyssa Arbuckle, Ray Siemens, and Dan Sondheim.

7:45 to 8:15
Last-minute Registration (MacLaurin Building, Room A100)

8:30 to 10:00
Welcome, Orientation, and Instructor Overview (MacLaurin A144)
Classes in Session (click for details and locations)

3. [Foundations] Making Choices About Your Data (MacLaurin D109, Classroom)
4. [Foundations] DH For Department Chairs and Deans (Hickman 120, Classroom)
5. [Foundations] Introduction to Javascript and Data Visualization (Clearihue D132, Classroom)
6. [Foundations] Introduction to Computation for Literary Criticism (Clearihue A105, Lab)
7. Out-of-the-box Text Analysis for the Digital Humanities (Human and Social Development A160, Lab)
8. Sounds and Digital Humanities (MacLaurin D111, Classroom)
9. Digital Humanities Pedagogy: Integration in the Curriculum (MacLaurin D016, Classroom)
10. Text Processing - Techniques & Traditions (McPherson Library A003, Classroom)
11. 3D Modelling for the Digital Humanities and Social Sciences (MacLaurin D010, Classroom)
12. Conceptualizing and Creating a Digital Edition (MacLaurin D103, Classroom)
13. Visualizing Information: Where Data Meets Design (MacLaurin D107, Classroom)
14. Introduction to Electronic Literature in DH: Research and Practice (MacLaurin D115, Classroom)
15. Race, Social Justice, and DH: Applied Theories and Methods (MacLaurin D105, Classroom)
16. XML Applications for Historical and Literary Research (Clearihue A103, Lab)
17. Processing Humanities Multimedia (Human and Social Development A150, Lab)
18. Digital Games as Tools for Scholarly Research, Communication and Pedagogy (MacLaurin D110, Classroom)
19. Web APIs with Python (Human and Social Development A170, Lab)
20. Ethical Data Visualization: Taming Treacherous Data (MacLaurin D101, Classroom)
21. Digital Publishing in the Humanities (Clearihue D131, Classroom)
22. Linked Open Data and the Semantic Web (Clearihue D130, Classroom)
23. Introduction to IIIF: Sharing, Consuming, and Annotating the World’s Images (MacLaurin D114, Classroom)
24. Feminist Digital Humanities: Theoretical, Social, and Material Engagements (Cornett A229, Classroom)
25. The Frontend: Modern JavaScript & CSS Development (Clearihue A030, Lab)

10:15 to Noon

Lunch break / Unconference Coordination Session (MacLaurin A144)
(Grab a sandwich and come on down!)

Undergraduate Meet-up, Brown-Bag (details via email)

1:30 to 4:00

Classes in Session

Institute Panel: Perspectives on DH (or, #myDHis …)
Chair: Alyssa Arbuckle (U Victoria)
(MacLaurin A144)

- Milena Radzikowska (Mt Royal C): "Release the Kraken: Story-Driven Prototyping for the Digital Humanities."
  Abstract: I have spent the last 15 years of my career designing text analysis tools for use by humanities scholars. In this brief presentation, I propose to share a concept-based approach to interface design for DH.

- Emily Murphy (U Victoria): "#MyDHis Edgy."
  Abstract: I will build upon—or, possibly, perform a misprision of—a tweet by Polina Vinogradova; "#myDHis messy, dusty, edgy, and radically inclusive!" Vinogradova evokes the mess and dust of the archives, the edges that connect nodes of a network, and the political impetus to think of cultural history and community together. I argue that these aspects of DH have a renewed importance as we head into a moment of feminist historiography.

- Margaret Konkol (Old Dominion U): "Prototyping Mina Loy’s Alphabet with a 3D Printer."
  Abstract: This talk discusses the interpretive and methodological implications of using 3D printing technologies to prototype the archival diagrams of a proposed but never constructed plastic segmental alphabet letter kit—a game designed by modernist poet Mina Loy for F.A.O. Schwarz. Although intended as a toy for young children, "The Alphabet that Builds Itself,” as a work of “object typography” articulates a theory of language as kinetic, geometric, recombinant, and open to mutation. Alphabetic segments extend into the x, y, and z coordinates in exponential iterations and conjoin with magnets. Combining elements of contemporaneous typefaces like Futura and Gill Sans, which represented modernity’s functional ideals and democratic principles of simplicity, these recombinant letters represent, as this talk argues, Loy’s unpublished modernist poem, an articulation of Loy’s concept of language as a physical fact in which substance, not just form, is semantic.

4:10 to 5:00

- Lee Zickel (Case Western Reserve U): "Comfortably Trepid."
  Abstract: #myDHis found outside the well-established, DH-friendly institutions, at an institution that is devoted predominantly to Medicine and Engineering. I, with increasing frequency other DH practitioners and instructors, am not positioned in a DH Lab or Humanities Center, but in ITS. Part teacher, part technologist, part translator, I will briefly discuss work supporting humanities and social scientists, particularly those who are new to or less comfortable with computational methodologies.

- Dorothy Kim (Vassar C): "#MyDHis Antifascist."
  Abstract: I've spent a lot of time in the last 12 months thinking about fascism, digital humanities, its long histories, and what it means to do DH work that centers social justice particularly in this global rise of late fascism. I will speak briefly about DH's history, including the medieval history related to Busa but how that history really connects to data systems that created the Holocaust and also participated in the Cold War nuclear military complex.
Randa El Khatib (U Victoria): “Learning from the Iterative Process.”
Abstract: #MyDHis Iterative. In addition to the improvements that come with iterative projects, the iterative process itself is a fruitful area for scholarly inquiry. Within this iterative context, the various teams that I work with and I have been reflecting on and rethinking central DH practices, such as what it means to collaborate, prototype, remix, and implement DH values in our work. In this talk, I will present the various lessons learnt along the way.

Sarah Melton (Boston C): “#MyDHis...People.”
Abstract: Taking seriously Miriam Posner’s exhortation to “commit to DH people, not DH projects,” I invite us to reflect on how people are the core of DH. In this brief talk, I will explore the intersections between DH, labor, and infrastructure.

5:00 to 6:00
Opening Reception (University Club)
We are grateful to Gale Cengage for its sponsorship.

Tuesday, 5 June 2018

9:00 to Noon
Classes in Session

12:15 to 1:15
Lunch break / Unconference
“Mystery” Lunches
DHSI Lunchtime Workshop Session (click for workshop details and free registration for DHSI participants)
- 73. Introduction to ORCID (Digital Scholarship Commons, Classroom).

1:30 to 4:00
Classes in Session

4:15 to 5:15
DHSI Colloquium Lightning Talk Session 1 (MacLaurin A144)
Chair: James O’Sullivan
- New Modes of DH and Archival Skills Acquisition in a Graduate Public History Course. Paulina Rousseau (Ryerson U)
- Walking a Transect: Exploring a Soundscape. John Barber (Washington State U)
- Centering the Edge Case: Designing Services for Humanities Data Research. Grace Afsari-Mamagani (New York U)
- Orwellian Vocabulary and the 21st-Century Politics. Ilgin Kizilgunyeler (U Manitoba)
- Making Open Data from a Gray Archive. Sara Palmer (Emory U)

Wednesday, 6 June 2018

9:00 to Noon
Classes in Session

12:15 to 1:15
Lunch break / Unconference
“Mystery” Lunches
Brown Bag Lecture: Alexandra Branzan Albu (U Victoria): “Visual Recognition of Symbolic and Natural Patterns” (Digital Scholarship Commons, 3rd Floor McPherson Library)
Abstract: Image-based object recognition is a visual pattern recognition problem; one may characterize visual patterns as either symbolic or natural. Symbolic patterns evolved for human communication; they include but are not limited to text, forms, tables, graphics, engineering drawings etc. Symbolic patterns vary widely in terms of size, style, language, alphabet and fonts; however, literate humans can easily compensate for this variability and instantly recognize most symbolic patterns. On the other hand, natural patterns characterize images of physical structures; they often lack the intrinsic discriminability and structure of symbolic patterns, and vary widely in terms of pose, perspective, and lighting.
This lecture will explore similarities and differences in approaches designed for recognizing visual and symbolic patterns, and will address the following questions via examples.
- What are the distinctive characteristics of natural patterns? What dimensions of variability can we infer?
- What are the distinctive characteristics of symbolic patterns? What dimensions of variability can we infer?

Alexandra Branzan Albu is an Associate Professor with the Department of Electrical and Computer Engineering and cross-listed with Computer Science. Her research interests are related to image analysis, computer vision, and visual computing. She is actively pursuing outreach activities dedicated to increasing the women's presence in electrical engineering and computer science.

1:30 to 4:00
Classes in Session
Thursday, 7 June 2018

9:00 to Noon
Classes in Session

12:15 to 1:15
UVIC Library/ETCL lunchtime talk: “A Humanities Application of 3D printing and Machine Translation in the ChessBard and Loss Sets” by Dr. Aaron Tucker
Digital Scholarship Commons, 3rd floor, Mearns Centre for Learning / McPherson Library
Bring your lunch and come on up!)

1:30 to 4:00
Classes in Session

4:15 to 5:15
DHSI Colloquium Lightning Talk Session 3 (MacLaurin A144)
Chair: James O’Sullivan

- Documenting Deportation: A Collaborative Digital Collection. Paulina Rousseau (Ryerson U)
- Unleashing the Power of Texts as Networks: Visualizing the Scholastic Commentaries and Texts Archive. Jeffrey Witt (Loyola U Maryland) and Drew Winget (Stanford U)
- #haunteDH: Punching holes in the International Busa Machine Narrative. Arun Jacob (McMaster U)
- Text in World: Computational Analysis of Trauma in Genocide Narratives. Nanditha Narayanamoorthy (U York) and Krish Perumal (U Toronto)

7:30 to 9:30
(Groovy?) Movie Night (MacLaurin A144)

Friday, 8 June 2018 [DHSI; DLFxDHSI Opening]

9:00 to Noon
DHSI Classes in Session

12:15 to 1:15
DHSI Lunch Reception / Course E-Exhibits (MacLaurin A100)

1:00 to 2:00
DLFxDHSI Registration (MacLaurin A100)

1:30 to 1:50
[DHSI] Remarks, A Week in Review (MacLaurin A144)

2:00 to 3:00
Joint Institute Lecture (DHSI and DLFxDHSI):
Bethany Nowviskie (CLIR DLF and U Virginia): "Reconstitute the World: Machine-reading Archives of Mass Extinction"
Chair: Lisa Goddard (U Victoria) (MacLaurin A144)

Abstract: The basic constitution of our digital collections becomes vastly more important in the face of two understandings: first, that archives of modernity are archives of the sixth great mass extinction of life on our planet; and next, that we no longer steward cultural heritage for human readers alone. In the same way that we people are shaped by what we read, hear, and see, the machine readers that follow us into and perhaps beyond the Anthropocene have begun to learn from "unsupervised" encounters with our digital libraries. What will we preserve for the living generations and artificial intelligences that will come? What do we neglect, or even choose to extinguish? And from an elegiac archive, a library of endings, can we create forward-looking, speculative collections--collections from which to deep-dream new futures? The most extra/ordinary power we possess is the power to make poetry from records of the past. Could it be called on, one day, to reconstitute the world?
Saturday, 9 June 2018 [DLFxDHSI + DHSI Conference and Colloquium]

8:30 to 9:00 DLFxDHSI Registration (MacLaurin A100)

9:00 to 5:30 DLFxDHSI UnConference Sessions

9:00 to 4:00

- 53. Building Your Academic Digital Identity (MacLaurin D105, Classroom)

9:00 to 5:00

- DHSI Colloquium Day Conference (MacLaurin A144)

Welcome

People I: Documenting Online Lives. Chair: Molly Nebiolo (University of New York)

- Examining Gendered Harassment Online and in Silicon Valley. Andrea Flores (Ulta College)
- This is Just to Say I Have <X> the <Y> in your <Z>: Modernist Memes in an Era of Public Apology. Shawna Ross (Texas A&M University)

Break

People II: Documenting Lives Online. Chair: Dheepa Sundaram (College of Wooster)

- Youtube Yoga and Ritual on Demand: The Virtual Economics of Hindu Soteriology. Dheepa Sundaram (College of Wooster)
- The Resemblage Project: Creativity and Digital Health Humanities in Canada. Andrea Charise (University of Toronto) and Stefan Krecsy (University of Toronto)

Lunch

Projects I: Building and Analyzing. Chair: Yannis Rammos (New York University)

- Building the ARTECHNE Database: New directions in Digital Art History. Marieke Hendriksen (Old Dominion University)
- The Ineffective Inquisition: The Holy Office's Sphere of Influence in Early Modern New Spain. Kira Homo (Pennsylvania State University)

Break

Projects II: Mapping and Visualizing. Chair: Innocent Opara (Qumet Institute)

- Mapping Sarah Sophia Bank's Numismatic Collection. Erica Hayes (North Carolina State University) and Kacie Wills (University of California, Riverside)
- Text Mining and Visualizing 18th Century American Correspondence. Ashley Sanders Garcia (University of California, Los Angeles)

Break

Practices: Digital Scholarship on Campus and in the Classroom. Chair: Alyssa Arhuckle (University of Victoria)
### Sunday, 10 June 2018 [SINM + DHSI Registration, Workshops]

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<tr>
<th>Time</th>
<th>Event</th>
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<tr>
<td>8:30 to 9:00</td>
<td>Symposium on Indigenous New Media Registration (MacLaurin A100)</td>
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<tr>
<td>9:00 to 5:00</td>
<td>DHSI Registration (MacLaurin A100)</td>
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<tr>
<td>9:00 to 4:00</td>
<td><strong>SINM Sessions</strong></td>
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<td>63.</td>
<td>Symposium on Indigenous New Media: Reading Group (Hickman 105, Classroom)</td>
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<td>72.</td>
<td>Symposium on Indigenous New Media: Indigitization (Hickman 120, Classroom)</td>
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<td><a href="#">Full details here</a></td>
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<td>9:00 to 4:00</td>
<td><strong>DHSI All Day Workshop Sessions</strong></td>
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<td>53.</td>
<td>Building Your Academic Digital Identity (MacLaurin D105, Classroom)</td>
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<td>54.</td>
<td>An Introduction to the Archaeology of 1980s Computing (MacLaurin D114, Classroom)</td>
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<td>9:00 to Noon</td>
<td><strong>DHSI AM Workshop Sessions</strong></td>
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<td>55.</td>
<td>Regular Expressions (MacLaurin D111, Classroom)</td>
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<td>56.</td>
<td>3D Visualization for the Humanities (MacLaurin D010, Classroom)</td>
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<td>58.</td>
<td>DH Fieldwork Methods (MacLaurin D016, Classroom)</td>
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<td>60.</td>
<td>Pedagogy of the Digitally Oppressed: Inculcating De-/Anti-/Post-Colonial Digital Humanities (MacLaurin D107, Classroom)</td>
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<td>61.</td>
<td>Introduction to #GraphPoem. Digital Tools for Poetry Computational Analysis and Graph Theory Apps in Poetry (MacLaurin D101, Classroom)</td>
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<td>62.</td>
<td>Creating a CV for Digital Humanities Makers (MacLaurin D115, Classroom)</td>
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<td>9:00 to Noon</td>
<td><strong>DHSI PM Workshop Sessions</strong></td>
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<td>64.</td>
<td>Agent-Based Modelling in the Humanities (MacLaurin D111, Classroom)</td>
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<td>65.</td>
<td>Unleash Linux on MacOS (MacLaurin D010, Classroom)</td>
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<td>66.</td>
<td>DHSI Knits: History of Textiles and Technology (MacLaurin D016, Classroom)</td>
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<td>67.</td>
<td>Crowdsourcing as a Tool for Research and Public Engagement (MacLaurin D109, Classroom)</td>
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<td>69.</td>
<td>Web Annotation as Critical Humanities Practice (MacLaurin D103, Classroom)</td>
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<td>70.</td>
<td>Dynamic Ontologies for the Humanities (MacLaurin D107, Classroom)</td>
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<td>71.</td>
<td>Social Media Research in the Humanities (MacLaurin D101, Classroom)</td>
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<td>1:00 to 4:00</td>
<td><strong>Joint Institute Lecture (DHSI and SINM):</strong></td>
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<td>David Gaertner (U British Columbia): &quot;A Landless Territory?: CyberPowWow and the Politics of Indigenous New Media.&quot;</td>
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<td>Chair: Deanna Reder (Simon Fraser U) (MacLaurin A144)</td>
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<td>4:10 to 5:00</td>
<td>Abstract: Following the 1997 launch of Skawennati’s (Mohawk) CyberPowWow, digital space has become a vital new territory for the resurgence of Indigenous storytelling and cultural practice: &quot;We have signed a new treaty,&quot; Cree artist Archer Pechawis wrote of this period, &quot;and it is good. We have the right to hunt, fish, dance and make art at <a href="http://www.CyberPowWow.net">www.CyberPowWow.net</a>, .org and .com for as long as the grass grows and the rivers flow.&quot; This talk will critically explore the theoretical, cultural, political-economic, and gendered dynamics underwriting the histories and futures of Indigenous new media. Particular attention will be given in examining the ways in which new media and digital storytelling connect to and support key issues in the field of Indigenous studies, such as sovereignty, self-determination, decolonization, and land rights.</td>
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After the day, many will wander to Cadboro Bay and the pub at Smuggler’s Cove OR the other direction to Shelbourne Plaza and Maude Hunter’s Pub OR even into the city for a bite to eat.

### Monday, 11 June 2018 [DHSI + SINM]

- Digital Humanities in Latin American Studies: Cybercultures Initiative. Angelica Huizar (Old Dominion University)
- Making it Seem Easy: Interdisciplinary Team Defines and Measures DH interest at SUNY Oswego. Serenity Sutherland (SUNY Oswego), Fiona Coll (SUNY Oswego), Sarah Weisman (SUNY Oswego), Candis Haak (SUNY Oswego), and Mural Yasar (SUNY Oswego)
- ARL Digital Scholarship Institute. Sarah Melton (Boston College)
Your hosts for the week are Ray Siemens and Dan Sondheim.

7:45 to 8:15 DHSI Last-minute Registration (MacLaurin A100)

8:30 to 10:00 DHSI Welcome, Orientation, and Instructor Overview (MacLaurin A144)

9:00 to 4:00 SINM Sessions

- DHSI Classes in Session (click for details and locations)
  - 29. [Foundations] Models for DH at Liberal Arts Colleges (& 4 yr Institutions) (MacLaurin D109, Classroom)
  - 32. Stylometry with R: Computer-Assisted Analysis of Literary Texts (Clearihue A102, Lab)
  - 33. Digital Storytelling (MacLaurin D111, Classroom)
  - 34. Text Mapping as Modelling (Clearihue D131, Classroom)
  - 35. Geographical Information Systems in the Digital Humanities (Clearihue A105, Lab)
  - 36. Open Access and Open Social Scholarship (MacLaurin D114, Classroom)
  - 37. Introduction to Machine Learning in the Digital Humanities (Cornett A229, Classroom)
  - 38. Queer Digital Humanities: Intersections, Interrogations, Iterations (MacLaurin D110, Classroom)
  - 39. Using Fedora Commons / Islandora (Human and Social Development A160, Lab)
  - 40. Documenting Born Digital Creative and Scholarly Works for Access and Preservation (MacLaurin D115, Classroom)
  - 41. Games for Digital Humanists (MacLaurin D016, Classroom & Human and Social Development A170, Lab)
  - 44. XPath for Document Archeology and Project Management (Cornett A128, Classroom)
  - 46. Surveillance and the Digital Humanities (MacLaurin D103, Classroom)
  - 47. Text Analysis with Python and the Natural Language ToolKit (Clearihue A103, Lab)
  - 48. Information Security for Digital Researchers (Clearihue D130, Classroom)
  - 49. Wrangling Big Data for DH (Human and Social Development A150, Lab)
  - 50. Accessibility & Digital Environments (MacLaurin D101, Classroom)
  - 51. Critical Pedagogy and Digital Praxis in the Humanities (MacLaurin D105, Classroom)
  - 52. Drupal for Digital Humanities Projects (MacLaurin D107, Classroom)

10:15 to Noon

- Lunch break / Unconference Coordination Session (MacLaurin A144)
  (Grab a sandwich and come on down!)
- DHSI Undergraduate Meet-up, Brown-Bag (details via email)

1:30 to 4:00 DHSI Classes in Session

- Joint Institute Lecture (DHSI and SINM): Jordan Abel (Simon Fraser U): "Indigeneity, Conceptualism, and the Borders of DH." Chair: Michelle Brown (U Hawaii) (MacLaurin A144)

4:10 to 5:00 Thursday, 12 June 2018

- Joint Reception: DHSI and SINM (University Club)

9:00 to Noon Classes in Session

- Lunch break / Unconference "Mystery" Lunches
- DHSI Lunchtime Workshop Session (click for workshop details and free registration for DHSI participants)
  - 73. Introduction to ORCID (Digital Scholarship Commons, Classroom)

Tuesday, 12 June 2018

- Lunch break / Unconference
- Joint Reception: DHSI and SINM (University Club)

12:15 to 1:15 DHSI Undergraduate Meet-up, Brown-Bag (details via email)

- Joint Institute Lecture (DHSI and SINM): Jordan Abel (Simon Fraser U): "Indigeneity, Conceptualism, and the Borders of DH." Chair: Michelle Brown (U Hawaii) (MacLaurin A144)

4:10 to 5:00 Thursday, 12 June 2018

- Joint Reception: DHSI and SINM (University Club)

9:00 to Noon Classes in Session

- Lunch break / Unconference "Mystery" Lunches
- DHSI Lunchtime Workshop Session (click for workshop details and free registration for DHSI participants)
  - 73. Introduction to ORCID (Digital Scholarship Commons, Classroom)
Wednesday, 13 June 2018

9:00 to Noon
Classes in Session

12:15 to 1:15
Lunch break / Unconference
"Mystery" Lunches

1:30 to 4:00
Classes in Session

4:15 to 5:15
DHSI Colloquium Lightning Talk Session 4 (MacLaurin A144)
Chair: Lindsey Seatter
- Mapping Indigenous and Chichana/o Environmental Imaginaries using GIS. Stevie Ruiz (California State U, Northridge), Quetzalli Enrique (California State U, Northridge), Enrique Ramirez (California State U, Northridge), and Tomas Figueroa (California State U, Northridge)
- "But is it any good?": A quantitative approach to the popularity of digital fanfiction. Suzanne Black (U Edinburgh)
- The American Prison Writing Archive (APWA). Doran Larson (Hamilton C), Janet Simons (Digital Humanities Initiative, Hamilton C), and William Rasenberger (Hamilton C)

6:00 to 8:00
DHSI Newcomer’s Beer-B-Q (Felicitas, Student Union Building)

Thursday, 14 June 2018

9:00 to Noon
Classes in Session

12:15 to 1:15
Lunch break / Unconference
"Mystery" Lunches

1:30 to 4:00
Classes in Session

4:15 to 5:15
DHSI Colloquium Lightning Talk Session 5 (MacLaurin A144)
Chair: Lindsey Seatter
- Faraway, so close: Has the political environment really changed in Ecuador?. Luis Meneses (Electronic Textual Cultures Lab, U Victoria)
- Re-mixing Melville’s Reading: Text Analysis of Marginalia with R and XSLT. Christopher Ohge (U London, School of Advanced Study) and Steven Olsen-Smith (Boise State U)
- Developing Interactive and Open-Source OER: Inquiry-Based Music Theory. Evan Williamson (U Idaho)
- Spatial Humanities and the Web of Everywhere. Ken Cooper (SUNY Geneseo)

6:00 to 7:00
"Half Way There (yet again)!" [An Informal, Self-Organized Birds of a Feather Get-Together] (Felicitas, Student Union Building)
Bring your DHSI nametag and enjoy your first tipple on us!

Friday, 15 June 2018

9:00 to Noon
Classes in Session

12:15 to 1:15
Lunch Reception / Course E-Exhibits (MacLaurin A100)

7:30 to 9:30
(Groovier?) Movie(r) Night (MacLaurin A144)
(MacLaurin A144)

Abstract: Much has changed and continues to change in digital humanities since the formal establishment of Iter in the Fall of 1997. However, the mandate of the not-for-profit partnership to support “the advancement of learning in the study and teaching of Middle Ages and Renaissance (400–1700) through the development and distribution of online resources” continues to have relevance. This presentation explores the striking challenges faced by Iter and presents our current thinking on the realization of this mandate for the future through a platform with a focus on facilitating the discovery of the academic resources necessary to our work; creating an environment for collaboration, sharing and developing projects; and on enabling the distribution and publication of our scholarship.

Awards and Bursaries Recognition
Closing, DHSI in Review (MacLaurin A144)

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Day 1 Overview of the Form and Field

10:15 a.m.-12:00 p.m.: Approaches to the Art Form, Scholarship, Organizations, Publications & Publishers, Communities: Local and Global, Place in DH

Readings:

Online Resources:

1:30 p.m.-4:00 p.m.: Theories—MSA, Platform and Code Studies, Textual Studies

Readings:

Demonstrations:
- Margie: Nick Montfort and Stephanie Strickland’s “Sea and Spar Between,” http://nickm.com/montfort_strickland/sea_and_spar_between/
- Dene: mez breeze and Andy Campbell’s *All the Delicate Duplicates* (on Steam) http://allthedelicateduplicat.es
- Davin: Fox Harrell’s “Chimeria: Gatekeeper,” http://groups.csail.mit.edu/icelab/content/chimeria-gatekeeper-0

Day 2 Reading & Analyzing E-Lit

9:00 a.m.-12:00 p.m.: Author’s and Works, Part 1
Readings:


Demonstrations:

- Dene: Judy Malloy’s *its name was Penelope* (https://people.well.com/user/jmalloy/statement.html); Alan Bigelow’s *How To Rob a Bank* (http://webyarns.com/howto/howto.html); Sam Barlow’s *Her Story* (on Steam)
- Margie: Stephanie Strickland’s *slippingglimpse* (http://slippingglimpse.org), John Cayley’s *Listeners* (http://programmatology.shadoof.net/?thelisteners); M. D. Coverley’s *Fukushima Calendar* (http://califia.us/TinCalendar/)
- Davin: Jason Nelson’s “This Is How You Will Die” (http://www.secrettechnology.com/death/deathspin.htm); Eugenio Tisselli’s Regenerative/Degenerative (https://rhizome.org/art/artbase/artwork/regenerative/)

1:30 p.m.-4:00 p.m.: Author’s and Works, Part 2

In-Class Activity:
Participants will read one-three works of e-lit from the list of works prepared for them. You will then lead a presentation of the one of them with the class.

Day 3: Writing about E-Lit

9:00 a.m.-12:00 p.m.: Scholarly Databases

Online Resources:
- Electronic Literature as a Model of Creativity and Innovation in Practice (ELMCIP)’s Knowledge Base
- Electronic Literature Directory (ELD)
- I ♥ E-Poetry, by Leonardo Flores

In-Class Activity:
Participants will take the works from the list provided them, and write ELMCIP entries for it.

1:30 p.m.-4:00 p.m.: Examples of Scholarly Writings about E-Lit

Examples:
- Dani Spinosa. “J.R. Carpenter’s In Absentia.” http://directory.eliterature.org/individual-work/3882
In-Class Activity:
Participants will produce a short analysis about one of the works they have read in the class. They will add their work to the *ELD*.

**Day 4: Teaching E-Lit**

9:00 a.m.-12:00 p.m.: Creating a Syllabi for E-Lit

Examples:

Activity:
Participants will produce a syllabus and, then, present their syllabus to the class.

**Lunch: Dene, Davin, and Margie attend the DHSI Instructors Lunch Meeting, University Club**

1:30 p.m.-4:00 p.m.: Teaching E-Lit

Working in teams, participants will pick a topic relating to e-lit (author, genre, theory, approach), prepare a module for it, and teach the module to the class.

**Day 5: Documenting E-Lit**

9:00 a.m.-12:00 p.m. The Pathfinders Methodology

Reading:

Online Resource:

In-Class Activity:
Participants will take one work from the list provided and document it using the pathfinders methodology.

12:15 p.m.: Show and Tell, MacLaurin Blg.
Electronic literature (or e-lit) is described as born digital literary work—that is, literature produced with and only experienced on a computing device. It can take the form of a hypertext narrative created with Twine, as in Porpentine’s “With Those We Love Alive,” or app-based poems as in Stephanie Strickland and Ian Hatcher’s Vniverse, or video game like Tiger & Squid’s Beyond Eyes. As a form tied to digital technologies, e-lit is constantly evolving with the tools used to produce it.

During the course of this session, you will be exposed to various works of e-lit and theories that have emerged to conceptualize it. Each day is aimed at providing you with a different, yet intellectually cohesive, focus of this emergent literary form so that you can yourself teach e-lit in your own classrooms and/or engage in a study of it for your own research.
ELECTRONIC LITERATURE COMMUNITIES
Considering all the contributions in the book, what do we learn from how the various communities within the field of e-lit keep emerging? Based on the articles published in the double-issue of Dichtung Digital, Walker Rettberg and Tomaszek sought to formalize categories upon which community development emerges within the field of e-lit (Walker Rettberg and Tomaszek 2014). Together, they come up with categories that describe communities that emerge through external stimulation: awards, commissions, and competitions, or communities that emerge within “organic community spaces.” A community thus may emerge from the writerly spaces of discussions such as Listservs, blogs, and online journals, while others represent a community of practitioners that foster community as they write together, be it within a particular platform, or genre, or seemingly at random in networked Netprovs evolving within various social media spaces. Other communities however only evolve upon secured funding, or an institutional context (Walker Rettberg and Tomaszek 2014). Many of the communities described in this book are self-organizing species have grown as long their base is intact, while some others fell victim to waning interest, obsolescent technological platforms, or absent funding.

The interconnected communities of electronic literature appear a kind of posthuman hypertext, a network of humans and technology with many pulsing and bifurcating nodes of activity. If it were a building, it would be a postmodern structure with many rooms, many architects, and many builders continuously at work on new additions at the edges of the property. Different human and computer languages could be heard pouring forth from each wing, interpreting, overcoming, and interpolating each other, and diverse materials and styles would be represented in the interior decoration and outer shell, but all would have a pathway to a common room at the center. Without adhering to any specific shared agenda, the communities documented here have evolved in conversation with each other. Together, they provide a holistic impression of the field of electronic literature’s histories and the process of its continuous reinvention.
This chapter starts to map one beginning of what we have later come to call electronic literature. I wanted to write a history of the early days of hypertext fiction in the United States in the late 1980s and early 1990s, particularly looking at the ways in which a community formed around these works. I had thought this would be an easy task. The most important works of the time are cited so repeatedly in so many papers in the field that we all know their names. Michael Joyce’s *afternoon*, a story, Shelley Jackson’s *Patchwork Girl* and Stuart Moultthrop’s *Victory Garden* are far more frequently cited than any other works of electronic literature (fig. 2). Yet the more I investigated the period, the more works I discovered that I had not previously heard of. Many works of electronic literature were published prior to *afternoon*, and there were several other publishers in addition to Eastgate, though Eastgate alone has survived in the USA. I will return to some of these later in this chapter.

My first publication on electronic literature was a close reading of *afternoon* (Walker Rettberg 1999). This chapter, in contrast, will not attempt to read or interpret any individual works. Instead I want to try to read them as a field, from a distance. In my research, I have used the ELMCIP Electronic Literature Knowledge Base as a tool for discovering and documenting works, criticism, events and publishers, and also for understanding connections and frequencies. I also use Google’s Ngram viewer that allows the visualization of search results across a large number of digitized books. Using databases such as these gives us new opportunities for a kind of “distant reading” of literature, as Franco Moretti advocates in *Graphs, Maps, Trees: Abstract Models for Literary History* (2005, 1).

A complete “distant reading” of the field of electronic literature is not possible at the present time. Despite the increase in databases on electronic literature, and the wealth of information already available in them, we are very far from having a complete overview of all electronic literature. This chapter, then, is simply a start, a preliminary attempt to map some of the early years of electronic literature in one region of the world: the mid-1980s to the mid-1990s in the United States. For literary works written for computers this was a time of transition from a time when very few and largely disconnected works were created, to a time when many works were created every year, and to when the people who create those works see themselves as contributing to a field. This transition is experienced by every new genre or artistic form as it develops.

THE WORDS WE USE TO DESCRIBE THE FIELD

Before we delve into the electronic literature of the late 1980s, let’s consider the term itself. In this chapter, I choose to follow the Electronic Literature Organization’s broad and inclusive definition of electronic literature as “works with important literary aspects that take advantage of the capabilities and contexts provided by the stand-alone or networked computer.” Yet as Lori Emerson points out, this term and definition in itself brought together genres that in many ways were seen as separate in the early years. Emerson writes in her blog-post “On e-literature as a field” that “what did not exist until the founding of the Electronic Literature Organization in 1999 (thanks to Scott Rettberg, Robert Coover, and Jeff Ballowe) is a name, a concept, even a brand with which a remarkably diverse range of digital writing practices could identify: electronic literature.”

While it is difficult to pinpoint the date of birth of electronic literature as such, we can say something about the emergence of the terms used to describe literary works that use computational capabilities. I generated Figure 1 using Google’s Ngram viewer, asking it to compare the frequency of the terms hypertext fiction, electronic literature, digital literature, digital poetry and e-poetry in books published from 1985 to 2008. Unfortunately it is not currently possible to search more recent books. As the graph shows, Emerson is right in that the term “electronic literature” (marked by the red line) has come to dominate in the period after the Electronic Literature Organization was established. However, in the corpus of print books digitized by Google, at least, both “hypertext fiction” and “digital poetry” are close at its heels, with digital poetry, in particular, looking poised to catch up very soon. The term “e-poetry,” although the title of a significant conference in the field since 2001, is not frequently used in print literature, and its purple line is almost invisible, lying flat against the bottom of the chart.

As expected, hypertext fiction (the blue line) was the more popular term in the 1990s, but it also retained its dominance for several years into the 2000s. This could show that the new term “electronic literature” took time to gain general acceptance, or it could also simply be a by-product of the slow pace of scholarship and book publishing. By 2008, the term “electronic literature” is still not as popular as “hypertext fiction” was at its peak, although the combined use of all these terms is growing steadily. It is interesting to see how high the use of “hyper-
electronic literature at the time, presciently titled "Writing for the New Millennium: The Birth of Electronic Literature." So the term "electronic literature" was in use well before 1999.

A graph like the one shown in Figure 1 comes with its own biases, of course. It only shows how often the terms are used in print, and in a field like electronic literature, a lot of important discussion happens online. While Google has digitized 5.2 million books, that is still only around 4% of all books published (Michel et. al.). Also, we know that most uses of "electronic literature" from before 1999 did not refer to literary works. Although my samples show that the balance shifts after this, we lack a reliable way of filtering out current uses of "electronic literature" that do not refer to literary works using computation. It is also likely that many books that use one term also use another, so that some of the books counted are duplicates. The data that the Ngram Viewer uses can be downloaded, so with time and some programming skills some but not all of these problems could be addressed.

The graph also tells us nothing about which works these books are discussing. Although Google will allow you to click through to individual search results, the whole book is rarely shown. Instead you are only able to see a small section of a page.

BEGINNINGS

Some of my inspiration for this method of studying a field comes from reading Franco Moretti's book Graphs, Maps, Trees: Abstract Models for a Literary History, where he talks about "distant reading" based on large quantities of data about a

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2 I have not conducted an exhaustive analysis of all 554 mentions of "electronic literature" that Google finds in books published between 1985 and 1998. This is based on analyzing the titles and surrounding text of the first thirty results, and in these, Bolter's article is the only one to use "electronic literature" in its current sense.

3 Unfortunately I have not been able to access the full text of the article from the Print Collector's Newsletter, and the snippet that I can view from Google Books does not show the author or title of the essay in question. However, in an email after seeing a preprint version of this article, Mark Bernstein suggested that the full reference may be Nancy Princenthal, "Artists Book Beat", Print Collector's Newsletter 23 (2) May-June, 1992, 67-69. Bernstein also reports that a search in his personal email archives found numerous uses of the term "electronic literature" in the mid-nineties, suggesting that the term was in more current use than Google's record of print books would indicate. Examples include "queries from a student who was writing a dissertation on "electronic literature" at Toronto in 1995, an ad from an Italian startup that uses the term in a headline from 1995. A lead to an essay by Michael Shumate titled "Electronic Literature Comes To Duke" in the Spring 1995 issue of Duke's alumni magazine, and a lead to a "conference on electronic literature" named "Version 2.2" that was to be held in Geneva, Switzerland on May 31, 1995."
literary system. For instance, he looked at publication data from different countries, specifically the dates of publication of early novels. From this, he saw that it took about twenty years for the early British novel to grow from a point where only five or six novels were published annually to a critical mass with new novels being published more than once a week. Moretti ran the same test against other countries' statistics, and found that this twenty-year cycle can be seen to repeat itself in a range of countries, though with different starting points according to when novels began to be published in that country: "See how similar those shapes are: five countries, three continents, over two centuries apart, and it's really the same pattern, the same old metaphor of the "rise" of the novel come alive: in twenty years or so (in Britain, 1720-40; Japan, 1745-65; Italy, 1820-40; Spain, 1845- early 1860s; Nigeria, 1965-80), the graph leaps from give-ten new titles per year, which means one new novel every month or two, to one new novel per week" (Moretti 2005, 5). This is the point where the novel has gone from being a novelty to being "a necessity of life" (Moretti 2005, 5).

Has electronic literature gone through a similar cycle? We cannot, today, answer this question accurately. Although there are an increasing number of databases documenting electronic literature, including the ELMCIP Electronic Literature Knowledge Base, which I am involved in, none of these is anywhere near completely documenting the field. Libraries have not documented electronic literature in any systematic way, usually only cataloguing works that have been published in fairly traditional ways, on physical media with ISBN numbers. Visibility in the traditional literary system, whether through libraries or bookshops, is a major reason why Eastgate's hypertext fictions and the Electronic Literature Collection have been published on material media (the latter can also be accessed online). Most works of electronic literature are only published online, some completely independently and some in online journals. At the moment, there is no complete overview of all works of electronic literature.

But we can make some assumptions. In 2011, certainly there were new works of electronic literature published at least every week, and probably far more often. In January 2012, the ELMCIP Knowledge Base had fifty-eight records of creative works of electronic literature published in 2011, and there are records of more than thirty creative works every year from the year 2000 onward.

This in itself only means that contributors happen to have entered this many records. Records are entered according to the contributors' interests, and

the Knowledge Base is open to all who are genuinely interested in contributing. Project members document events we attend and enter references from critical works we read and to creative works we find, and we encourage other scholars and practitioners in the field to contribute works they are interested in.4 We are also working to have teachers use the Knowledge Base in creating curricula and in teaching, and in these cases teachers and students document areas of the field that are on the curriculum. ELMCIP is a European project, so we have recruited contributors from several European countries, aiming for a broader linguistic and cultural coverage. We have many mechanisms for attempting to grow the Knowledge Base broadly and with as little bias as possible. However, there is no guarantee that the selection of works in the Knowledge Base is representative. It does show that there were at least fifty-eight works of electronic literature published in 2011, though, and probably many more that have not yet been registered. Moretti argued that the novel was well established when at least one novel was published every week. With fifty-eight documented works published in 2011, forty-five of which are in English, and presumably many more works not yet documented in the ELMCIP Knowledge Base, we are definitely have reached that point for electronic literature in English, though not within all languages.

Twenty years ago, in 1991, hypertext and other genres of electronic literature were not quite new, and although not many of the early works are now discussed, there were at least one or two dozen works being published each year. By 1986, and maybe earlier, five or six works of electronic literature were being published each year, even without including interactive fiction in the count. By the early 1990s, several publishers existed, including Eastgate, Diskotech, Hyperion SoftWords, Voyager, and Electronic Hollywood.5 With the advent of the web, self-publishing became even easier, and a number of online journals appeared that published hypertext fictions. By the turn of the century influential organizations such as the Electronic Literature Organization, trAce, and E-Poetry Center were established. So if we are to follow Moretti's twenty year time line for new genres, 1986-2006

4 We have accepted all applications for contributor's accounts from people who have any legitimate interest in the field: students, scholars and writers. We have only turned down people who are clearly spammers and have no record of engagement in the field whatsoever.
5 These and other publishers all have records in the ELMCIP Knowledge Base, with some publications from each attached. We would appreciate contributions from others who know more about the period, publishers and works.
appears to be a reasonable span, although the cycle may have been even briefer for electronic literature.

This is only a preliminary sketch of such a cycle though. To truly map it out, we would need a dataset that was approximately complete. We would want to consider different languages and different nationalities. We should compare the adoption of the different genres, such as kinetic poetry, hypertext fiction, interactive fiction, literary installations and so on, and consider whether each genre grew independently or whether it makes more sense to see electronic literature as a whole.

**CITATIONS: WHAT IS REFERENCED?**

As I mentioned earlier, I began my research with the assumption that Michael Joyce’s *afternoon, a story*, really was the “grandinny” of the field, as Robert Coover wrote in The New York Times in 1992. *afternoon* has been anthologized by Norton, is substantially analyzed and discussed in dozens of academic treatises and is taught or at least mentioned in almost every course taught on electronic literature. I checked citations for *afternoon* and a number of other works of electronic literature across several scholarly databases. Michael Joyce’s hypertext fiction *afternoon, a story* is clearly the most frequently cited work of electronic literature, followed by Shelley Jackson’s *Patchwork Girl*. These two works tower far above the rest of the field.

Fig. 2 shows citations of each of the three most-cited Eastgate works and of three other frequently discussed works of electronic literature. I sampled many works in order to find frequently cited ones. Finally, I chose the two that won the 2001 ELO Awards for poetry and fiction, John Cayley’s *windsound* and Caitlin Fisher’s *These Waves of Girls* respectively, assuming that the prize would have made them likely to be highly cited. Then, having noticed that works published in the *Electronic Literature Collection* (ELC) appear to be frequently cited, I searched Google Scholar for “electronic literature collection”, and saw that Brian Kim Stefans’ *The Dreamlife of Letters* had more citations (at least in articles indexed by Google Scholar) than any other works in the two volumes of the ELC. Rather than this somewhat heuristic method of finding the most frequently discussed works of electronic literature, I would have liked to have had a more complete dataset in the Knowledge Base and to have simply run a query of the most frequently cited works there, but we neither have a complete dataset nor the ability to run such a query yet.

So, forced for the moment to be satisfied with this more approximate method, I then took these six works and searched five different scholarly databases for citations: MUSE, ProQuest dissertations and theses, Google Scholar, ELMCIP Knowledge Base, and the ACM Digital Library.

**Citations of works across database**

![Fig. 2. Chart showing number of citations for selected works of electronic literature.](image)

The first database is MUSE, which provides access to scholarly journals in the humanities and the social sciences. It is represented by the blue columns. ProQuest, indicated by the red columns, indexes dissertations and theses as well as a broad range of scholarship across disciplines, though with less emphasis on the sciences—for example, publications from the ACM Hypertext conference series are not indexed here. The green column shows Google Scholar citations. Google Scholar shows far more references to *afternoon*, in particular, than the other databases do. This is probably because Google Scholar indexes scholarly publications across all fields, not just the humanities, and it also includes sources not included by MUSE and ProQuest, such as peer-reviewed papers on conference websites and in open access research archives. The ACM (Association for Computing Machinery) Hypertext conferences were particularly important in the early years of electronic literature and *afternoon* was first presented at their inaugural conference, The Conference on Hypertext and Hypermedia (Chapel Hill, Nov. 13-15, 1987) and frequently cited in their publications. The turquoise column, which
represents citations in the ACM Digital Library, shows that the Eastgate titles did receive many citations in that community, but the vast number of references found by Google Scholar can still not be accounted for solely by ACM references. It appears that *afternoon*, in particular, has many references from researchers outside of the humanities journals tracked by MUSE and ProQuest and outside of the ACM conference series.

Interestingly, *Patchwork Girl* has more citations in the humanities and social science journals primarily indexed by MUSE and ProQuest. It seems that *afternoon* may have influenced a broader audience of scholars, but that *Patchwork Girl* has influenced literary scholars more heavily. Finally, the purple column shows references in the ELMCIP Knowledge Base, which only tracks the field of electronic literature, but which is not yet complete. At the time of writing, the ELMCIP Knowledge Base is only a little over a year old.

While I have made every effort to find exact figures, there are some possible error sources. When referring to Google Scholar I am not referring to the total number of hits returned when searching for "afternoon, a story" and "Michael Joyce," for instance, but the number of citations specifically assigned to that work by Google Scholar. Sometimes Google Scholar has several versions of the same work, in which case I have collated the results. I have not checked each of the 181 citations of afternoon reported. In most cases, however, the number of results was small enough that I could easily scan through the titles and abstracts and eliminate any false positives. "Windsound" is a variable used in sound installations discussed in some ACM publications that have nothing to do with John Cayley's work, for instance.

In conclusion, the three works published by Eastgate are clearly far more frequently referenced than even the most discussed later works in the field. And *afternoon* is not even the first work of electronic literature, though a casual reader of articles in the field might be forgiven for thinking so. Why did these particular works become a common reference point for scholars and students for the next twenty-five years? There were alternative possibilities. Why didn't bp Nichol's work "First Screening: Computer Poems" (1984) start a movement? Why are there no critical discussions of Judy Malloy's database narrative *Uncle Roger*, published on the WELL (Whole Earth 'Lectronic Link) in 1986/97? Would electronic literature have been different today if Nichol or Malloy had been crowned as the grandparent of the field?

In 1992, Robert Coover famously called Michael Joyce's *afternoon, a story* (1990) the "granddaddy of full-length hypertext fictions" (Coover "The End of Books"), writing only five years after *afternoon* was first presented in public (Bolter and Joyce 1987). Since then, both *afternoon* and Coover's description of it have been cited repeatedly in accounts of the history of electronic literature, whether in books, articles or teaching. The period and its body of work have been called the "Storyspace school" (Arshech 1997, 85; Hayles 2007) or "the Storyspace era" (Raley 2002, 194; Kirschenbaum 2008), because the field was dominated by works written in the Storyspace software and published by Eastgate. As we have seen, this may not have been entirely true as there were other publishers and self-publishing at the time, but this is how the period looked in hindsight. Later, Coover dubbed these pre-web years "the golden age" (Coover 1999), in part because of the dominance of text. Early hypertext fictions, Coover wrote, gave careful readers a sense of "losing oneself to a text...until clicking the mouse is as unconscious an act as turning a page, and much less constraining, more compelling" (Coover 1999).

How did we come to accept *afternoon* as the unequivocal "granddaddy" of electronic literature (not just full-length hypertext fictions, as Coover in fact wrote)? Although earlier works are regularly mentioned when scholars and teachers recount the history of electronic literature, *afternoon* has certainly become a major reference point and is frequently assumed to be the first work of "real" electronic literature. This amplification and reinforcement of certain ideas, works and citations is typical of a print-centric culture, Elizabeth Eisenstein wrote in her history of print, but perhaps we should say, more broadly, that it is typical of a culture such as ours that privileges that which is recorded, whether analog or digital; written, aural or visual.

**BEGINNINGS: MOVING CLOSER**

Moretti calls for "distant reading" of literature, and so far that is what I have done in this chapter. I have graphed the use of terms in the field over time, and proposed a twenty year cycle from 1986 to 2006 which marks the movement from works of electronic literature being rare events to the time when they have critical mass and new works are published at least once a week.

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6 *afternoon* was first presented at the ACM Hypertext conference in 1987.
Electronic literature began in many places, at many times. In 1952, in Manchester, computing pioneer Christopher Strachey created a love letter generator (Wardrip-Fruin 2005). In 1966, at MIT in Cambridge, Massachusetts, Joseph Weizenbaum created a simulated conversation agent, ELIZA. In 1976 Will Crowther, another Cambridge resident who worked at a technology company, created Colossal Cave Adventure, the first textual adventure game, which was then further developed by Stanford graduate student Don Woods.

All these early works were created by computer scientists who were playing with the technology. They did not see themselves as authors, on the contrary, Strachey, Weizenbaum and Crowther all expressed surprise at their experiments being taken seriously by people. They had not intended to create a new form of literature, and were not, as far as we know, building on or even aware of other work in the field. Their work did not immediately start an avalanche of new literary forms. Indeed, they are only recognized as starting points of electronic literature in hindsight (Wardrip-Fruin 2005).

Alongside the experiments created by computer scientists there were nonlinear literary experiments that have also been seen as "proto-hypertexts", and as the starting points of electronic literature—but these were far and few between. Frequently cited examples include Nabokov's Pale Fire (1962), Saporta's Composition No. 1 (1963), Cortázar's Hopscotch (1998) and Pavić's Dictionary of the Khazars (1988).

There are also examples of works typically classified as visual art that could, in hindsight, equally be called electronic literature. Len Lye's animated texts in film (1937) are one example (Rettberg 2011). Much later, Jenny Holtzer's Truisms (1977), slogans and poetic lines of text displayed on tickers on Times Square and elsewhere could certainly have been interpreted as literature.

But none of these works were seen as connected to other works at the time. Although they are important in retrospect, they did not shape a community of electronic literature.

One community of experimental, electronic literature and art in the 1980s met on the WELL (Malloy 1991). Video and performance art curator Carl Loeffler coordinated the Art Com Electronic Network (acen) on The WELL where acen Datanet, an early online publication, would soon feature actual works of art, including works by John Cage, Jim Rosenberg, and Judy Malloy. Rosenberg's programmatic poetry Diagrams No. 4 were published here, as was Malloy's data-base narrative Uncle Roger, which was "a hyperfictional narrative database". Malloy's works were also exhibited in physical art exhibitions.

On the opposite coast of the USA, introductions were made through shared friends, by reading papers and journals and at conferences (such as the MacAdemia conferences in Philadelphia in 1988 and at Brown in 1989) and the ACM Hypertext conferences in 1987 and 1989. Stuart Moulthrop describes how at the '89 Hypertext conference he and John McDaid, Michael Joyce and Jay Boltz sat at a computer connected to the internet and searched for other people doing similar things. They found Judy Malloy's work:

It was just like blues men going to each other's performances. Yeah, alright, oh darn that's good. Oh, we're not that good. So we really recognized that she was somebody, and she was part of a community out there in the Bay Area that was really important and exciting. I can remember coming away from that moment thinking that, you know, there might be a real hope for what we were trying to do because other people were doing it (Moulthrop, interview).

In an interview with Ransom Center archival Gabriela Redwine, Michael Joyce described how he came to realize that there was a community of readers passing works around informally even before there was a publisher or any of the institutions that conventionally support literature:

So—you had a physical community [of readers], like a book community. Same thing—similar story—with Jane [Yellowles] Douglas when she first called me up and said I'm writing my dissertation on afternoon. I said, "That's impossible, you can't be, it's not published." She said, "Well, no, but I have it, you know. I've gotten it through so-and-so." So we were pretty much aware there was a community of readers out there (Joyce 2011, interview).

By the late eighties, several tools were available for creating electronic literature, including HyperCard and Storyspace. Additionally, many practitioners did their own programming, such as Nichol, Malloy, and Rosenberg.

Eastgate became a central node in the hypertext fiction communities, as the primary publisher of literary hypertext. In an interview with Judy Malloy, Bernstein explained that he saw one of Eastgate's goals as providing shared references for the growing hypertext research community. The hypertext research field was growing, but before the web it was characterized by diverse, locally developed authoring systems. By publishing a series of hypertext fictions written in the same system, East-
gate managed to create a shared set of references: “These hypertexts helped focus discussion. For the first time, if you and I wanted to talk about the craft of hypertext writing, we could talk about a specific work we'd both read, a work with some ambition and scope, a work we could admire and with which we might disagree” (Bernstein email interview with Malloy 2010).

As previously mentioned, Eastgate succeeded in creating what we may call a canon of electronic literature, and works published by Eastgate in the early 1990s are still taught and written about today. At the time, there were other publishers, including Voyager and Electronic Hollywood, but they no longer exist, whereas Eastgate, small as it is, and by no means mainstream, is still selling copies of those same hypertexts. Eastgate has been frequently criticized because it does not make works available on the web but instead only distribute works on disk, and because works have not always remained accessible on current operating systems. However, it is clear that works published by Eastgate in the early 1990s have been more frequently cited and taught than contemporaneous works that were self-published or published by publishers that later shut down.

Although originally a software company, when marketing electronic literature, Eastgate modeled itself on a traditional literary publishing model. This allowed them to fit into a literary system. Despite their works being published on diskettes and CD-ROMs instead of on paper, they had ISBN numbers and were packaged so they could easily slip into a bookshelf. By claiming the position of a small literary publisher, Eastgate found a way to give legitimacy to electronic literature. Bernstein himself expresses this quite directly: “I think that the presence of a publisher did matter, especially to critics, ironically. In particular the fact that there was a publisher that looked like a recognizable sort of organization gave the critics a chance to pitch their stories to their editors, and editors who were inclined to find a technological line, or at least not repulsed by the idea of literary machines, could be convinced, since there was something that looked like a small press. That was important” (Interview, 29 June 2011).

In addition to publishing Storyspace works, Eastgate also published works written in other authoring systems, and in some cases, ported work written in other systems to Storyspace. For instance, Malloy’s Penelope was first written in BASIC, but Bernstein gave it the “Storyspace look and feel” and incorporated generative aspects of the work into Storyspace when the work was republished by Eastgate in 1993 (Malloy, email message to author, 29 June 2011). In this way, Eastgate served to gather much diverse activity, incorporating earlier works into its catalog, including pioneering authors on The WELL like Judy Malloy and Jim Rosenberg.

At the same time, hypertext fiction was beginning to enter the college classroom. Among the most well-known teachers of hypertext of the time were George Landow and Robert Coover at Brown University, and Janet Murray who taught at MIT at the time. Landow, Coover and Murray wrote extensively about the field as well (Landow’s book *Hypertext* was published in three print editions, in 1992, 1997 and 2006, as well as in a hypertextual edition published by Eastgate in 1994), and each is frequently cited.

**FIVE CATEGORIES OF EARLY ELECTRONIC LITERATURE**

Why are certain works more frequently cited than others? Obviously literary quality is one answer, but contextual circumstances are also extremely important, and it is the context and the community I am interested in this chapter. Thinking about which works of early electronic literature are still remembered today and which are not we can think in terms of five categories. These categories do not correspond to genres or literary qualities, but to the ways in which works were disseminated, documented and preserved.

1. There are many examples of isolated experiments that are regularly offered as examples of proto-hypertext or very early electronic literature, although they are more often mentioned as part of an obligatory literature review at the start of a paper than they are analyzed or discussed in detail. Examples are Christopher Strachey’s M.U.C. Love Letter Generator and Weizenbaum’s ELIZA. These works were not really intended as literature, but in hindsight have clearly literary qualities. Paper hypertexts may also be included in this category, such as Cortazar’s *Hopscotch* and Nabokov’s *Pale Fire*. These were not intended to be electronic literature, but in hindsight have many qualities that correspond to genres of electronic literature.

2. The second category of early electronic literature is the canon, as we might call it, the works that have been taught again and again in colleges and universities and that are frequently mentioned and discussed.
3. Works published by now defunct publishers may have received some critical acclaim at the time, but are no longer readily available and are rarely if ever mentioned in current discourse on electronic literature.

4. Self-published works. Before the web, self-publishing was more complicated than it is on the web, because authors had to make physical copies on diskette and distribute these. Without dedicated points of distribution, such as through a publisher or journal or software company, wide distribution was rare and perhaps non-existent. Even after the web, many early self-published web works are no longer available, either because the website has not been maintained, because the domain has lapsed or because the software or the web browser required to view the work is not compatible with current systems. It is true that in 2012, even Eastgate’s works from the early 1990s no longer work on contemporary computers, although they have certainly had far greater durability than most other works of that period. But because Eastgate is still in existence, there is ongoing work to create new versions of the reader software for Storyspace, and to create iPad versions of selected works.7

5. Some works, as today, were performed on an electronic network (as was the first publication of Judy Malloy’s Uncle Roger in 1986, when nuggets of text were posted to discussion boards), and so of course can no longer be experienced as originally intended. There have been many works since that require synchronous experience, or that can be said to be performed as much as they are published. Works that are sent to mailing lists or that are told as a series of emails or tweets and other social networks are examples, and so are works that are constructed in MOOs, such as Cooer and his students’ Hypertext Ho-

tel or the literary environments in LambdaMOO in the early 1990s. Without careful documentation, such works are easily forgotten, as they, unlike static websites or CD-ROMs, do not exist in their original form after their original performance.

### CONCLUSION

The works of electronic literature that are still remembered from the 1980s have enjoyed the attention of scholars, publishers, teachers, and authors who have remained in the field for a long time. Although Eastgate did not begin publishing hypertext fiction and poetry until 1990, it is the Eastgate versions of earlier, self-published works that are still remembered. Works published by now-defunct publishers are orphaned and rarely discussed, largely because they are no longer accessible. At the same time, the social networks around conferences and teaching institutions were key, as were online groups such as the ArtCom forum on the WELL. These online groups may no longer be remembered by many, but they served to connect authors and artists who then went on to receive a wider audience. I have not found any examples of solely self-published works that have been continuously discussed in the two decades of scholarship and teaching since the 1980s, although some works have been recently revived and made accessible again and are now receiving new attention, such as bp Nichol's BASIC poems.

Working on this article I have realized how much more there is to learn about these early days of hypertext and electronic literature. What appears clear at this point is that works that were self-published have tended to be forgotten. Whether this is simply because they ceased to be available or because they were never much discussed due to a lack of social and artistic connections (i.e. nobody was aware of the works in the first place) is not easy to ascertain as the discussions, online or off, of the time are not generally archived. Of course, publishing with an established publisher was no guarantee for being written into the history books either. Voyager was a far larger company than Eastgate in the early 1990s, and many works published by them received great critical acclaim at the time, but their works are no longer available.8 With the advent of the web, these dynamics

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7 On Twitter on January 13, 2012, Mark Bernstein promised new versions of Storyspace fictions to work in Lion OS for Macs in the Autumn of 2012, and wrote that iPad versions were on their way: @jilltxt @stevehimmer windows: use xp compat mode. Lion: new editions will be out by fall. iPad coming too. One reason for the Electronic Literature Collection being published with a Creative Commons license was to allow future readers the freedom to create their own ways of accessing the works when the Flash and XHTML of the early 2000s is no longer accessible. The PAD program for the Preserving, Archiving and Dissemination of Electronic Literature is one initiative that attempts to provide better frameworks to solve the question of technological obsolescence.

changed significantly, and today we also have many conferences, journals, college classes and organizations focused on electronic literature.

I have tried to use digital methods in examining the history of electronic literature, both bibliographically looking at citations of certain works, and extracting data about the use of terms for electronic literature in printed books. We are at the cusp of being able to use far more powerful tools than these in our readings of electronic literature and of other cultural fields of practice, and I look forward to seeing much more research conducted along these lines.

**ACKNOWLEDGEMENTS AND FURTHER INFORMATION**

This chapter has been written as part of the ELMCIP project (Developing a Network-Based Creative Community: Electronic Literature as a Model of Creativity and Innovation in Practice), a collaborative research project funded by Humanities in the European Research Area (HERA) IRP for Creativity and Innovation. My research has relied heavily on the ELMCIP Knowledge Base, where I and many other contributors have entered and cross-referenced information about electronic literature from its beginnings until today. You will find a great deal more information about electronic literature in the 1980s and beyond in the Knowledge Base, and you are also welcome to contribute more knowledge there. There may well be omissions and mistakes in my retelling of the 1980s, and I would welcome feedback and corrections.

We welcome new contributors to the ELMCIP Knowledge Base. You can request an account from the website.

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**DISTRIBUTED AUTHORSHIP AND CREATIVE COMMUNITIES**

**BY SIMON BIGGS AND PENNY TRAVLOU**

In its requirement, for both an author and reader, art can be considered a participatory activity. Expanded concepts of agency allow us to question what or who can be an active participant, allowing us to revisit the debate on authorship from alternate perspectives. We can ask whether creativity might be regarded as a form of social interaction, rather than an outcome. How might we understand creativity as interaction between people and things, as sets of discursive relations rather than outcomes?

Whilst creativity is often perceived as the product of the individual artist, or creative ensemble, it can also be considered an emergent phenomenon of communities, driving change and facilitating individual or ensemble creativity. Creativity can be a performative activity released when engaged through and by a community and understood as a process of interaction.

In this context the model of the solitary artist who produces artifacts which embody creativity is questioned as an ideal for achieving creative outcomes. Instead, creativity is proposed as an activity of exchange that enables (creates) people and communities. In his book *Creative Land*, anthropologist James Leach describes cultural practices where the creation of new things, and the ritualized forms of exchange enacted around them, function to "create" individuals and bind them in social groups, "creating" the community they inhabit. Leach's argument is an interesting take on the concept of the gift-economy and suggests it is possible to conceive of creativity as emergent from and innate to the interactions of people. Such an understanding might then function to combat an instrumentalist view of creativity that demands of artists that their creations have social (e.g.: "economic") value. In the argument proposed here, creativity is not valued as arising from a perceived need, a particular solution or product, nor from a "blue skies" ideal, but as an emergent property of communities.

This chapter seeks to articulate these issues, identifying a set of core questions and describing the context within which they will be addressed, indicating how these questions are at the center of the pan-European Electronic Literature as a Model of Creativity and Innovation in Practice (ELMCIP) collaborative research project, undertaken from 2010-2013 and funded through the Humanities
DEVELOPING AN IDENTITY FOR THE FIELD OF ELECTRONIC LITERATURE

REFLECTIONS ON THE ELECTRONIC LITERATURE ORGANIZATION ARCHIVES

BY SCOTT RETTBERG

The Electronic Literature Organization (ELO) was founded as a literary nonprofit organization in 1999 after the Technology Platforms for 21st Century Literature conference at Brown University. Along with Jeff Balloe and Robert Coover, I was a co-founder of the ELO, and served as its first Executive Director from 1999-2001, and have served on its board of directors in the years since then. Today it is one of the most active organizations in the field of electronic literature, central to the practice of e-lit in the United States and its establishment as an academic discipline. This essay briefly outlines the early history of the organization, the ways that the mission, profile, and the focus of the organization evolved and changed in its first decade, and offers some tentative insights into the ways that an institutionally structured community can facilitate network-mediated art practice.

The discussion is based on archival materials, including notes taken prior to the incorporation of the organization. By revisiting these materials and recounting the process by which the organization took shape, I will describe aspects of the iterative and deliberative process through which a collective institutional identity took shape. Although certain aspects of the organizational structure have remained stable since its formation, its mission, scope, programs, and constituency have changed and evolved a great deal during the period. Taking into account, for instance, that the organization was initiated during the final stages of the 1999 dot com boom primarily as an artist-based organization and has evolved ultimately into a professional academic organization with successful programs including an ongoing series of conferences and publications, it is useful to consider the organization as an evolving community. Even the shifts that took place between the time that the organization was initially conceived and its incorporation are instructive for understanding how a nascent creative community-based organization can change and evolve during its gestation.
The decisions about composition, mission, and programs of the Electronic Literature Organization have been non-trivial in their effects, contributing in a large degree to the conception of electronic literature and the discourse models of the field more generally. The widening breadth of the genres of electronic literature, the professionalization of its academic discourse, and to some degree the credentialing of creative practice have been facilitated by programs of ELO.


During 1998 and 1999, while I was a graduate student enrolled at the PhD program in English and Comparative Literature at the University of Cincinnati, studying 20th Century American Literature and fiction writing, I wrote a collaborative hypertext novel with William Gillespie, Frank Marquardt, and Dirk Straton titled The Unknown. In 1999, novelist Robert Coover selected the novel as the co-winner of the tACE/Alt-X hypertext competition of that year, and invited us to Brown University for the Technology Platforms for 21st Century Literature (TPC21CL) conference he convened there from April 7-9, 1999.1

The idea of the TPC21CL conference was to bring together both established e-writers such Michael Joyce, Jay Bolter, Deena Larsen, Stuart Moulthrop, Stephanie Strickland, M.D. Coverley (Marjorie Coverley Lusebrink), and Rob Wittig as well as relative unknowns creating new work on the web together with technologists and technology industry people: a group led by Jeff Ballowe, who helped Coover organize the conference, included for instance the editor of PC Magazine, the founder of Macromedia, and a number of people who were leading dot com companies at the height of the 1990s boom, as well as some publishers. The premise of this gathering was that a dialog about new platforms and tools might result, and perhaps even the development of new platforms for the creation of electronic literature. The contingents of writers and technologists, somewhat predictably, did not easily mix.

I was new to both the world of digital writing and the world of the technology industry, so both groups seemed equally strange and fascinating communities, each with their own references, histories, mythologies, internal conflicts, and so on. I had familiarized myself to some extent with hypertext fiction, but the whole universe of e-lit was still largely mysterious to me.

During the conference banquet, I found myself sitting at a table with Coover and Ballowe, who were both to some extent disappointed in the way that aspects of the two-day event had transpired. Ballowe asked me if I had any ideas about how these two groups might work together. As a graduate student/hungry artist type, it seemed obvious to me that one possibility would be for the Internet companies (which appeared to be swimming in unfathomably deep pools of money at that point in history) to find ways to support the new art forms and to apply some capital to the situation of experimental literature. I could imagine further e-lit competitions, like those organized for American poetry by the Academy of American Poets, specifically for electronic literature. I could imagine programs to make commercial software available for free or at a lower price for artists. I could imagine various forms of outreach activities to publicize and make more accessible electronic literature to a wider reading public. I could see the usefulness of a non-profit organization for electronic literature, modeled to some extent on existing literary non-profit organizations.

To my surprise, both Ballowe and Coover embraced these ideas. Ballowe encouraged me to write them up in a business plan, and told me that if Coover and the community of electronic literature authors would support the development of this kind of organization, he would agree to help with the fundraising; provided, that is, that someone would be willing to do the work at the grassroots level. By someone he meant me, and that is the very short version of how I became the first executive director of the ELO. In the months that followed, I worked with Ballowe, Coover, and members of the e-lit community such as Marjorie Lusebrink, Deena Larsen, Stephanie Strickland, and others to put together the initial plan for the organization, to incorporate as a 501(c)(3) nonprofit, to organize a board of directors, literary, and technology advisory board, and to launch the first of the ELO's programs.

The first three years of the ELO were a turbulent and exciting period, during which an institutional identity took shape. Historically we can also recall that it was a period during which America went from Internet boom to dot com crash, to the soul-wrenching event of 9/11 and its societal aftermath. I was recently going through some notes and archival materials from that time, including my first notes towards the ELO proposal, which form the basis of this discussion. I will also include some facsimiles of some of these materials. Though I focus here on that

34 Along with Geniwate's digital poem "Rice."
earliest period, I will also detail other aspects of the first decade of the ELO's history, with an eye toward the future of the organization.

After writing The Unknown with Dirk and William my surprised first impression of the electronic literature community (or communities) was that it was quite fragmented. I think most who were working in the field at the time would agree that this was the case. In many ways e-lit genres and practices in the US were more clearly divided than they are today. There seemed to be a "hypertext crowd" dominated by authors, mostly fiction writers, who had published work with Eastgate, and a separate "e-poetry crowd." While there was some interaction between these two communities, work and authors rarely seemed to cross between them. The "interactive fiction" crowd seemed to be in an entirely different universe—hypertext authors seem to have been eager to differentiate the type of work they were doing from games. At the TPC21CL conference, there was also a notable division between people who were writing hypertext for the web and those who had been working exclusively in Storyspace. One of the reasons we ultimately chose, in naming the Electronic Literature Organization, to go with the very general "electronic literature" term rather than hypertext or some other more taxonomically specific term was that we wanted the new organization to bridge those gaps and divisions which seemed to be largely artificial and certainly not productive in the sense of representing new media writing as an emergent cultural practice to be taken seriously.

If we think back to the atmosphere of 1999: interest in the Internet had exploded and we were in the midst of the boom period for the dot coms, but the net was still extremely novel, and most people had really only begun to integrate its use into their lives. There were no widely used online social networks, for example. The "home page" was still the default mode of self-representation on the web. Coding HTML was still a valued skill—people could get a job as a web designer or developer with very minimal technical knowledge.

In retrospect I think we can see that period as one in which hypertext fiction was essentially devolving as a specific genre, and during which its most significant "legitimate" publisher, Eastgate Systems, was struggling to keep pace with the popular adoption of the web. 35 Eastgate's Storyspace is a specific platform that was used for the production of many of the early hypertext fictions, and while there is wide diversity in the styles of writing that authors produced in that platform, the authoring environment and the user interface enforced certain shared characteristics on the works produced in Storyspace. The fact that one publisher released Storyspace works also framed those works within a particular aesthetic and marketing logic. Eastgate promoted itself as the publisher of "serious hypertext." When I met the publisher at TP21CL and heard stories from a number of authors who had published with Eastgate, I had doubts. Authors I spoke with at TP21CL publishing with Eastgate reported poor marketing support for their work, rights conflicts with the publisher, and even already at that stage, issues of technological obsolescence. Aside from the credentialing function and limited editorial support, I could not see how publishing with Eastgate could better serve authors than open distribution on the World Wide Web, where their work could be made more widely and freely available to audiences. Yet whether or not it was to play the specific function of publishing electronic literature, it seemed clear to me that an organization could fill some of the gaps between the seemingly—already—obsolete model of publishing offered by Eastgate and the completely DIY, anything-goes, freewheeling anarchy of the early Web: a mediating layer of organized community rather than a for-profit publishing enterprise.

THE FIRST DRAFTS OF THE ELECTRONIC LITERATURE ORGANIZATION

Here are the first notes I took in 1999, a day after the TPC21CL conference, which would later evolve into a proposal for the ELO. I will transcribe them here, but also attach scans of these hand-written notes:

The equivalent of a non-profit press for free, web-distributed hypertext literature.

1. A consortium, which could provide hypertext authors with:
2. A central distribution point for their work,
3. A mechanism for the promotion of their work,
4. Access to the latest tools and technologies,
5. Authenticity via a refereed process,
6. New alliances within established literary and technological communities,

35 See Jill Walker Rettberg's chapter "Electronic Literature Seen from a Distance: The Beginnings of a Field" for her discussion of electronic literature publishing venues during this period.
7. Based on a collective model, in which authors retain copyright and control of their work,
8. Would emphasize hypertext as a literature that emerges from, rather than in opposition to, our shared literary heritage,
9. Would serve an “evangelical” function—by organizing live events across the US and the world,
10. Could provide lucid and concise criticism of hypertext in ordinary language,
11. Along these lines, such an organization could also publish in more traditional media—book and CD-ROM—thus providing “hard-copy” references for libraries, universities etc.
12. Such an organization would not necessarily be tied to any particular aesthetic—would emphasize an “open-source” approach to hypertext not tied to any particular theoretical (agenda), [and]
13. Could work with established hypertext communities and companies, for the interests of the field as a whole.

Also among my notes from the TPC21CL are some “Conceptual Statements on Hypertext,” a sort of mini-manifesto that also reveals some aspects of my thinking about electronic literature at that time.

CONCEPTUAL STATEMENTS ON HYPERTEXT

1. Our understanding of the basic grammar of hypertext—link structures—still remains to be deeply explored.
2. Hypertext should not be understood as a new genre, but as something that will become multiple genres.
3. Hypertext is evolving into an ideal mode of collaboration—it is more naturally suited to multi-perspectival approaches.
4. Hypertext is less limited by technology than by imagination. The problem is one of making choices, limiting foci, and choosing paths for exploration.
5. Hypertext will enable new forms collaboration between different kinds of artists working in multiple media. Hypertext literature will involve “text” of multiple types. Hypertext will enable “micro-movements” of consensual communities of artists on a previously unimaginable scale. Varieties of convergence will create new forms for theorists to taxonomize.

SIDE NOTE: What would a hypertext opera look and sound like? How would it progress?

6. At this stage, more energy should be devoted to the kind of improvisational play that will generate new forms than the taxonomies, which will delimit then. Now is the time for artists to play with each other.
7. Hypertext is by nature kinetic.
8. Hypertext and print culture are not mutually exclusive. Hypertext is not the end of the book—it is a new form of literature, which is different from the book. Print and electronic literary cultures should be symbiotic and not antagonistic.
9. More hypertexts need to be free. People like free stuff. In order to generate a popular following for the new literature, we need to work to make it more accessible to readers (I haven't read any of the Eastgate hypertexts because I've been in graduate school. To my knowledge, they are not available at my university library. That is a problem).
I later sketched some of these ideas into a draft proposal, and sent them on to Ballowe and Coover. Working most closely with Ballowe, I developed the proposal and an organizational plan. I was able to find an interim draft of that proposal for an organization, which by this stage had morphed from "hyperlit.org" to "The Electronic Literature Foundation." As a side-note, I think Jeff Ballowe deserves some credit for the organization's adoption of the term "electronic literature"—we discussed the fact that "hypertext" as it was popularly understood at that moment was not really a broad enough term to address the different literary forms we could imagine such an organization supporting and promoting, and further, might sound technical and alienating to the broader non-specialist audience we were hoping to cultivate as a readership. This might be an interesting detail for some scholars interested in the choice of the term "electronic literature": it was chosen not for its specificity but its generality. I think Coover noted at the time that there was something "charmingly old-fashioned" about the term. The term sounded nostalgic from the first day it was used: we didn't want to scare readers away by throwing neologisms at them that sounded like something sent back from an intimidating cyber textual sci-fi future. "Electronic literature" is less a taxonomical category than a welcoming umbrella under which many types of creative production involving machines and literature might take place.36

I have posted online this draft proposal for the "Electronic Literature Foundation."37 This document is largely the product of my dialogue with Ballowe as well as consultations with potential corporate funders and non-profit experts, as well as with other e-lit writers, particularly during the "Cybermountain Colloquium" convened by Deena Larsen from May 28-June 2, 1999 near Denver, Colorado.

Larsen, Marjorie Luesebrink, Stephanie Strickland, N. Katherine Hayles, Mark Bernstein, and Bill Bly all gave me input after I presented the proposal to them. Some of these ideas were integrated into the proposal, and Luesebrink and Strickland, in particular, stayed in close contact as the project developed. Both have been deeply involved in the development of the ELO ever since. Deena Larsen was also key to developing the original membership and community of the ELO. When we incorporated, Luesebrink agreed to serve as the first vice-president of the organization, and subsequently engineered the ELO's move from Chicago to UCLA in 2002 and served as its second president.

In reviewing this proposal, it is important to understand that Ballowe's primary occupation at the time was helping to launch Internet companies. We were not thinking of putting together a small volunteer-driven non-profit but something of sizable scale that would operate with an annual budget of about a million dollars. The programs would include a professionally staffed and produced online magazine, Electronic Literature, annual electronic literature competitions, a "Tools for Writers" program, symposia and reading tours, and advisory functions for education, publishers, and the technology industry. The organization we conceived at that time would require a staff of ten, including an executive director, a network supervisor/programmer, a development director, a senior producer, a senior editor, a programs director, a publicist, a graphic designer, a staff writer, and an office administrator. We made no small plans, though in comparison to the budgets of Internet start-ups that Ballowe was accustomed to assembling and finding venture capital for at the time, a million dollar annual budget is small potatoes.

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36 To be clear, while the Electronic Literature Organization can claim some responsibility (or blame) for popularizing the term, we did not invent it. The earliest use of the term to describe what we now think of as e-lit, at least according to Jill Walker Rettberg's research cited in her chapter in this volume, is in a 1985 essay by Jay David Bolter: "The Idea of Literature in the Electronic Medium." Computers in the Liberal Arts, Topic. 39. Washington, PA: Washington and Jefferson College, 23-34.

37 http://elmcip.net/sites/default/files/files/attachments/criticalwriting/rettberg_ebo.pdf We changed the name from "Electronic Literature Foundation" to "Electronic Literature Organization" when we at some point realized that rhetorically "Foundation" suggests an entity that already has funding to hand out while "Organization" does not. Organizations often apply for grants, while foundations often award them. For all of the jokes we have endured over the ELO acronym over the years—which the organization of course shares with the 70s band the Electric Light Orchestra, you can imagine all the whimsical Tolkeinesque puns that ELF would have engendered.
Though the ELO has never had anything approaching the budget that the initially proposed endeavor would require, and has accomplished a great deal over time without such resources, I will be the first to say that it should have such resources, in an ideal setting. I think the organization would be able to accomplish a great deal with all of those positions staffed.

An important transition is already notable from my very first notes to this draft proposal: from a focus on the concerns of writers to the more general concern of building an audience for electronic literature (of interest not only of writers but also publishers and technology industry). That is while my first notes were oriented towards specific concerns that I had as a budding author of e-lit (and that I shared with other writers), the draft proposal was very much the product of dialogue with a number of different groups of what we might in grant language call "stakeholders." The proposal had by then been through several rounds of feedback from Jeff Ballowe, who was reviewing the document both as a potential fundraiser with a venture capitalist's sense of what could and not could be funded, and as a former executive of Ziff-Davis, a publisher that had built a magazine-and-online publishing empire around the technology industry. So it is not a surprise that certain aspects of this proposal, such as the idea for a dynamic Electronic Literature online magazine, were emphasized.

While my initial notes were more focused on integrating electronic literature with literary culture as I (as a young academic and fiction writer, habituated to used bookstores, lectures, and late-night poetry readings) understood it, at this point the proposal had been tempered both by Ballowe's feedback and by input received from meetings in New York with people active in the publishing industry, such as Peter Bernstein and Alexandra Penny, literary nonprofits, such as William Wadsworth at the Academy of American Poets and Celia O'Donnell at the Council of Literary Magazines and Presses, and people in the Internet industry, such as Gene DeRose, who was at the time the CEO of the dot com Jupiter Media Metrix. So in many senses, the ELO as it was initially formed was not based primarily on the input of academics, but more so on models from the publishing and technology industries. The first funding the ELO received in fact was not from traditional nonprofit source such as a foundation, but a gift from Robert Ziff, of Ziff-Davis, and the second major injections of funding we received were from NBCi, a corporation that no longer exists, and ZDNet, an Internet company which funded the 2001 Electronic Literature Awards competition.

From the beginning of the ELO there was a tension between different constituencies with different goals, even with different paradigms of conceptualizing both electronic literature and the community we were in the process of constituting. Because the ELO was bringing together so many different interest groups, core questions of our collective identity were not immediately resolved. Would the ELO become a publisher? An advocacy organization? An academic organization? A bridge between the publishing or technology industry and writers?

My first impulse was to think of the ELO as a community-supported publishing organization and as an advocacy organization: focused on increasing the readership of electronic literature. The original vision of the ELO was focused on providing ways for writers to reach a greater audience, and to make it easier for writers to work in electronic environments. It is interesting to me in retrospect how little of our activity in the early days of the ELO was academic. This is in part because of the constituency of the organization at the time: we had a mix of business people from the technology industry, literary nonprofit experts, such as Bill Wadsworth, and writers involved in the organization. While a few of the people involved were established academics, and while there was a literary advisory board that included a number of writers and academics, the early ELO was not an academic organization. Our first headquarters were not at a university, but a low-rent office in an industrial loft, over a precision gear factory in the Ravenswood neighborhood of Chicago. This small, unfinished office space was subleased from a two-person marketing consultancy, and shared a block of the factory building with a number of artist studios: our office-mates included painters, a ceramicist, and a weaver.

I have attached the first brochure produced by the ELO in 2000, which provides an impression of both the organizational structure of the ELO at the time and our initial objectives and programs (many of which were never realized). One first observation is that over a remarkably short period of time, we managed to pull together a remarkable group of people, representing a number of different constituencies. We constituted three separate boards including a board of directors, an "Internet Industry Advisory Board," and a "Literary Advisory Board." Each of these groups was conceived of as representing a different constituency, and as serving a different role within the organization. In comparison to the board of the ELO as it is currently composed in 2012, it remarkable how few of the original ELO board members had an explicit connection to academia. Rather,
we had on the board two publishers (Mark Bernstein and Peter Bernstein), four Internet/media/technology executives (Jeff Ballowe, Gene DeRose, Larry Wangberg, and Anne Schott), and two non-profit executives (William Wadsworth and Celia O'Donnell). We also had a number of writers and e-writers on the board (Robert Coover, Marjorie Luesebrink, Cathy Marshall, Stuart Moulthrop, and Rob Swigart). While four of these five had academic affiliations, the primary fo-

![Image of the ELO's first membership brochure (2000).](image)

cus of the group as it was composed in 2000 was not electronic literature as it would be studied, processed, and developed in academe, but rather how it might be adopted within the culture more broadly. This year 2000 iteration of the board of directors was structured to serve a more executive-level function than the current board. The idea was that the board would raise money, make strategic decisions, and direct the activities of a staff that would manage the actual programs at the front-line level. Additionally, the Internet Industry Advisory Board included five C.E.O.s of Internet companies, who each made a significant donation to the seed funding of the ELO. The idea at the time was that this group would expand, continuing to help with fundraising and advice on how to interface the cultural activities of the ELO with the commercial activities of the contemporary Web. Finally, the Literary Advisory Board was a large group of print writers (including such luminaries as John Barth, T.C. Boyle, Harry Mathews, George Plimpton, and Heather McHugh), e-writers (such as Michael Joyce, Stephanie Strickland, Carolyn Guerda, Loss Pequeño Glazier, Bobby Arellano, Rob Wittig, and Rob Kendall), publishers (such as the legendary founder of the Evergreen Review, Barney Rossett, and Grove Press's Morgan Entrekin, as well as e-lit journal publishers such as Edward Falco of the The New River), and critics and theorists (such as N. Katherine Hayles, Raine Koskimaa, Larry McCaffery, Thomas LeClair, and Joseph Tabb). The Literary Advisory Board was intended to offer advice on activities such as awards competitions, readings, and publication activities, as well as expanding the reach of the ELO in literary communities.

In retrospect it is almost staggering that we were able to pull together so many influential people in so brief a period. The first board of directors was very productive and energetic in the activity of bringing all these boards together: Coover, Ballowe, and everyone else on the board basically opened up their Rolodexes to the ELO, and it was surprising even to us how many people were enthusiastic about participating in the development of this new organization. These were the days of the irrational exuberance of the dot com boom, and this might sound strange to say, but for a while it seemed as if there was a general sense of acceleration in the air. Within the space of just one year, we had moved from just a few hand-scrawled notions in a notebook to an incorporated non-profit organization that involved about sixty different people, an office, a seed budget, staff in place, and programs underway.

Looking at the list of programs outlined in this brochure, several of them remain the core activities of the ELO today: the "web resource center," the Electronic Literature Directory, e-lit readings and events, and symposia were all conceived at this time. There are a few programs, such as the "Connections Program" which was intended to bring e-lit to libraries, and to connect print writers with e-writers and designers, and the "International Day of Readings" which never saw the light of day. The "Electronic Literature Prizes" did materialize, in the form of the 2001 Electronic Literature Awards.
Fig. 4 Article about electronic literature in the *Los Angeles Times*, July 24, 2000, based on interviews conducted after the ELO fundraising event in Seattle.

Fig. 5 Article about the ELO in the *Chicago Tribune, May* 18, 2001.

Fig. 6 Unauthorized satirical notice of the ELO fundraiser at the home of George Plimpton, editor of the *Paris Review*, published in *The New York Observer* the day of the party.

**SUCCESSES AND FAILURES 1999-2001**

During the period that I was the executive director, the ELO saw a number of important milestones achieved. The first and most important was the foundation of the organization, its incorporation, and successful transition to established federal nonprofit status. We were also successful in publicizing electronic literature and the activities of the field quite well. We were aggressive in sending out press releases and developing media connections, and during this period a number of national newspapers, such as the *New York Times*, the *Los Angeles Times*, and the *Chicago Tribune*, magazines, radio and TV outlets published stories about the ELO and electronic literature more generally. In 2000, we organized fundraising events in New York (hosted by George Plimpton) and in Seattle.

From 1999-2001 we conducted a number of e-lit readings and events, including GiG and GiG 2.0 in Chicago in 1999 and 2000, the Boston T1 Party at the Boston Cyberarts Festival in 2001, e-lit readings at New York University in 2001, contributed panels to the TextZeroOne electronic publishing conference in New York and the 2001 Chicago Humanities Festival, and an electronic litera-
ture show and exhibit at the Museum of Contemporary Art Chicago in 2002. During 2001-2002 we organized the Interactions reading series at the University of Illinois at Chicago, funded by the Illinois Humanities Council, which paired electronic literature authors with critics who responded to the works presented. We developed the first iteration of the ELO directory, which was active for several years thereafter. We had the first (and unfortunately to date only) Electronic Literature Awards competition, which awarded two $10,000 prizes in digital fiction and poetry in 2001, and culminated with an awards ceremony at the New School in New York. The website was also very active during this period: news about electronic literature was published on the site on an ongoing basis, a monthly email newsletter was published to our membership, and online chats with featured e-lit writers, conducted by Deena Larsen, took place on a regular basis. For a brief period, the organization was well funded. I was a full-time employee of the organization, and a number of other people were working with us on an hourly or contracted basis. Eric Rasmussen was employed as programs assistant, William Gillespie was developing the news content of the site, Kurt Heintz was contracted to do development, Robert Kendall and Nick Traenknner worked together to develop the bespoke database platform for the first version of the Electronic Literature Directory. Renowned Chicago designer Rick Valicenti developed an identity set for the ELO on a pro bono basis, and a number of paid interns worked with us during this period, including John Vincler, who is still working with the ELO’s directory project today.

During this period I was thinking of the ELO both as a national organization and as one with a local home in Chicago. Though we were struggling with all the minutiae and logistical challenges of establishing a non-profit organization operating nationally with a distributed leadership, what kept me going on a day-to-day basis was the support of an active and engaged local community. In addition to the people working directly with the organization, friends like Rob Wittig, Joseph Tabbi, and Roderick Coover were very engaged with the activities of the ELO, and even as the organization was finding its identity, we were actively engaged in the creation of what you might call an “e-lit scene” in Chicago, fed by creative and intellectual exchanges about electronic literature and what it might become. The two GIG events for me encapsulate the energy of this scene. The first GIG took place shortly after the foundation of the ELO in 1999, and was largely the brainchild of Roderick Coover, who thought we should bring e-lit together with some of the media art he and his colleagues were doing at the Art Institute of Chicago. We had only a shoestring budget. One of Roderick’s friends lent us the use of his art gallery, basically a large empty loft space. Kurt Heintz pulled together a number of e-poets for telepresent videopoetry readings from New York and Washington. Musician Paul Kotheimer agreed to play a set and friend DJ Pancake agreed to spin some tunes. The day before the event, we showed up with some lumber and (thanks to Coover’s carpentry skills) built a stage, painted a flat white to serve as a screen, jury-rigged a contraption to hang the projector from the ceiling, and put together some booths to show short films. We bought a keg of beer and a case of cheap wine, and friends agreed to tend the bar. We had plastered the Wicker Park neighborhood with posters, but were still surprised at the turnout. It was an impromptu festival, and it went into the

38 GIG is not an abbreviation. The idea was that the event would feature about a gigabyte of electronic literature and digital art.

39 Archives of the chats led by Deena Larsen are available on the ELO site.

40 In his article “Shyness, Cushions, and Food Case Studies in American Creative Communities,” Rob Wittig describes the “e-lit dinners” that he, Joseph Tabbi, Kurt Heintz, and I and a rotating cast of writers met for on a regular basis during this period at Chicago restaurant Moti Mahal.
Dealing with the morning. Among the things I learned from the two GiG events was that people were willing to volunteer their time, effort, and creativity to enable not just a cool party but also a creative convergence to take place. The other thing that I took away from the experience was that e-lit can be presented well with other art forms. At the first GiG we had hypertext and e-poetry but also a bit of Samuel Beckett, films, folk songs, and Brazilian dance music. The GiGs were a celebration of e-lit but also a celebration of a cultural context in which it was taking place. I think that both the ethos of volunteerism and the awareness that e-lit exists within an interzone of other cultural practices has remained very important to the way that ELO has operated in the years since.

The 2001 Awards constituted another major milestone for the ELO, in a number of ways. It was among the first ELO activities to draw in the participation of many different writers who may or may not have thought of themselves as members of the ELO community. With two $10,000 awards on offer, it did not seem to matter a great deal if one was allied to a particular faction of e-lit, hypertext, or e-poetry, or really if authors or designers had considered their work within that frame previously. Many of the people who submitted interesting work to the 2001 Awards had never for instance been associated with Eastgate or with the E-Poetry festival. I think the competition's very openness, with one prize simply designated for fiction and another for poetry, and the wide diversity of work submitted and selected for the shortlists in each category, helped to establish electronic literature as a broader category that could encompass a number of different types of literary practice that make use of digital media.

The selection process for the 2001 Awards was both peer-reviewed and judged. Members of the ELO Literary Advisory Board selected the works on the shortlists. Each of the 163 works submitted was reviewed by at least three people in the first round, and the six works with the highest aggregate scores were then passed on to the two final judges who chose the winners: Larry McCaffery for fiction and Heather McHugh for poetry. The choice of final judges was somewhat controversial at the time, in that neither McCaffery nor McHugh were deeply familiar with hypertext or e-poetry. McCaffery was a leading literary critic, particularly of postmodern American fiction, and McHugh a well-known experimental print poet. Selecting them as judges was an intentional attempt to reach outside of
the existing e-lit subcultures to a wider literary culture, in keeping with a general emphasis on broadening the audience for e-lit.

The range of work shortlisted for the awards was an eye-opener for me personally in terms of what I might consider “fiction” and “poetry” to be in the e-lit context. While the list for fiction included Shelley Jackson’s excellent Storyspace hypertext retelling of the Frankenstein myth, Patchwork Girl, it also included a number of works that took radically different approaches to the form and interface of fiction, ranging from Talan Memmott’s Deleuzian meditation on cyborg organized consciousness, Lexia to Perplexia, to Mez’s the data[hi]bleeding texts written in her particularly styled mutation of human and machine language, to Noah Wardrip-Fruin et al’s The Impermanence Agent, which is both a tale of human loss and a degenerative web browser, to Paul Chan’s Alternumerics, a set of fonts in which each keystroke provides not a letter but a word, phrase, or iconic image, with each font tied to a particular concept or thinker. In every case the materiality of the interface and the particularities of the digital medium played at least as significant a role as did any traditional idea of story. The prizewinner, Caitlin Fisher’s These Waves of Girls, like Patchwork Girl, was both recognizably a story and suited to particular vernacular qualities of the medium. Likewise, John Cayley’s windsound—the poetry winner—was both explicitly procedural and distinctively expressive at the level of language. In every case in both categories for the 2001 Awards however we saw works that were ontologically distinct from print literature, representatives of what was becoming a form between the recognizably literary, the visual, the conceptual, and the procedural.

With a number of people staffing the organization and a fast-paced stream of activities taking place, of course, funding was an ongoing and pressing concern. We had a number of successes in this area, first with the seed funding for the organization, mainly from individuals working in the technology industry, and then with foundations. During this period we received funding from the Ford Foundation, which funded the first Electronic Literature Symposium at UCLA in 2002, and the Rockefeller Foundation, which funded work on the Electronic Literature Directory. In spite of these successes, funding was ultimately the most significant challenge for the organization in its earliest period. When the Internet bubble burst in 2000–2001, many of the individuals who had been very generous with the ELO at the time of its foundation suddenly found their net worth and disposable income considerably diminished. Although the costs of running the ELO were not particu-

larly extravagant, without continuing funding from the initial individual donors, by mid-2001, it did not seem sustainable to the board to continue to plan on funding even one full-time position, and we began to look for other models of how the ELO might be constituted.

2002-2005 TRANSITIONING TO ACADEME AT UCLA

In mid-2001 the future of the ELO looked extremely tenuous. While we had been remarkably successful in securing funding from two major foundations and were beginning to find local funding in Chicago, the state of the American economy had taken a downturn, which would only get worse after the events of September 11. It was clear that we would not be able to sustain the level of activity or staffing we had envisioned during the heady days of the organization’s inception, and it was not clear how we could survive as an organization at all if we were not able to fund some staff, an office and some of the other basic costs of running a non-profit organization.

Thankfully, Marjorie Luesebrink and N. Katherine Hayles were very committed to the vision of the ELO and worked to find a place for the organization at UCLA, where Hayles was a professor at the time. Luesebrink stepped up to serve as the second President of the ELO and guided this transition. Luesebrink and Hayles worked very hard to negotiate a hosting arrangement for the ELO, supported by the English Department, SINAPSE (Social Interfaces and Networks in Advanced Programmable Simulations and Environments) and the Design/Media Arts Department. UCLA essentially covered the office costs of ELO, the salary of a half-time managing director, and hosted the website of the ELO. In January 2002, I shipped the last box of ELO materials to UCLA and shuttered the Chicago office.

The arrangement with UCLA both offered the ELO a lifeline that enabled us to sustain the organization through the economic downturn, and I think most importantly nested the organization within an academic context. Particularly with N. Katherine Hayles serving in the role of a faculty adviser and champion, the organization made new inroads within the contexts of literary studies and media arts. We were also lucky to find a skilled managing director in the person of Jessica Pressman, who managed the affairs of the ELO at UCLA for several years before completing her Ph.D. and eventually joining the faculty of Yale University, where she teaches electronic literature in the English department today. Pressman was
succeeded in her position at UCLA by Carol Wald, who also served the ELO well during her stint as managing director.

The 2002 State of the Arts Symposium, funded by the Ford Foundation, was the first and most significant event that took place at UCLA. The generous funding enabled the ELO to invite and cover the basic travel costs of a number of expert panels. Looking back at the topics of the panels for the 2002 symposium, I think they are still matters of concern to the field today: "Writers Looking Ahead," "Navigating the Borders—Edges and Interfaces," "Graduate Programs," "Accessibility and Diversity," "Multimedia Criticism," "Electronic Literature in the University," "Technique: Tools for Cross-Fertilization and Interactivity," "Publishing Models for Electronic Literature," and "Archiving Digital Culture." The three keynote addresses also represented three significant voices representative of paradigms of viewing literature's transition to digital media: Hayles, who was and remains one of the most significant theorists working on e-lit, Robert Coover, who has guided dozens of talented writers to experiments in writing for digital media, and Jason Epstein, the former editor of the New York Review of Books who was an early advocate of transitioning the publishing industry to electronic publishing models. The conference also included a juried exhibition of works of e-lit, which was an important precedent for the ELO conferences that have followed.

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The proceedings of the conference, including "scribe reports" summarizing each of the panel discussions, the keynotes, and selected individual contributions, were published in 2003 in State of the Arts, along with a CD-ROM including most of the works shortlisted for the awards as well as audio from the symposium. This book and CD is still available for order from the ELO. A zip file of the CD-ROM contents is also available for download on the ELMCIP Knowledge Base. This was the ELO's first formal publication, and began an important strand of the organization's activities.

The board of directors was undergoing some important shifts during this period, as more theorists, critics, and authors, such as Alan Liu, Bill Seaman, Stephanie Strickland, Thomas Swiss, Matthew Kirschenbaum, and Nick Montfort joined the board of directors while a number of the members of the initial board cycled off. While many of the initial board members were missed, the changes were also in keeping with two general shifts within the organization: one notable turn is towards ELO's development as an academic organization. While in its first iteration the ELO may have been envisioned more as an organization focused on writers and on popularizing e-lit, it was increasingly becoming an actor in shaping an academic field of practice: moving from something more like the Academy of American Poets to something more like the MLA, or perhaps on a more appropriate scale, the Association of Internet Researchers or Society for Literature, Science, and the Arts. This is not to say that ELO was abandoning a focus...
on bringing electronic literature to audiences and helping e-lit writers to build a community, just that the channels for doing that were increasingly embedded with an academic context. We were in the process of becoming an arts organization that was also a professional academic consortium. The loss of some original board members enabled the ELO to reconsider its mission and focus. When Eastgate Systems’ Mark Bernstein resigned from the board of the ELO in 2003, the ELO was liberated from a voice that had consistently argued against the ELO considering publishing of works of e-lit to be an aspect of its mission. Indeed, the publication of the first volume of the Electronic Literature Collection would likely have never taken place had Bernstein remained on the ELO board.

The other thing that the leadership of the ELO realized during these years was that without significant financial resources, we could not conceive of the board of directors as having a purely administrative or fundraising role—that is to say that without money for staff salaries, the members of the board would need to be much more active in the execution of the programs they conceived. To some degree the ELO has operated in this way ever since: as a lean organization with a small budget, driven by the voluntary work of people who care about building their own field of creative and scholarly practice. While more can always be accomplished more quickly with better funding, the ELO has been a prime example of what can be accomplished by an organized group of dedicated people with common goals, even with very few resources.

Locally at UCLA, the ELO conducted a series of events and readings with the Hammer Museum from 2003–2005, and from 2004–2006, Nick Montfort organized an ELO reading series, MACHINE, at the Kelly Writer’s House at the University of Pennsylvania. The ELO also sponsored panels, readings, and events at a number of conferences and festivals, such as the ACH, SLSA, and Boston Cyberarts Festival. These sorts of arrangements, series of events in which the ELO serves as a partner with another local cultural institution in arranging and promoting live readings and performances of works of electronic literature, have remained a successful model for the organization into the present day.41 The ongoing Purple Blurb series at MIT and 2011 presentations of the Electronic Literature Collection Volume 2 at the Bergen Public Library in Bergen, Norway and at The Kitchen in New York are recent examples of this continuing tradition.

41 Most of these readings and events (and many others) are documented in the ELMCIP Knowledge Base (http://elmcip.net/event).

The Preserving, Archiving, and Dissemination project was a focus of the organization during the UCLA years. The project resulted in the publication of two very important white papers, "Acid-Free Bits: Recommendations for Long-Lasting Electronic Literature" by Nick Montfort and Noah Wardrip-Fruin and "Born-Again Bits: A Framework for Migrating Electronic Literature" by Alan Liu, David Durand, Nick Montfort, Merrilee Proffitt, Liam R. E. Quin, Jean-Hugues Réty, and Noah Wardrip-Fruin. In April 2003, with the Digital Cultures Project, the ELO also co-sponsored the e(X)literture: The Preservation, Archiving, and Dissemination of Electronic Literature conference, organized by Alan Liu at the University of California, Santa Barbara. Although a significant grant to produce and distribute tools to make it easier for writers to produce more sustainable e-lit and to emulate and otherwise preserve endangered works of electronic literature was never successfully attained by the ELO, the PAD project did have a number of significant positive outcomes. The two white papers are frequently cited in discussions of digital preservation, and the project resulted in an ongoing dialogue between the electronic literature community and librarians and digital archivists.42

Indeed, Rui Torres, since 2011 the leader of the EU-funded Po.EX Archive, an excellent project working on the preservation of Portuguese experimental literature, recently cited "Born-Again Bits" as the inspiration for some of the electronic literature preservation and emulation aspects of his project. The preservation of digital materials in general and electronic literature in particular is a long game, and will remain a concern for actors in the field for decades to come.

In 2004, while Nick Montfort and Talan Memmott were visiting me at the Richard Stockton College of New Jersey (in fact after an evening of watching Talan clean up on an Atlantic City casino craps table), we discussed a common frustration we shared with many other e-lit authors and teachers of electronic literature: that while there was clearly a respectable corpus of innovative works of electronic literature, there were still relatively few publication venues. I was teaching electronic literature in a new media studies program there, and every semester I would face the same challenge: that many of the works I had taught the previous year would either be technically obsolescent or would have simply disappeared in the interim. Nick suggested that one way to help address the

42 See Hartling/Suter special issue of SPIEL on "Archiving Electronic Literature and Poetry: Problems, Tendencies, Perspectives" (2010) for a number of discussions of archiving and preservation issues specific to electronic literature.
concerns both of creating a new publishing venue for authors and making more work more easily available for academic study would be for the ELO to get more actively involved in publishing electronic literature. We were all in agreement that while the ELO focus on archiving and preserving the past of electronic literature was important, one of the best ways that preservation could be accomplished was by collecting and publishing works of electronic literature, and keeping them freely accessible on the ELO server and elsewhere. In October 2004 Nick and I hammered out the first draft of the proposal for the ELC (Electronic Literature Collection), which I have attached.

As with all ELO projects, the nature of the ELC changed from its initial conception to its execution. While we initially proposed an annual publication, which might be tied to a renewed awards program, in actual execution the first two volumes of the ELC, published in 2006 and 2011, have each taken a longer time to produce. Not incidentally, each of the two volumes are more substantial than we initially conceptualized, with each containing about sixty works of e-lit and a well developed editorial apparatus supporting them. A few notable elements of this proposal have however remained consistent:

1. A commitment to publishing the ELC with a permissive Creative Commons licensed basis, making it easy for people to copy and share the Collection and works it contains,
2. A commitment to publish the ELC both on the ELO web server and on other media suitable for other forms of distribution and archiving (such as installation on machines at schools and inclusion in library collections),
3. An editorial structure based on a rotating collective model, in which each iteration of the ELC will be edited by a different small group, who would take responsibility both for selecting works from submissions and for producing the ELC, and
4. An interest in communicating and work with librarians to make the collection available to the public in library contexts.

2006-2010 SETTING CLEAR PRIORITIES AND DEVELOPING INFRASTRUCTURE FOR THE FIELD

During the period of Marjorie Luesebrink's presidency, the ELO had transitioned from an exciting and active but tenuous start-up nonprofit organization to a stab-

ble and established entity rooted in academia. In 2005, Thomas Swiss, who was located at the University of Iowa at the time, took on the role of President of the ELO, with Nick Montfort and Noah Wardrip-Fruin serving as vice-presidents during his term. An important meeting of the ELO executive committee took place at the University of Iowa in 2005. One of the matters discussed there was the revision and approval of a working definition of electronic literature drafted a committee led by Noah Wardrip-Fruin, which specifies that "the term refers to works with important literary aspects that take advantage of the capabilities and contexts provided by the stand-alone or networked computer" and provides a number of examples of types of works within the broad category. While this definition has proven somewhat controversial (as "important literary aspects" tends towards the tautological) it was very useful for the ELO as an organization to delimit the type of work on which it would focus. The other important outcome of the meeting in Iowa was also one of delimitation. In Iowa we agreed that for the time being the organization would focus primarily on four main areas of activity: reviving the Electronic Literature Directory, which at that point was no longer operating as originally intended, streamlining and bringing more regular activity to the ELO website, publishing the Electronic Literature Collection, and organizing conferences and events related to electronic literature for writers and academics working in the field. These have remained the main priorities of the organization ever since.

In 2006, as N. Katherine Hayles was moving from her position at UCLA to a new position at Duke University, the ELO also migrated from UCLA to the Maryland Institute of Technology in the Humanities (MITH), a dynamic digital humanities research center at the University of Maryland. Matthew Kirschenbaum and Neil Fraistat at MITH guided this transition, and secured vital resources including a half-time managing director position, office space, and technical support for the ELO. This year also saw the publication of the Electronic Literature Collection, Volume 1, edited by N. Katherine Hayles, Nick Montfort, me, and

43 There were both technical and conceptual problems with the first version of the ELD. On the technical side, because the platform was custom-designed it was difficult to change and update. Conceptually, the categories by which we had defined the field in 2000 did not seem completely applicable to the practices of the field by the middle of the decade.
Stephanie Strickland. The ELC was funded by a number of partners, mostly individual academic departments, who each donated $500-$1000 to support the publication. Although the release of the ELC I was not without problems—we later discovered that the company we hired to produce them did not replicate a substantial proportion of the CD-ROM's properly—on the whole the *Electronic Literature Collection* was even more successful than anticipated. The ELC made sixty works of electronic literature in a wide variety of formats and aesthetic approaches available at one URL as well as on CD-ROM. The Collection was reviewed widely in online and print publications and perhaps even more importantly, was almost instantly adopted on the syllabi of many educators teaching electronic literature in the USA and abroad. I don't think I realized the impact of the publication of the ELC until a year later; after I had moved to Norway and was attending the "Remediating Literature" conference in Utrecht. Nearly all of the papers I heard at that conference, particularly those produced by younger scholars, referenced works that were included in the ELC. Some even referred to the ELC as the "electronic literature canon." While I don't share this view of the ELC as a canon, but rather think of the ELC as sort of periodic snapshot of an emergent field in motion, I do think it is remarkable that only one year after its publication, some scholars were already thinking of it in that way.

In May 2007, the ELO resumed its agenda of independently organized conferences and events with a symposium "The Future of Electronic Literature" at MITH organized by Matthew Kirshenbaum and our new managing director at MITH, Helen DeVinney. The seminar, centered on issues of the archiving, publishing, and internationalization of electronic literature, encapsulated many of the themes with which the ELO remains intimately involved.

In 2007, Joseph Tabbi began his term as President of the ELO. Chief among the accomplishments of his tenure was the revitalization and re-launch of the Electronic Literature Directory. The new directory, which launched in 2009, has different conceptual focus and scope than the directory that preceded it. Rather than attempting to pigeonhole works into somewhat arbitrary categories derived from the print tradition and technical formats (for example "Long Hypertext Fiction" or "Short Kinetic Poetry") the new directory is based on a folksonomical model of tagging, so that works can be found and accessed via multiple conceptual, technical, and thematic criteria, which can be adjusted over time as the discourse of the field changes. Even more importantly, the new directory is fundamentally focused on carefully composed short descriptions of work, each of which are intended to serve as fixed starting points for critical discourse. Tabbi assembled an editorial working group of writers and scholars who engage in a peer-to-peer discussion and critique of entries-in-progress. While the ELD is open to contributions from all interested writers and scholars, this core community of contributors and editors, first led by Lori Emerson and currently by Davin Heckman, are central to the process of developing carefully vetted critical entries in which the ELD editors are engaged. In concert with other international electronic literature database efforts, such as the ELMCIP Electronic Literature Knowledge Base, we are currently developing at the University of Bergen, and the NT2 database of French-language electronic literature and digital arts, the ELD is making a vital contribution to developing a research infrastructure for electronic literature.

In 2007 we also saw the development of a relationship between the ELO and the United States Library of Congress Archive-It project. For several years, the ELO has provided the LOC with an annotated list of URLs, which are then systematically archived by the Internet Archive and made available as a discrete searchable archive accessible via the Library of Congress. While Internet Archive technology remains imperfect at archiving non-standardized and proprietary web formats, such as Flash, that have been commonly utilized in works of elec-

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44 For a more extensive discussion of the process of editing the ELC, see my SPIEL essay "Editorial Process and the Idea of Genre in Electronic Literature in the Electronic Literature Collection, Volume I."

45 The sponsors of the *Electronic Literature Collection, Volume I*: Center for Programs in Contemporary Writing at the University of Pennsylvania, Division of Arts and Humanities at the Richard Stockton College of New Jersey, ELINOR: Electronic Literature in the Nordic Countries, MITH: Maryland Institute of Technology in the Humanities at the University of Maryland, The School of Journalism and Mass Communication at the University of Minnesota, and the College of Letters and Science English Department, University of California, Los Angeles.


47 It should also be noted that undergraduate and graduate students are contributing to the development of both the Electronic Literature Directory and the ELMCIP Knowledge Base in collaboration with faculty at a number of institutions as part of their regular coursework. This sort of research-led teaching, in which students are engaged as coresearchers, will be important to the future success and sustainability of both projects.
Electronic literature, at the very least we can be assured that a good representation of the contemporary field of electronic literature will be well documented within the Internet Archive and available for future use.

After joining the ELO board, Dene Grigar established a clear priority to revitalize ELO's conferencing activity beyond relatively small symposia to a fully-fledged congress on the scale of other major academic conferences and festivals and in 2008 organized and hosted the Visionary Landscapes conference at Washington State University. The conference included more than 150 writers, artists, scholars and other presenters. Grigar strove to achieve a balance between readings and performances of e-lit, paper presentations, and panel discussions. The conference was also notable for the fact that media artworks were presented and exhibited alongside clearly literary works: it was a conference of electronic literature and its boundary disciplines, with an awareness that border zones are often the areas where the most interesting activity takes place. The conference was a success and offered the ELO a model of how continue to develop a large-scale biennial congress of the field.

This success was repeated in 2010 at Brown University, with the ELO.AI (Archive & Innovate) conference at Brown University organized by John Cayley and the Brown Literary Arts Program. The Brown University event was a homecoming of sorts for the ELO, as a decade after its inception, the organization returned to the campus where it had first been conceived. I took a great deal of pride in the fact that more than a decade after Jeff Ballowe, Robert Coover, and I had spent a few moments at a table together musing over the notion of what an electronic literature organization might be, the ELO was not only still alive but thriving in its work, central to a vibrant field of creative and academic practice.

2011 AND BEYOND: CONTINUITY, CHALLENGES, AND OPPORTUNITIES

In 2011, Electronic Literature Collection Volume 2, edited by Laura Borràs Castanyer, Talan Memmott, Rita Raley, and Brian Kim Stefans, was published online. The ELC2 was positively reviewed and has had a significant impact in enhancing electronic literature curricula, exposing new audiences to the field, and expanding and enriching our understanding of new forms of digital literary practice. Electronic Literature Collection Volume 3 (ITAL) is currently in progress. The editorial team of Stephanie Boluk, Leonardo Flores, Jacob Garbe, Anastasia Salter are bringing the perspective of a new generation of electronic literature authors and scholars to the project, which promises to continue to be a central publication in the field. Work on the Electronic Literature Directory has also proceeded apace. The Consortium on Electronic Literature (CELL), an affiliate network of electronic literature organizations, projects, and institutions, has also begun to take shape. Through the CELL, entities such as the ELO, NT2 in Canada, EL-MCIP, Laboratoire Parapgre, Hermeneia, the Po.Ex Archive of Experimental Portuguese Literature, the Australian Creative Nation project, MIT, the Brown University Digital Literary Arts Archive, ADEL Siegen, and others are beginning to work together on electronic literature projects such as sharing information between online databases, bibliographic and archiving standards for electronic literature, coordinating the timing and publicity of events and so forth, on an international basis. From 2012, the ELO has moved to an annual conference schedule, with events alternating between American and international locations. Recent conferences have been hosted at West Virginia University (2012), in Paris (2013), at the University of Milwaukee (2014), and the University of Bergen. Since 2011, the ELO has been based at MIT.

The ELO is now stable in a number of ways. For the near term at least, it is focused on producing four programs: the website and related communications (such as a Facebook group and active Twitter feed maintained by Communications Director Mark C. Marino) which share news and information relevant to the field, the production and maintenance of the Electronic Literature Directory, the periodic publication and distribution of the Electronic Literature Collection, and the organization of a major biennial conference. Though not precisely a structured program, a fifth strand of activity that has remained consistent is the co-organization of readings and seminars with other partners, typically organized and championed by an individual ELO member or board member. Yet behind the scenes, ELO still struggles with challenges common to many nonprofit organizations. Since the move to UCLA, ELO has always to some extent been dependent on the generosity of an academic host to fund a managing director position and office. The organization has struggled to build and maintain a membership that not only participates in its program but that is willing to make financial contributions to keep the lights on. There is significant overhead involved just in the procedural mechanics of keeping

48 See http://cellproject.net.
INTERACTIVE FICTION COMMUNITIES: FROM PRESERVATION THROUGH PROMOTION AND BEYOND

BY NICK MONTFORT AND EMILY SHORT

The interactive fiction (IF) community has for decades been involved with the authorship, sharing, reading, and discussion of a type of electronic literature and computer game. Creating interactive fiction is a game-making and world-building activity, one that involves programming as well as writing. Playing interactive fiction typically involves typing input and receiving a textual response explaining the current situation. From the first canonical interactive fiction, the minicomputer game Adventure, the form has lived through a very successful commercial phase and is now being actively developed by individuals, worldwide, who usually share their work for free online.

Although it is typical to speak of “the IF community,” there have actually been several communities representing different interests, different types of authoring systems, and various natural languages. Until around 2005, online archives, discussions, newsletters, and competitions focused the energies of IF community members. But since the middle of the 21st century’s first decade, interest in IF has broadened beyond its earlier boundaries and academics, students, and players of indie games who are not IF community members that have become active as IF players. Groups have met in person in different cities to play games and discuss work in progress. We consider the IF community’s early formation and the way it, along with concept of interactive fiction, has evolved in recent years.

THE FORM AND CONVENTIONS OF INTERACTIVE FICTION

Interactive fiction as typically defined is a form in which the interactors or player types (or in some cases, selects) actions for a particular character to undertake; the program responds with a report of what happens. The works that have been in this form present puzzles and challenges as well as literary pleasures; they simulate worlds and perform limited but effective natural language understanding. Interactive fiction has often meant more or less the same thing as “text adventure,” although even the most text-fixated would at least admit that interactive fiction
Doing Digital Humanities
Practice, Training, Research

Edited by
Constance Crompton,
Richard J. Lane and
Ray Siemens
CHAPTER 12

Electronic literature
and digital humanities

Opportunities for practice,
scholarship and teaching

Dene Grigar

The two essays in this section provide foundational information about the emergent
literary form, electronic literature or "e-lit." Also referred to as born-digital literature,
e-lit differs from digitalized print-based works, such as Emily Dickinson’s poetry
made available for distribution on the web, in that it involves "works with important
literary aspects that take advantage of the capabilities and contexts provided by
the stand-alone or networked computer" ("ELO," What Is E-Lit?) and other types
of computing devices. It is expressed in a variety of forms including hypertextual
literature, net art, bots, netprov, codework, and interactive fiction, to name a few
examples. While works of this type have been around for decades and influenced
by European avant-garde artist movements, such as Dada (Funkhouser 2007,
32-35), e-lit is a fairly new field of study, coming of age in the late 1990s due to
the work undertaken by organizations such as the Electronic Literature Organization
(ELO) and the Electronic Poetry Center in the United States; Electronic Literature
as a Model of Creativity and Innovation in Practice (ELMCP) in Europe; the Hermeneia
Research Group in Spain; and NT2 (Le Laboratoire De Recherches Sur Les Oeuvres
Hypermédiales) in Canada, among others, and supported by agencies such as
the National Endowment for the Humanities (NEH), the Rockefeller Foundation, and
Ford Foundation. While its practices can reflect, in varying degrees, visual, sonic,
time-based and performative art; creative writing; and computing, its deep connection
to literature offers digital humanities scholars a compelling avenue of exploration
and opportunities for practice, scholarship, and teaching.

The most influential theorist of electronic literature is noted scholar N. Katherine
Hayles whose essay, "Electronic literature: what is it?," is reprinted in this section.
Hayles' early support of e-lit was seen in her two NEH Summer Seminars (1995,
2001, where she explored “literature in transition” and gave birth to a host of scholars and artists working in DH and e-lit today, including Tara McPherson, Kathleen Fitzpatrick, Rita Raley, Joseph Tabbi, Stephanie Strickland, Marjorie Lussebrink, and Diana Slattery. I was fortunate to participate in the 2001 seminar and experienced firsthand the support provided to scholars and artists and her commitment to growing the field. Following the second NEH seminar, Hayles moved the ELO from its first home in Chicago, where Executive Director Scott Rettberg resided, to UCLA where she served on the English Department faculty. She hosted the 2002 State of the Arts Symposium at the university, an event that laid the groundwork for symposia and conferences that have done much to raise awareness of this literary art form. More recently she led the development of collections of papers by prominent e-lit artists – Judy Malloy, Stephanie Strickland, and Robert Kendall – at Duke University’s David M. Rubenstein Rare Book and Manuscript Library. Hayles now teaches in the Literature Program at Duke University.

Hayles’ essay, published originally on the ELO’s website in 2007 and expanded for her book, Electronic Literature: New Horizons for the Literary (Notre Dame University Press, 2008), provides a survey of the “state of electronic literature” as it existed in the mid-2000s and remains today one of the seminal works of the field. She describes e-lit as “‘digital born,’ a first-generation digital object created on a computer and (usually) meant to be read on a computer” (Hayles). Today we expand this description to include works such as Erik Loyer’s Strange Rain, Jody Zellen’s “Spine Sonnets,” and Jason Edward Lewis’ P.o.E.M.M., produced for access on mobile devices. In the nine years following the publication of the essay, scholarship by Jill Walker Rettberg, Belinda Barnett, Alice Bell, Leonardo Flores, Matthew Kirschenbaum, Jessica Pressman, Lori Emerson; and Noah Wardrip-Fruin, among others, has added to our knowledge of the form. A suggested list of readings by these and other scholars follows this essay...

The second essay included in this volume, “Electronic Literature: Where Is It?,” was published in 2008 by the Electronic Book Review as a response to an essay written by journalist Andrew Galix, entitled “Is E-Literature Just One Big Anti-Climax?” I had previously been interviewed by Galix for his essay and was surprised, upon reading it, that he had misquoted me and made the claim that e-lit was “dead” (Galix). My essay lays out four major misconceptions found in his argument. In doing so, it was intended to work in conjunction with Hayles’ essay by issuing a call to action to “bring e-lit to the classroom, to help promote it in the contemporary literary scene, and support artists who produce it so that it can foster and bolster literary sensibilities and literacies of future generations” (Grigar).

Since the publication of my essay, e-lit has been featured in exhibits at the Library of Congress (2013), at three annual meetings of the Modern Language Association (2012, 2013, 2014), the Digital Humanities Summer Institute (2014), and the International Society on Electronic Art (2015); plans are currently underway by the ELO to develop K-12 curricula for teaching e-lit in schools, and e-lit is now more commonly addressed in higher education classrooms than it previously had been...
when Gallix published his polemic; the ELO's digital preservation of early e-lit efforts has continued and has been funded by the NEH; international efforts to make databases accessible to the public have been successful; and conferences and festivals featuring e-lit have taken place in Paris, Bergen, NYC, and other cities in Europe, the US and beyond.

REFERENCES


Collections of artistic works

FURTHER READING


Print Is Flat, Code Is Deep:  
The Importance of Media-Specific Analysis

N. Katherine Hayles  
*English, UC Los Angeles*

**Abstract**  Lulled into somnolence by five hundred years of print, literary analysis should awaken to the importance of media-specific analysis, a mode of critical attention which recognizes that all texts are instantiated and that the nature of the medium in which they are instantiated matters. Central to repositioning critical inquiry, so it can attend to the specificity of the medium, is a more robust notion of materiality. Materiality is reconceptualized as the interplay between a text’s physical characteristics and its signifying strategies, a move that entwines instantiation and signification at the outset. This definition opens the possibility of considering texts as embodied entities while still maintaining a central focus on interpretation. It makes materiality an emergent property, so that it cannot be specified in advance, as if it were a pre-given entity. Rather, materiality is open to debate and interpretation, ensuring that discussions about the text’s “meaning” will also take into account its physical specificity as well.

Portions of this essay have appeared in the Web-based journal *Postmodern Culture* (January 2000) under the title “Flickering Connectivities in Shelley Jackson’s *Patchwork Girl*: The Importance of Media-Specific Analysis.” An early version was presented at the Interactive Frictions Conference held at the University of Southern California in June 1999. I am grateful to the following people for granting me access to their impressive collections of artists’ books: Jennifer Tobias, reference librarian at the Museum of Modern Art in New York; Joan Lyons, director of the Visual Studies Workshop Press in Rochester, New York; David Platzker at the Printed Matter Bookstore in New York; and Nexus Press in Atlanta, Georgia. I wish to thank Fred and Virginia Brandes of Atlanta, Georgia, for kindly giving me access to their excellent collection of telegraph codebooks and for their generous hospitality during my visit there. Finally, I am indebted to Michael Fadden for his help in preparing the manuscript and to Carol Wald for discussions related to this topic.

Following the emphasis on media-specific analysis, nine points can be made about the specificities of electronic hypertext: they are dynamic images; they include both analogue resemblance and digital coding; they are generated through fragmentation and recombination; they have depth and operate in three dimensions; they are written in code as well as natural language; they are mutable and transformable; they are spaces to navigate; they are written and read in distributed cognitive environments; and they initiate and demand cyborg reading practices.

Lulled into somnolence by five hundred years of print, literary studies have been slow to wake up to the importance of media-specific analysis. Literary criticism and theory are shot through with unrecognized assumptions specific to print. Only now, as the new medium of electronic textuality vibrantly asserts its presence, are these assumptions clearly coming into view.

Consider, for example, Roland Barthes's influential essay “From Work to Text” (1986). Rereading it, I am struck both by its prescience and by how far we have moved beyond it. As Jay David Bolter (1991) and George Landow (1997) have pointed out, Barthes's description of “text,” with its dispersion, multiple authorship, and rhizomatic structure, uncannily anticipates electronic hypertext. “The metaphor of the Text is that of the network,” Barthes writes (1986: 61). Yet at the same time he can also assert that “the text must not be understood as a computable object,” “computable” here meaning to be limited, finite, bound, able to be reckoned (ibid.: 57). Written twenty years before the advent of the microcomputer, his essay stands in the ironic position of anticipating what it cannot anticipate. It calls for a movement away from works to texts, a movement so successful that the ubiquitous “text” has all but driven out the media-specific term book.

Barthes's vision remains rooted in print culture, however, for he defines “text” through its differences from books, not through its similarities with electronic textuality. In positioning text against work, Barthes was among those who helped initiate semiotic and poststructuralist approaches to discourse, arguably among the most important developments in literary studies in the twentieth century. But this shift has entailed loss as well as gain. Useful as the vocabulary of text was in expanding textuality beyond the printed page, it also had the effect, in treating everything from fashion to fascism as a semiotic system, of eliding differences in media. Perhaps now, after the linguistic turn has yielded so many important insights, it is time to turn again to a careful consideration of what difference the medium makes.

1. In many ways this is a return to the agenda set by Marshall McLuhan (1994 [1964]). The recent turn in literary studies of earlier periods toward a consideration of the physical char-
In calling for medium-specific analysis, I do not mean to advocate that media should be considered in isolation from one another. Quite the contrary. As Jay David Bolter and Richard Grusin have shown in *Remediation* (1999), media constantly engage in a recursive dynamic of imitating each other, incorporating aspects of competing media into themselves while simultaneously flaunting the advantages that their own forms of mediation offer. Voyager’s now-defunct line of “Expanded Books,” for example, went to the extreme of offering readers the opportunity to dog-ear electronic pages. Another option inserted a paper clip on the screenic page, which itself was programmed to look as much as possible like print. On the other side of the screen, many print texts are now imitating electronic hypertexts. These range from Don DeLillo’s *Underworld* (1998) to Bolter and Grusin’s *Remediation*, which self-consciously pushes toward hypertext through arrows that serve as visual indications of hypertextual links. Media-specific analysis (MSA) attends both to the specificity of the form—the fact that the Voyager paper clip is an image rather than a piece of bent metal—and to citations and imitations of one medium in another. Attuned not so much to similarity and difference as to simulation and instantiation, MSA moves from the language of “text” to a more precise vocabulary of screen and page, digital program and analogue interface, code and ink, mutable image and durably inscribed mark, texton and scripton, computer and book.

One area where media-specific analysis can pay especially rich dividends is literary hypertext. Some theorists working in the area of electronic literature argue that hypertext ought to be reserved for electronic texts instantiated in digital media. In my view, this is a mistake. When Vannevar Bush, widely credited with the invention of hypertext, imagined a hypertextual system, it was not electronic but mechanical. His pioneering article (1945) testifies that it is possible to implement hypertext in a wide variety of ways, not only through the “go to” commands that comprise the hypertext link in digital computers. If we restrict the term hypertext to digital media, we lose the opportunity to understand how a literary genre mutates and transforms when it is instantiated in different media. The power of MSA comes from holding one term constant across media—in this case, the genre of literary hypertext—and then varying the media to explore how medium-specific constraints and possibilities shape texts. Understanding literature as the interplay between form and medium, MSA insists that “texts” must always be embodied to exist in the world. The materiality of those embodi-

*acteristics of books is also related to my arguments here, as Jerome McGann (1991, 2000b) clearly demonstrates. See also Douglas Brooks’s essay in part I of this special issue (vol. 24, no. 4) for a critical consideration of the field of book history.
ments interacts dynamically with linguistic, rhetorical, and literary practices to create the effects we call literature."

In attending to the materiality of the medium, MSA explicitly refutes the concept of the literary work that emerged from eighteenth-century debates over copyright and that has held considerable sway since then, although not without contestations. As Mark Rose has shown in his important book *Authors and Owners: The Invention of Copyright* (1993), legal theorists such as William Blackstone defined a literary work as consisting solely of its "style and sentiment." "These alone constitute its identity," Blackstone wrote. "The paper and print are merely accidents, which serve as vehicles to convey that style and sentiment to a distance" (quoted in Rose 1993: 89). Subsequent commentators realized it was not practical to copyright "sentiment," for some ideas are so general they cannot be attributed to any single author: that men are mortal, for example. Rather, it was not ideas in themselves but the ways in which ideas were expressed that could be secured as literary property and hence copyrighted.

This judicial history, played out in a contentious environment where conflicting economic, political, and class interests fought for priority, had important consequences for literature that went beyond purely legal considerations: it helped to solidify the literary author as a man (the author's assumed gender in these discourses was invariably male) of original genius who created literary property by mixing his intellectual labor with the materials afforded him by nature, much as John Locke had argued men created private property by mixing their labor with the land. Consistently in these discourses, material and economic considerations, although they had force in the real world, were elided or erased in favor of an emphasis on literary property as an intellectual construction that owed nothing to the medium in which it was embodied. Although this conclusion was repeatedly challenged in court and in such literary movements as futurism and imagism ("No ideas but in things," William Carlos Williams declared), the long reign of print made it easy for literary criticism to ignore the specificities of the codex book when discussing literary texts. With significant exceptions, print literature was widely regarded as not having a body, only a speaking mind."

2. For another account of a reading practice that negotiates with materiality while cautioning against the subordination of interpretation to materialism, see James A. Knapp's article in part 1 of this special issue.
3. Mark Rose (1993: 121) explicitly draws this comparison between liberal economic philosophy and the construction of literary property. Locke's (1688 [1690]) analysis appears in the *Second Treatise*.
4. Among these exceptions is the long tradition of shaped poetry, including concrete poetry...
This split between the physical and verbal has seriously impeded recognition in scholarly communities of the importance of the physical and subverbal qualities of texts, as Jerome McGann (1991, 2001b), Johanna Drucker (1996), and John Cayley (forthcoming) have argued, among others. As electronic textuality becomes more pervasive and important in literary studies, a view that insists that texts are inmaterial makes it difficult to understand the significance of importing print texts into electronic environments. It also impedes the development of theoretical frameworks capable of understanding electronic literature as media-specific practices that require new modes of analysis and criticism. The temptation to think of text on screen as essentially identical to text on a printed page, simply because the words are the same, is all the more seductive because the computer is the most successful simulation machine ever created. It is crucially important, however, to recognize that the computer can simulate so successfully only because it differs profoundly from print in its physical properties and dynamic processes. These differences matter in multiple ways and on many different levels, from the macroscale to the microscale—and they matter more all the time as writers of electronic literature and texts become more adept at exploiting the medium's specificity.

In emphasizing materiality, I do not mean to imply that all aspects of a medium's apparatus will be equally important. Rather, materiality should be understood as existing in complex dynamic interplay with content, coming into focus or fading into the background, depending on what performances the work enacts. I can think of many contemporary electronic works that foreground the interplay between natural language and computer code, from John McDaid's *Uncle Buddy's Phantom Funhouse* (1993) to Talan Memmott's *Lexia to Perplexia* (2000), but I know of no work that foregrounds the computer's power cord. Interpretation cannot be generated by the apparatus alone, independently of how it is used in specific works (this is a lesson film studies learned decades ago when it suffered through the overzealous application of "apparatus theory," a phrase that still makes many film theorists break out in hives). The list of physical qualities is potentially infinite, ranging from the chemical formulas for the polymers used in com-

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5. For example, Peter Shillingsburg (1996: 46) argues that "it is possible for the same text to be stored in a set of alphabetic signs, a set of Braille signs, a set of electronic signals on a computer tape, and a set of magnetic impulses on a tape recorder." His conflation of radically diverse media, all qualifying as the "same text," illustrates the problems that a disembodied view of texts engenders. For a fuller version of my argument that texts are embodied, see Hayles 2003.
puter cases to the electronic conductivity of computer chips. Materiality always matters in some sense, but it matters most to humanists and artists when considered in relation to the practices it embodies and enacts.

The crucial move is to reconceptualize materiality as the interplay between a text's physical characteristics and its signifying strategies. This definition opens the possibility of considering texts as embodied entities while still maintaining a central focus on interpretation. In this view of materiality, it is not merely an inert collection of physical properties but a dynamic quality that emerges from the interplay between the text as a physical artifact, its conceptual content, and the interpretive activities of readers and writers. Materiality thus cannot be specified in advance; rather, it occupies a borderland—or better, performs as connective tissue—joining the physical and mental, the artifact and the user.

To understand these dynamic interactions, media-specific analysis (MSA) is essential. MSA aims to electrify the neocortex of literary criticism into recognizing that strands traditionally emphasizing materiality (such as criticism on the illuminated manuscript, on such writers as William Blake for whom embodiment is everything, on the rich tradition of artists' books6) are not exceptions but paradigmatic of the ways in which literary effects emerge from and are entwined with the materiality of texts. Hypertext, understood as a genre that can be implemented in both print and digital media, offers an ideal opportunity to explore the dynamic interaction between the artifactual characteristics and the interpretation that materiality embodies. Like all literature, hypertext has a body (or rather many bodies), and the rich connections between its physical properties and the processes that constitute it as something to be read make up together that elusive object we call a "text"—and that I want now to call instead a codex book or stitched pamphlet or CD-ROM or Web site.

What kind of bodies does hypertext have? To pursue this question, let me suggest a working definition. Following Jane Yellowlees Douglas and others, I propose that hypertext has at a minimum the following characteristics: multiple reading paths; some kind of linking mechanism; and chunked text (that is, text that can be treated as discrete units and linked to one another in various arrangements).7 In proposing these characteristics, my intent is not to draw a hard-and-fast line that will distinguish between hypertext and everything else. Rather, the boundary is to be regarded as

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6. In view of the importance of a book’s physicality, particularly artists’ books, where the book’s material appearance and operation may be crucial, I write only about books that I have had the opportunity to see and handle.

7. I am grateful to Jane Douglas for making her book available to me in manuscript before it was published.
heuristic, operating not as a rigid barrier but as a borderland inviting play-
ful forays that test the limits of the form by modifying, enlarging, or trans-
forming them. From the definition, it will be immediately apparent that
hypertext can be instantiated in print as well as electronic media. A print
encyclopedia, for example, qualifies as a hypertext because it has multiple
reading paths, a system of extensive cross-references that serve as linking
mechanisms, and chunked text in entries separated typographically from
one another. These hypertextual characteristics of the encyclopedia form
the basis for a print literary hypertext in Milorad Pavić’s brilliant Dictio-
nary of the Khazars: A Lexicon Novel (1989). Other examples of print hypertexts
include Ursula Le Guin’s Always Coming Home (1987), where the audio tapes
afford multiple ways to access this multimedia text; Philip Zimmerman’s
artist’s book High Tension (1993), where a multiplicity of reading paths is cre-
ated through an unusual physical form that allows the reader to fold over
diagonally cut leaves to obtain various juxtapositions of text and image;
and Robert Coover’s “The Babysitter” (2000 [1969]), a short story that
pushes toward hypertext by juxtaposing contradictory and nonsequential
events, suggesting many simultaneously existing time lines and narrative
unfoldings.

If we grant that hypertext can exist in either print or digital media, what
distinguishes hypertext instantiated in a computer from hypertext in book
form? To gain purchase on this question in the spirit of MSA, I propose
the following game. Using the characteristics of the digital computer, what
is it possible to say about electronic hypertext as a literary medium? The
point of this game is to derive these literary qualities from the interaction of
the medium’s physical characteristics with the signifying strategies of elec-
tronic hypertexts to illustrate how the text’s materiality provides resources
that writers and readers can mobilize in specific ways. Focusing on the
text’s materiality, how far is it possible to go? This kind of analysis is arti-
ficial in that it forbids itself access to the full repertoire of literary read-
ing strategies, but it may nevertheless prove illuminating about what differ-
ce the medium makes. To clarify the medium’s specificity, I will also offer
eamples of how these characteristics of digital media can be simulated in
print texts. The point here is to explore what Bolter and Grusin call reverse
remediation, the simulation of medium-specific effects in another medium,
as when Voyager Expanded Books simulated turning down page corners
and marking passages with paper clips. My technique, then, amounts to
constructing a typology of electronic hypertext by considering both the
medium in itself (its instantiation in digital computers) and the extent to
which its effects can be simulated in print (the reverse remediation that
blurs the boundary between electronic media and print). As I suggested
earlier, MSA operates not so much through a simple binarism of similarity and difference as through media-specific considerations of instantiation and simulation.

Following these rules, I am able to score nine points, which are first listed and then discussed in detail.

Point One: Electronic Hypertexts Are Dynamic Images.
Point Two: Electronic Hypertexts Include Both Analogue Resemblance and Digital Coding.
Point Three: Electronic Hypertexts Are Generated through Fragmentation and Recombination.
Point Four: Electronic Hypertexts Have Depth and Operate in Three Dimensions.
Point Five: Electronic Hypertexts Are Bilingual, Written in Code as well as Natural Language.
Point Six: Electronic Hypertexts Are Mutable and Transformable.
Point Seven: Electronic Hypertexts Are Spaces to Navigate.
Point Eight: Electronic Hypertexts Are Written and Read in Distributed Cognitive Environments.
Point Nine: Electronic Hypertexts Initiate and Demand Cyborg Reading Practices.

Point One: Electronic Hypertexts Are Dynamic Images

In the computer, the signifier exists not as a durably inscribed flat mark but as a screenic image produced by layers of code precisely correlated through correspondence rules, from the electronic polarities that correlate with the bit stream to the bits that correlate with binary numbers, to the numbers that correlate with higher-level statements, such as commands, and so on. Even when electronic hypertexts simulate the appearance of durably inscribed marks, they are transitory images that need to be constantly refreshed by the scanning electron beam that forms an image on the screen to give the illusion of stable endurance through time. This aspect of electronic hypertext can be mobilized through such innovations as dynamic typography, where words function as both verbal signifiers and visual images whose kinetic qualities also convey meaning (Hayles 1999b). In David Knobel’s poem “Breathe” (2000), done in collaboration with Reiner Strasser, lines appear and disappear as the mouse touches colored rectangles, creating an effect similar to breathing in and out when reading poetry aloud. In Bill Marsh’s “6-String Aria” (1999), strings dynamically fold and unfold to form the word Aria while an aria plays, creating a fusion
of sound, image, and text. Dan Waber’s “Strings” (1999) performs a similar fusion through animated lines wriggling into words and shapes that visually and textually evoke an argument beginning and ending, a flirtation, and an embrace. Similar effects are achieved in a different way in Alan Dunning’s artist’s book *Greenhouse* (1989), which creates a multilayered reading experience by overlaying translucent vellum pages onto opaque pages. Significantly, the five lines of text on the opaque pages are taken from five of Dunning’s favorite works of literary criticism, each line set in different typography and written by a different author. As the vellum pages are overlaid onto these, the literary criticism, already interleaved with other critical texts to form a kind of hypertext, is further modified by the visual play set up by the image and Dunning’s words printed on the vellum pages.

An important difference between print and electronic hypertext is the accessibility of print pages compared, for example, to the words revealed by the cursor’s click in Knobel and Strasser’s electronic hypertext. Whereas all the words and images in the print text are immediately accessible to view, the linked words in Knobel’s poem become visible to the user only when they appear through the cursor’s action. Code always has some layers that remain invisible and inaccessible to most users. From this we arrive at an obvious but nevertheless central maxim: print is flat, code is deep.

**Point Two: Electronic Hypertexts Include Both Analogue Resemblance and Digital Coding**

The digital computer is not, strictly speaking, entirely digital. At the most basic level of the computer are electronic polarities, which are related to the bit stream through the analogue correspondence of morphological resemblance. Once the bit stream is formed, it operates as digital code. Analogue resemblance typically reappears at the top level of the screenic image, for example, in the desktop icon of a trash barrel. Thus digital computers have an Oreo cookie–like structure with an analogue bottom, a frothy digital middle, and an analogue top. Although we are accustomed to thinking of digital in terms of binary digits, digital has a more general meaning of discrete versus continuous flow of information. Digital computers do not necessarily have to operate with binary code; in the early days of computing, computers were constructed using the base ten codes commonly used in counting. These computers were digital not because they used binary code

8. For an exploration of what this Oreo structure signifies in the context of virtual narratives, see Hayles 1999a.
9. ENIAC, the first large-scale electronic computer, operated with a code that used base ten.
but because they used discrete bit streams. Analogue computers, in contrast
to digital ones, represent numbers as a continuously varying voltage. In
analogue computers and analogue technologies in general, morphological
resemblance connects one level of code with another. In this sense, icono-
graphic writing is analogue because it bears a morphological resemblance
to its referent (albeit in highly conventionalized ways), whereas alphabetic
writing is digital, consisting of a few elements that can be combined to make
many words, precisely because the relation between mark and referent is
arbitrary (Logan 1986 makes this point). By contrast, iconographic writing
requires a much larger symbol set because its elements tend to be almost
as multiform as the concepts for which they stand; for example, written
Chinese has over forty thousand characters.

Print books and digital computers both use digital and analogue modes
of representation, but they mobilize the two modes differently. An example
of a print book that makes conspicuous use of a digital algorithm is Emmett
Williams’s The Voyage (1975), in which all the words are three letters long
(to accommodate this restriction, Williams often resorts to creative spell-
ing). Williams imposed the further requirement that spacing between the
words increases as the page numbers go up. On page one, the three-letter
words are separated by one space; on page two, by two spaces, and so on.
The book ends when the number of spaces that must intervene before
another word can appear is greater than the spaces available on the page.
This example makes clear that the difference between print and electronic
hypertext consists not in the presence or absence of digital and analogue
modalities but rather in the ways these modes are mobilized as resources.
In Voyage, the effect of using a digital algorithm is to create visual patterns
through the placement of words on the page, so that the words function
simultaneously as analogue image and digital code. When the spacing
brings all the words into a single column, for example, the narrator remarks:
“NOW/WE/GET/OUR/POE/EMM/ALL/IN/NONE/ROW” (Williams 1975). Typically
the computer employs a digital mode at deeper coding levels, whereas
in print, analogue continuity and digital coding both operate on the flat
surface of the page.

Point Three: Electronic Hypertexts Are Generated
through Fragmentation and Recombination

As a result of the frothy digital middle of the computer’s structure, fragmenta-
tion and recombination are intrinsic to the medium. These textual strate-
gies can also be used in print texts, for example, in Raymond Queneau’s
Cent mille milliards de poèmes (1961), a book in which each page may be cut
into several strips corresponding to the lines of a poem. By juxtaposing the cut strip on one page with strips from other pages, large numbers of combinations are possible, as indicated by Queneau's title. Another example is Dick Higgins's book *Buster Keaton Enters into Paradise* (1994). To generate this text, Higgins played thirteen games of Scrabble, each of which started with the words "Buster Keaton" orthogonally arranged. He then used the words that turned up in the Scrabble games to create thirteen skits, each corresponding to one of the games. Here fragmentation was achieved using the Scrabble letters, a technique that emphasizes the digital nature of alphabetic writing; recombination is mobilized through the aleatory combinations that make words and Higgins's subsequent use of these game words in the skits.

With digital texts, the fragmentation is deeper, more pervasive, and more extreme than with the alphanumeric characters of print. Moreover much of the fragmentation takes place on levels inaccessible to most users. This aspect of digital storage and retrieval can be mobilized as an artistic resource, reappearing at the level of the user interface. Stuart Moulthrop's "Reagan Library" (1999), for example, uses an algorithm that places prescribed phrases on the screen in random order. As the user revisits a screen, the text on that screen gradually becomes more coherent, stabilizing into its final order on a fourth visit, whereupon it does not change further. As if to emphasize that noise is not merely interference but itself a form of information, Moulthrop has designed the piece so that one level of the text moves in the opposite direction from this trajectory. The screens in "Notes," which offer explanatory commentary, actually lose text as the user revisits them, becoming more cryptic and enigmatic the more they are read.

**Point Four: Electronic Hypertexts Have Depth and Operate in Three Dimensions**

Digital coding and analogue resemblance have specific advantages and are deployed so as to make the most of these advantages. Analogue resemblance allows information to be translated between two differently embodied material instantiations, as when a sound wave is translated into the motion of a vibrating diaphragm of a microphone. Whenever information flows between two differently embodied entities—for example, sound wave and microphone or microphone and recording device—analogue resemblance is likely to come into play because it allows one form of continuously varying information to be translated into a similarly shaped informational pattern in another medium. Once this translation has taken place, digital coding is used to transform the continuity of morphological form into num-
bers (or other discrete codes). Intrinsic to this process is the transformation of a continuous shape into a series of code elements. In contrast to the continuity of analogue pattern, the discreteness of code enables information to be rapidly manipulated and transmitted.

Human readers, with sensory capabilities evolved through eons of interacting with three-dimensional environments, are much better at perceiving patterns in analogue shapes than performing rapid calculations with code elements. When presented with code, humans tend to push toward perceiving it as analogue pattern. Although most of us learned to read using the digital method of sounding out each letter, for example, we soon began to recognize the shapes of words and phrases, thus modulating the discreteness of alphabetic writing with the analogue continuity of pattern recognition. The interplay between analogue and digital takes place in a different way with screenic text than with print, and these differences turn out to be important for human perception. With present-day screens, reading speed on screen is typically about 28 percent slower than with print (for an analysis of the factors affecting reading speed on screen, see Muter 1996). Although the factors causing this difference are not well understood, they undoubtedly have something to do with the dynamic nature of screen images. Text on screen is produced through complex internal processes that make every word also a dynamic image, every discrete letter a continuous process.

To distinguish between the image the user sees and the bit strings as they exist in the computer, Espen Aarseth (1997) has proposed the terminology *scripton* (the surface image) and *texton* (the underlying code). In a digital computer, texton can refer to voltages, strings of binary code, or programming code, depending on who the "reader" is taken to be. Scriptons always include the screen image but can also include any code visible to a user who is able to access different layers of program. Textons can appear in print as well as electronic media. Stipple engraving, although it is normally perceived by the reader as a continuous image, operates through the binary digital distinction of ink dot/no ink dot; here the scripton is the image and the ink dots are the textons. In electronic media, textons and scriptons operate in a vertical hierarchy rather than through the flat micro-scale/macro-scale play of stipple engraving. With electronic texts there is a clear distinction between scriptons that appear on screen and the textons of

10. For a discussion of the comparative ease with which computers and humans recognize patterns, see Satoshi Watanabe's (1985) somewhat dated but still useful analysis. For a more recent assessment, see Friedman and Kandel 1999.
11. I am indebted to Robert Essick for this example, proposed in a discussion of William Blake's strong dislike of stipple engraving and his preference (which for Blake amounted to an ethical issue) for printing technologies that were analogue rather than digital.
underlying code, which normally remain invisible to the casual user. The flat page of print remains visually and kinesthetically accessible to the user, whereas the textons of electronic texts can be brought into view only by using special techniques and software.

In reverse remediation, some books play with this generalization by making print pages inaccessible. David Stairs has created a round artist's book entitled *Boundless* (1983) with spiral binding all around, so that it cannot be opened. A similar strategy is used by Maurizio Nannucci in *Universum* (1969), a book bound on both vertical edges so that it cannot be opened. Ann Tyler also plays with the assumption that pages are visually and kinesthetically accessible to users in *Lubb Dup* (1998), an artist's book in which several pages are double-faced, so that one can see the inside only by peering through a small circle in the middle or prying the two pages apart enough to peek down through the top. These plays on accessibility do not negate the generalization that the flat page is accessible to users, however, for their effect is precisely to make us conscious of the normative rule.

**Point Five: Electronic Hypertexts Are Bilingual, Written in Code as Well as Language**

Electronic hypertexts, like all electronic texts, consist of multiple layers of text that combine computer code and natural language. Typically, natural language appears at the top (screenic) level, although it is also frequently found at lower coding levels in comment lines. More subtly, it serves as ground for the syntax and grammar of computer languages, which are specifically permeated, as Rita Raley (2001) has argued, with the linguistic structures and grammar of English. Working in a back-formation from electronic textuality, Jerome McGann has recently argued that print texts are also marked (by analogy with HTML, the hypertext markup language used to format documents for the Web). He argues further that print texts, like electronic documents, are coded and generated through algorithms. It is not difficult to agree that all texts are marked; for example, readers familiar with print conventions recognize an indentation as signaling a paragraph break and parse the text accordingly. Thinking of such textual markings as algorithmic, however, obscures the important distinction between processes enacted by the reader/user and those performed by the computer. An electronic text literally does not exist if it is not generated by the appropriate hardware running the appropriate software. Rigorously speaking, an electronic text is a process rather than an object, although objects (like hardware and software) are required to produce it. Moreover, an algorithm is normally considered to be a procedure defined by explicit rules that can be
specified precisely. While some rules pertaining to the human understanding of texts can be specified, many literary (and more generally grammatical) practices are notoriously difficult to codify, in contrast to the explicit nature of computer instructions.

The fact that creators of electronic texts always write code as well as natural language has resulted in a significant shift in how writing is understood. Loss Pequeño Glazier (2002) and John Cayley (1998), among others, argue that programming is writing. They refuse the distinction between writing that appears on screen as the “real” creative effort, because they deeply understand, through their own creative practices, that screenic text and programming are logically, conceptually, and instrumentally entwined. Increasingly, writers working in electronic media exploit the word/code interplay by crafting a creole, visible on the screen, that comprises English and pseudoprogramming expressions. MEZ (Mary Ann Breeze), for example, has formulated a pidgin she calls “mezangelle,” a bilingual practice that breaks the conventional link between phoneme and written mark, forging new connections between code and English. In Lexia to Perplexia (2000), Talan Memmott formulates a creole that he uses to articulate a version of cyborg subjectivity in which the machine and the self (which he writes as “cell.f.” to suggest its infection by the computational) conjoin in a union that is at once conceptual, linguistic, and technological.

McGann’s redescription of print texts by terms normally employed for electronic texts can be understood as a critical (re)enactment of his editorial work with The D. G. Rossetti Hypermedia Archive (2001a), in which he has reproduced Dante Gabriel Rossetti’s print texts on the Web. While pushing toward envisioning print texts in electronic terms, however, he also deeply understands that simulating print texts in electronic environments involves radically different materialities than the print texts in themselves. Along with many writers working in electronic media, he views the work of literary production as making and doing, not simply spewing out words seen as immaterial entities. It is no accident that McGann, with a background in bibliographic studies, frequently collaborates with Johanna Drucker, a maker of artists’ books as well as a historian and critic of that genre. They share a rich appreciation for the materiality of literature and consequently for reading and writing as material practices. One can certainly arrive at this view without touching a computer, a point made by Loss Glazier (2002).

12. For an extensive discussion on the history and development of the idea of the algorithm, see David Berlinski 2000.
13. See, for example, MEZ 2001, which contains the explanation “...these t.ex][e]ts r _code wurk_ remnants d-voted to the dispersal of writing that has been n.spired and mutated according 2 the dynamics of an active network.”
in his discussion of typewriter poetry, that is, poetry visually crafted to highlight the instrumental role of the typewriter in producing the text. It is virtually impossible, however, to create an electronic work without grasping the significance of the work as a materialist production. M. D. Govcley (2002) makes this point when she compares a print writer who types a sentence and sits back, satisfied, with a writer in electronic media. The electronic author who types the same sentence then goes on to consider what behaviors and animations should attach to the words, in what font and color they should appear, on what background and over (or under) what layers, to what other texts or structures they should be linked, and so forth. In all these activities, the hardware and software are active partners, facilitating and resisting, enabling and limiting, enacting and subverting. The labor needed to program these effects must be seen as intrinsic to the work of creation. Like the creator of an artist’s book who manipulates an Exacto knife to make delicate cutouts in heavy white Italia paper and painstakingly sews the pages together, the writer of an electronic text is intensely aware of the entwining of intellectual, physical, and technological labor that creates the text as a material object.

Point Six: Electronic Hypertexts Are Mutable and Transformable

The multiple coding levels of electronic textons allow small changes at one level of code to be quickly magnified into large changes at another level. The layered coding levels thus act like linguistic levers, giving a single keystroke the power to change the entire appearance of a textual image. An intrinsic component of this leveraging power is the ability of digital code to be fragmented and recombined. Although the text appears as a stable image on screen, it achieves its dynamic power of mutation and transformation through the very rapid fragmentation and recombination of binary code. In addition, the rapid processing of digital code allows programs to create the illusion of depth in screenic images, for example, in the three-dimensional landscapes of *Myst* or the layered windows of Microsoft Word. In these cases, both scriptions and textons are perceived as having depth, with textons operating digitally through coding levels and scriptions operating analogically through screenic representation of three-dimensional spaces.

Print books can simulate the mutability of electronic texts through a variety of strategies, from semitransparent pages that overlay onto other

14. To create the illusion of three-dimensional landscapes, the computer takes thin horizontal slices that can be approximated as two-dimensional and stacks them together. This requires massive calculations and would be impossible without the very rapid fragmentation and recombination that contemporary computers utilize.
pages to more elaborate strategies. In Michael Snow’s visual narrative Cover to Cover (1975), the sequence begins with a realistic image of a door, with the next image showing a man opening the door to go into a rather ordinary room. With each successive image, the previous representation is revealed as a posed photograph, for example by including the photographer in the picture. As one approaches the center of the book, the images begin shifting angles, and at the midpoint, the reader must turn the book upside down to see the remaining images in proper perspective. At the end of the book the images reverse order, so the reader then goes backward through the book to the front, a direction that is then implicitly defined as forward. To facilitate this shift in perspective, the book is bound on both sides, so that either cover can function as “front.” Thus such fundamental aspects of the book as forward and backward, up and down, become mutable characteristics that change in the course of reading.

Similar strategies are employed in Karen Chance’s Parallax (1987), where cutouts and reverse ordering are used to create two narratives, one from the point of view of a straight man who sees gay men as unwanted intrusions in his life, the other from the point of view of a gay man who sees his life threatened by straight people who refuse to acknowledge his existence. A different approach is taken by Tom Phillips in A Humument: A Treated Victorian Novel (1997). Phillips took William Mallock’s obscure Victorian novel, A Human Document, and “treated” each page by creating images that left only a few words on each page untouched. These words are typically connected by pathways or “rivers” of white space, created by surrounding the white spaces between words and lines with colored backgrounds and images. As the rivers meander down the page, they are often arranged in ways that allow multiple reading paths. Other hypertextual effects emerge from the interplay of the words in the pathways, other “treated” text that remains partially visible, and the strikingly diverse images that the treated pages display. Through such manipulations, Mallock’s text is made to mutate into an entirely new narrative. Phillips (1997: dustcover) writes: “I took a forgotten Victorian novel found by chance. I plundered, mined, and undermined it to make it yield the ghosts of other possible stories, scenes, poems, erotic incidents and surreal catastrophes which seemed to link with its wall of words.” Although this book is not dynamic in the same sense as Java script, the hypertextual effects it achieves through mutation and transformation are complex and dynamically interactive.15

15. For a fuller discussion of the materiality of A Humument and how it serves as a resource for meaning, see Hayles 2002.
Point Seven: Electronic Hypertexts Are Spaces to Navigate

Electronic hypertexts are navigable in at least two senses. They present to the user a visual interface that must be navigated through choices the user makes to progress through the hypertext; and they are encoded on multiple levels that the user can access using the appropriate software, for example, by viewing the source code of a network browser as well as the surface text. As a result of its construction as a navigable space, electronic hypertext is intrinsically more involved with issues of mapping and navigation than are most print texts.

M. D. Coverley’s Web novel in progress, *The Book of Going Forth by Day* (in progress), illustrates how navigation becomes a signifying strategy for electronic hypertexts. Modeled after the spatial arrangement of Egyptian hieroglyphs, the interface employs both horizontal and vertical registers. The horizontal panels provide the narrative, while the vertical panels give linguistic, historical, and geographic information about ancient Egypt, modeled after the rubrics that in hieroglyphic texts give information on how to interpret the depicted events. The correspondences between Egyptian hieroglyphs and the interface suggest deep connections between inscription systems, cosmological beliefs, temporal orderings, and geographic assumptions. Ancient hieroglyphic inscriptions were written in all directions, including left to right, right to left, up to down, down to up, edging sideways into margins, or spiraling in a circle, with the order of reading indicated by the direction the figures face. *Going Forth* relates the omnidirectionality of this writing to ancient Egyptian beliefs about the “endless geometry” of the world, in which personages from the past continue over the threshold of death into the present and gods and goddesses manifest themselves in humans alive on the earth. *Going Forth* envisions its own inscription surface as a complex topology, a richly decorated and potentially infinite inscription surface that enables fluid transitions between exposition, narrative, maps, photographs, linguistic information, and historical context. *Going Forth* suggests that there was no clear distinction in ancient Egypt between writing and art. Art did not so much imitate life as it imitated and was imitated by writing, which is another way to say that worldview and inscription system were intimately related. Transported into an electronic environment, these correlations take the form of complex relations between multimedia components and navigational functionalities in which meaning emerges from their interrelations rather than from the verbal narrative alone.

When navigation becomes an issue in a print text, the effect is usually to transform linear sequence into hypertextual multiplicity. In Susan E. King’s
Treading the Maze (1993), the book is spiral-bound on both lateral edges. The binding on the left side holds pages displaying images on vellum; the binding on the right side holds blue opaque pages of verbal text. Different narrative orders are created by intermixing opaque and translucent pages. The author writes (on a page that most readers will not find until halfway through the book) that the most complete reading is achieved by turning back all the pages on both sides so the back cover is exposed, then interleaving one opaque page with one translucent page until one arrives at the front. In this reading the last two pages are successive translucent images that overlay a labyrinth onto a woman's body, so that the maze the reader has traversed is imaged at once as a human female body, an exploration of the labyrinth as a visual and conceptual form, and the body of the book experienced as a maze through which many paths may be traced.

Point Eight: Electronic Hypertexts Are Written and Read in Distributed Cognitive Environments

Modern-day computers perform cognitively sophisticated acts when they collaborate with human users to create electronic hypertexts. These frequently include acts of interpretation, as when the computer decides how to display text in a browser independent of choices the user makes. It is no longer a question of whether computers are intelligent. Any cognizer that can perform the acts of evaluation, judgment, synthesis, and analysis exhibited by expert systems and autonomous agent software programs should prima facie be considered intelligent. Books also create rich cognitive environments, but they passively embody the cognitions of writer, reader, and book designer rather than actively participate in cognition themselves.

To say that the computer is an active cognizer does not necessarily mean it is superior to the book as a writing technology. Keeping the book as a passive device for external memory storage and retrieval has striking advantages, for it allows the book to possess robustness and reliability beyond the wildest dreams of a software designer. Whereas computers struggle to remain viable for a decade, books maintain backward compatibility for hundreds of years. The issue is not the technological superiority of either medium but rather the specific conditions a medium instantiates and enacts. When we read electronic hypertexts, we do so in environments that include the computer as an active cognizer performing sophisticated acts of interpretation and representation. Thus cognition is distributed not only between writer, reader, and designer (who may or may not be separate people) but also between humans and machines (which may or may not be regarded as separate entities).
Print books can also be structured in ways that create and emphasize distributed cognition. Examples are telegraph codebooks, which matched phrases and words used frequently in telegrams with code groups that were shorter and thus more economical to transmit. The more sophisticated of these codebooks included so-called mutilation tables, which enabled users to reverse engineer garbled messages to figure out what code element ought to have been there instead of the incorrect element. In this way the distributed nature of the cognition became evident, for part of the cognition resided in the sender, part in the telegraph operator, part in the codebook, part in the mutilation table, and part in the receiver. At any point along this transmission chain, errors could be introduced, making clear that comprehension depended on all the parts working together correctly in this distributed cognitive system.

Point Nine: Electronic Hypertexts Initiate and Demand Cyborg Reading Practices

Because electronic hypertexts are written and read in distributed cognitive environments, the reader necessarily is constructed as a cyborg, spliced into an integrated circuit with one or more intelligent machines. (Cyborg is of course a neologism coined from cybernetic organism, part organic being, part machine.) To be positioned as a cyborg is inevitably in some sense to become a cyborg, so electronic hypertexts, regardless of their content, tend toward cyborg subjectivity. This subject position may also be evoked through the content of print texts (for example, William Gibson’s Neuromancer [1984] and Pat Cadigan’s Synners [1991]), but electronic hypertexts necessarily enact it through the specificity of the medium. Of the nine points, this is the most difficult to simulate in book technology, which, for all of its sophistication in content and production, remains remarkably simple to use. Book lovers frequently evoke this quality of print, emphasizing that they enjoy books precisely because books do not interpolate them into the speed, obsolescence, and constant breakdown of electronic culture. This distinction between print and electronic forms is itself undermined, however, with the introduction of electronic books that look like print but have electronic hardware embedded in the spine that enable the pixels of the electronic “page” to be polarized in different patterns, so that one page can be any page. (Researchers at MIT Media Lab, among other developers, are experimenting with developing “electronic ink,” in which each small segment comprising a letter form can change from white to black and vice versa when the electronic polarities change, thus allowing a given letter to mutate into a new letter or space. The ink is made of polymers
sensitive to electrical charges; because their colors change when the polarities change, the polymers function analogously to LCDs, liquid crystal displays.) Hybrid forms, like the electronic book, show reverse remediation in action: as books become more like computers, computers become more like books.

In the rich medial ecology of contemporary literature, media differentiate as well as converge. Attention to material properties enhances our understanding of how some digital works are evolving along trajectories that increasingly diverge from books as they experiment with the new possibilities opened up by electronic environments. This divergence is strikingly evident in the watershed dividing first-generation hypertexts, such as Michael Joyce’s *Afternoon* (1987), from second-generation works, such as Talan Memmott’s *Lexia to Perplexia* (2000). *Afternoon*, exemplary of early electronic hypertexts written in Storyspace software, has almost no graphics, and most of the links go from word to word or from paragraph to paragraph. Clicking on a link customarily takes the reader from one screen of text to the next. In retrospect, it is possible to see that the foundational assumption for this kind of linking comes from print books. Although the electronic linking structure differs from turning a page in that it offers multiple reading paths, it reproduces in electronic media the experience of flipping pages. By contrast, second-generation hypertexts mix words with graphics, sounds, images, animation, and a host of other multimedia components. Moreover the links go every which way, from word to navigational apparatus to image to mouseover to animated graphic. In the process, the foundational metaphor of the page as a two-dimensional plane mutates into a very different kind of experience. Instead, the textual space is increasingly represented as a topographic area to explore, with layered strata, hidden openings, crosscutting pathways, links between different world levels, and other spatial and temporal unfoldings that merge the functionality of the artifact—its material and processual properties—with the representations of the imagined world we create when we read.

In retrospect, we can see the view that the text is an immaterial verbal construction as an ideology that inflicts the Cartesian split between mind and body upon the textual corpus, separating into two fictional entities what is in actuality a dynamically interacting whole. Rooted in the Cartesian tradition, this ideology also betrays a class and economic division between the work of creation—the privileged activity of the author as an inspired genius—and the work of producing the book as a physical artifact, an activity relegated to publishers and booksellers. As the means of production moves into the hands of writers and artists for both print and electronic media with desktop publishing, fine letter presses run by artists’
collectives, such as the Visual Studies Workshop Press, and electronic publishing on the Web, the traditional split between the work of creation and the work of production no longer obtains. This shift in the economic and material circumstances in which literary works are produced makes all the more urgent the challenge of rethinking critical and theoretical frameworks accordingly. We can no longer afford to pretend that texts are immaterial or that text on screen is the same as text in print. The immateriality of the text has ceased to be a useful or even a viable fiction.

In urging increased attention to materiality, I hope it is clear that I do not mean to argue for the superiority of electronic media. Rather, I have been concerned to delineate characteristics of digital environments that writers and readers can use as resources in creating electronic literature and responding to it in sophisticated, playful ways. I have also shown how in many cases similar—but not identical—effects can be achieved in print books, as well as describing electronic effects difficult or impossible to duplicate in print. Whether in print or on screen, the specificity of the medium comes into play as its characteristics are flaunted, suppressed, subverted, reimagined.

Many critics see the electronic age as heralding the end of books. I think this view is mistaken. Books are far too robust, reliable, long-lived, and versatile to be rendered obsolete by digital media. Rather, digital media have given us an opportunity we have not had for the last several hundred years: the chance to see print with new eyes and, with that chance, the possibility of understanding how deeply literary theory and criticism have been imbued with assumptions specific to print. As we continue to work toward critical practices and theories appropriate for electronic literature, we may come to renewed appreciation for the specificity of print. In the tangled web of medial ecology, change anywhere in the system stimulates change everywhere in the system. Books are not going the way of the dinosaur but the way of the human, changing as we change, mutating and evolving in ways that will continue, as a book lover said long ago, to teach and delight.
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Literary Gaming

Astrid Ensslin

The MIT Press
Cambridge, Massachusetts
London, England
2 Playing with Rather Than by Rules

2.1 Introduction

This chapter aims to provide the theoretical foundation for this book. It outlines some core theories of playfulness and traces the development of philosophical thought on play and games from eighteenth-century German idealism to the present day. It examines a range of aesthetic and theoretical movements and schools since the nineteenth century that have play (with forms, norms, and conventions) at their core and use it more or less politically to innovate, protest, or revolutionize institutionalized forms of art. Among these movements are modernism, the historical avant-garde, the Situationists, and various elements of structuralism and poststructuralism.

In this chapter I will look at how ludological theories and insights have informed literary criticism, particularly in the second half of the twentieth century. I shall review and critique some of the core critical writings on literary games and gameplay and contextualize them with contemporary trends in digital media, which evoke a very different notion of reader-text interaction and require a move from mostly cognitive ludicity to technologically implemented and cybernetically experienced ergodic ludicity and ludic mechanics. The chapter closes with an investigation of the two digital art forms that blend into various manifestations of literary gaming: literature born digital and (literary) art games.

2.2 Ludology and Its Philosophical Foundations

To a certain extent, play can be considered a paradigm of the modern age. It triggers creativity and innovation, subversive activities that may lead to the (temporary) reversal of power, and cultural forms of expression that may become characteristic of ethnic and national identity. That said, although the roots of our contemporary understanding of play as an
essential element of human (and animal) nature and culture date as far back as the late eighteenth century, it did not enter mainstream scientific and scholarly discourses until the mid-twentieth century. More recently, the rapid growth and diversification of the gaming industry has coincided with (if not generated) a sharp increase in the awareness of the importance of play and games as constitutive elements of human nature and everyday life. This again has led to strongly ludic currents in society, such as the popularization of pervasive gaming (Montola, Stenros, and Waern 2009) and the gamification of work, education, politics, economics, health, and domesticity (McConigal 2011).

The introduction of play as a theoretical and aesthetic concept into modern philosophy was done by Immanuel Kant, who nevertheless maintained play’s subordinate status to knowledge and truth, a stance that he inherited from Plato (Spariosu 1982, 22). Indeed, it is to Kant’s aesthetic that we largely owe the idea that art, aesthetic judgment, and (cultivated) life are forms of play—a notion that saw its most comprehensive elaboration and systematization about 150 years later in the work of Huizinga (1962; see below). Due to Kant’s contribution, “the idea of play in positive terms as a form of liberation and creative fulfillment” (Pope 2005, 119) rather than in terms of a lowly activity, inferior to rational thought and serious everyday activities. Kant’s concept is skewed toward fine art, the pleasure in which he brings down to the “feeling of freedom in the play of our cognitive faculties” (1911, §45; Wimsatt 1973, 358). His idea of free play between imagination and understanding, which is independent of other people’s judgments, is, to Kant, a capacity shared by all human beings. Generally speaking, Kant’s notion of play is a very broad one that applies to animate and inanimate things and beings, such as water, fire, muscles, and thoughts, to children’s activities, and also to ethnic and other forms of ritual. Nevertheless, it appears in its most orderly fashion in fine art (Wimsatt 1973, 359).

In his aesthetic essays (Über die ästhetische Erziehung des Menschen, 1795/2006), Friedrich Schiller adopted the Kantian notion of art as play and developed play into an existential concept that reflected its vital importance for human nature. He emphasized the basic human need for play, also called play drive (Spieltrieb), which he considered the mediator between the sensual drive (Stofftrieb) and the formal drive (Formtrieb). The play drive reconciles dialectical opposites of physical and rational forces, thus liberating humans from both moral and sensuous constraints and enabling them to achieve genuine aesthetic freedom. Schiller’s famous insight, mentioned at the end of Letter XV, that “man only plays when in the full meaning of the word he is a man, and he is only completely a man when he plays” (Schiller 1795/2006, n.p.), therefore formed an important step toward the recognition of play as the foundation of human culture.

Friedrich Nietzsche rooted his idea of play culture in the Dionysian impulse, the purely self-interested will to power that has the capacity to both create and destroy entire civilizations (Spariosu 1982, 25). World play, according to him, determines the perpetual recurrence of events (Laxton 2011, 10–11). Similarly, the Übermensch, as embodiment of world play, also represents its most powerful player. In Ecce homo (Nietzsche 1908/2004, 53; emphasis in original), Nietzsche stresses the importance of irrational play, thus subverting the rationally driven concepts presupposed by Platonism and Kantianism: “I know of no other manner of dealing with great tasks, than as play; this, as a sign of greatness, is an essential prerequisite.” Contrary to Kant and Schiller, Nietzsche’s play concept is superior to reason and ethics. It is a dynamic idea that not only captures the totality of signification but, paradoxically, incorporates destructive indeterminacy as well. To Nietzsche, the entire world is defined by play because the world, to his mind, is an illusion rather than something based on scientific principles of truth (Laxton 2011, 10).

In his endeavor to develop the centrality of game and play even further than Nietzsche, Martin Heidegger (Sein und Zeit/Being and Time, 1927) put forward the concept of human reality as a game of being. He embraced Nietzsche’s concept of the will to power as a vital prerequisite to human participation in the arbitrary, violent, ecstatic Wettspiel (world play), both as player and plaything (Spariosu 1989, 124; see also Slethaug 1993, 66). Placed in this agonistic, existentialist, and planetary context, the game of being is relevant to all areas of existence and affects common people’s everyday lives as much as it does larger political schemes. Furthermore, the game of being is rooted in and mediated by language, which is used to construct and deconstruct human reality (see section 2.3).

Of particular importance to language and communication studies have been Ludwig Wittgenstein’s studies of wordplay, in which he systematized the inextricable link between play and language. In his theory of language games (Philosophische Untersuchungen/Philosophical Investigations, 1953/2001), he compares language to a game of chess. He stresses that different types of chess figures take on specific functions only if the player has been initiated to their meaning and rules. These functions can be realized only in actual gameplay, depending on specific figure constellations. Put differently, for comprehensive linguistic and communicative understanding it is not enough to know the semantic meanings of words.
One needs to be familiar with the various meanings words can adopt in various situations and the social and emotive functions they may have in different contexts.

Equally importantly, Wittgenstein highlighted the difficulty of defining the word game because the meanings of different types of games overlap in different ways. The lack of a common denominator makes it almost impossible to identify a basic explanation that applies to board games, ball games, card games, gambling, Olympic Games, and so on. Indeed, according to Wittgenstein, games are best understood in terms of family resemblances between their various manifestations.

In Truth and Method (Wahrheit und Methode, 1960), Gadamer draws on Kant and Schiller by underlining play's vital importance to art "both in the sense of art as a playful exercise and art as lacking final goals or necessary purposes" (Slethaug 1993, 65). To him, both art and games are manifestations of play, and therefore art is less about playful structures than entertainment and spectacle. In art, the interpreter becomes the subject and the work the object of a higher-order game, which is "part and parcel of the artistic process from creation to interpretation" (Slethaug 1993, 65). This game is partly determined by rules, structures, and conventions and partly by the autonomy of play, which allows new forms and individual styles to emerge and develop.

Eugen Fink, a pupil of Heidegger's, systematized the latter's idea of play as a metaphysical foundation of human ontology. To Fink (Spiel als Welt- und Lebenselement, 1960), play has three major historical and phenomenological elements: a metaphysical and ontological, a mythical or religious, and a symbolical or holistic function. In its second aspect, myth or ritual, play becomes an enhanced form of reality in which human beings imitate and thereby approximate the divine. Thus, Fink "reverses the Platonistic dialectic of reality and irreality and shows that 'irreality' is in fact more 'real' than reality, because it is a mode of knowledge which comes much closer to Being than the 'natural' objects and phenomena" (Spariosu 1982, 27). The third, holistic element sees play as a symbol of the world that doesn't imitate parts of life but "makes the Whole appear on a limited stage" (Spariosu 1982, 28).

The aforementioned core philosophical concepts of play and game were synthesized and turned into comprehensive cultural studies approaches by Johan Huizinga and Roger Caillois. In his groundbreaking work Homo Ludens, Huizinga developed Kant's and Schiller's ideas of play as the foundation of human nature and culture into a comprehensive theoretical treatise, thus sparking off the evolution of ludology as a subdiscipline of cultural studies. For Huizinga, culture emerges and manifests itself in play, a phenomenon whereby the latter precedes and determines the forms and shapes of the former, for instance, in religious rituals and contests. Play occurs in two main types: in a natural, primitive, irrational form, for example, in infant and animal play, and in a cultivated, cultural, rational form, which is "more distinct and articulate" (Huizinga 1962, 7) and includes sports, performances, masquerades, and other organized events. The former type produces culture (including poetry, music, and dancing), while the latter becomes a sign of culture once it has evolved.

Among Huizinga's most pervasive concepts is the metaphor of the magic circle—a spatially and temporally confined psychological condition that players enter into when they embark on gameplay. The magic circle separates players from the outside world. It imposes its own rules and value systems that are radically different from gamers' actual worlds and that oftentimes defy even the rules of nature, such as gravitation and mortality. In order to play successfully and to adapt to the rules and laws dictated by gameworlds, players therefore have to adopt a lusory attitude (see section 1.2). As Salen and Zimmerman (2004, 98), drawing on Suits (1990), explain, the term "describes the attitude that is required of game players to enter into a game. To play a game is in many ways an act of faith that invests the game with its special meaning—without willing players, the game is a formal system waiting to be inhabited, like a piece of sheet music waiting to be played. This notion can be extended to say that a game is a kind of social contract." This social contract emerges from players' willing immersion into the gameworld and all the regulatory mechanisms it entails, and if the game requires more than one player to participate, such as multiplayer racing or shooter games or massively multiplayer online role-playing games (MMORPGs), then this contract applies to all players and their interactions with the game and each other alike (Ennsllin 2011a, 32).

Caillois' Les jeux et les hommes (Man, Play and Games, 1958/2001) both builds on and critiques Huizinga's theory of play. In his structuralist approach to ludological forms, Caillois argues against Huizinga's overemphasis on competition and rules in play. To reflect the diversity of manifestations play and games can adopt, he produces an often quoted classification of "games" (or rather play types) that distinguishes between atela (games of chance), ilinx (games causing "vertigo," or dizziness), mimicry (games of make-believe), and agon (competitive games). Equally importantly, he places unstructured play (paidia) and rule-based gaming or gameplay (ludus) on two opposite poles at both ends of a vertical axis. All four types
of games can take on more or less rule-governed (ludus) and more or less arbitrary, unstructured forms (paedia). A combination of paedid and mimicry, for example, generates masquerades and other forms of playful disguises. Ludus and agon, conversely, combine a whole range of competitive sports and games, such as football, fencing, and chess.

Huizinga's and Cailliois's theories were part of a historical surge in interest in play and games across disciplines in the twentieth century. Modern science, for example, began to study play both in the sense of an object of scientific examination and as a methodological tool, thus reflecting a more playful, aesthetic attitude toward its objects of study. Biologists began to see play as an important factor in processes of hominization (evolutionary developments from primates to humans). Play as a tool for learning, exploration, and creativity came to be seen as either equally or, indeed, more important than work, for instance, by developmental psychologists like Jean Piaget. Game theory, a method used by applied mathematicians to study systems and effects of decision making and strategies, came to be used as a theoretical backdrop for investigations into a wide range of economic, political, cybernetic, human, and animal behaviors. It would go beyond the confines of this book to explore applications of play across disciplines in a comprehensive way. In what follows I will therefore limit myself to what is most important for this book: the application of play concepts and theories in and to art and literature.

2.3 Playfulness as Aesthetic Tool and Weapon

This section looks at a number of theories and artistic movements that have used games and play as aesthetic tools of subversion and transgression. In their most extreme forms, these theories and movements have used playfulness as a political weapon against received opinion, dominant ideologies and policies, and the institutionalization and capitalist commercialization of art.

The two movements that tend to be associated most strongly with aesthetic innovation and subversion are modernism and the avant-garde. Bürger (1984) argues against the common trend to conflate the two terms, both historically and conceptually. Modernism, in his plausible opinion, has at its core the shift in artistic emphasis from content to form. It refers to and plays with the constructedness of traditional artistic structures and goes against conventional forms of artistic expression by means of estrangement, distortion, irony, and the grotesque. Politically and historically, however, modernism did not have a proactive agenda. It was and is largely concerned with aesthetic questions and allied to institutionalized forms of representation, such as museums, concert halls, and the publishing industry. Conversely, the historical avant-garde, in its various movements (e.g., Dadaism, Surrealism, and Fluxus), saw itself and its artistic processes and products as a proactive political tool to attack art as an autonomous institution within bourgeois society. While the historical avant-gardes failed to eliminate or impede the institutionalization of art, they "did destroy the possibility that a given school [such as realism] can present itself with the claim to universal validity" (Bürger 1984, 87). Thus, avant-garde playfulness is by definition more confrontational, shocking, politically explicit, and agonistic than its modernist counterpart.

Another important concept relating to aesthetic and subversive playfulness is Situationist détournement. The Situationist International was an international political and artistic movement of the 1950s and 60s whose ideas were inspired by Marxism and early twentieth-century European avant-gardes. Two of their key aesthetic concepts and methods include dérive and détournement. Dérive literally means drifting, which Guy Debord (1958/1981, 51), a key Situationist thinker, understood to be a mode of experimental behaviour linked to the conditions of urban society: a technique of transient passage through varied scenes. Drifting through space without any intention to follow a certain direction or path opens up possibilities of free exploration and experimentation, of spatial and temporal free play, as it were. Détournement, on the other hand, combines the concepts of appropriation and subversion. Its most common translation, diversion, is somewhat ill-conceived in that the English term suggests some kind of evasive agenda. What détournement does refer to, however, is the exploration of new ways of using commodity goods and the values attached to them in the sense of "an all embracing reinvestment of things into play whereby play grasps and reunites beings and things" (Vaneigem 1967, n.p.). Thus, détournement is conceptually akin to bricolage and deconstruction (see next paragraph) and particularly suited to games and other ludic activities as tools for artistic processes of dissolution, appropriation, reassembly, and subversion more generally.

Playfulness became a particularly salient principle in twentieth-century criticism and practice. Among the most significant poststructuralist theories are Bakhtin's idea of the carnivalesque, Lévy-Strauss's concept of bricolage, and Derrida's concept of deconstruction. In Rabelais and His World, Bakhtin (1984) investigates late medieval and early Renaissance forms of social play and games. During this period carnivals and fairs offered platforms for common people to protest—in disguise—against political and clerical agendas.
As Slethaug (1993, 65) puts it, Bakhtin's idea of the carnivalesque can be seen as "Heidegger as read by Marx: the 'world play' must be subjected to parody in order to create new kinds of games." Thus, art in the broadest sense of the word can use play and games as aesthetic weapons to undermine and overcome the restrictions of mainstream policies and confront them with alternative forms of expression.

Lévy-Strauss's idea of bricolage (The Savage Mind, 1966) refers to the skill or practice of assembling new structures from pieces found and recombined arbitrarily. These playful new combinations of otherwise dissociate elements—linguistic or otherwise—reflect a subversive attitude toward the alleged orderliness of language and other semiotic systems, as well as toward static meanings, beliefs, and identities. Indeed, bricolage in the sense of "a process of textual play, of loss and gain," which "cuts up, makes concrete, delights in the artificial," which "knows no identity, stands for no pretense of presence or universal guise for relative truth," (Flam 2003, 388) becomes the main language of criticism and aligns closely with deconstructivist principles of reading.

Particularly influential to literary criticism and practice have been Jacques Derrida's thoughts on play and game. In "Structure, Sign, and Play in the Discourse of the Human Sciences" (1978) and Of Grammatology (De la Grammatologie, 1967), he borrows Bakhtin's idea of using play and game to deconstruct hierarchies and power structures within Western society. Derrida privileges play over game, as the latter is more restrictive because of its rule-bound, structuring qualities, and therefore more prone to political and social abuse. Of particular importance in Derrida's work is his notion of free play, which he considers a key counterforce to Western philosophical logoscenterism. The restrictive nature of logoscenterism lies in "a belief in some ultimate 'word,' presence, essence, truth or reality which will act as the foundation for all our thought, language and experience" (Eagleton 2008, 113). According to Derrida (1978, 289), the fixity inherent in logoscenteric thought determines what is and isn't acceptable, thereby restraining play at its core. He replaces the idea of a center with that of supplementarity, of "infinite substitutions" of the signified that cause "movement of signification" and a dynamic, ever-changing concept of meaning.

Having examined some core artistic movements and critical theories that placed play at the heart of their pursuit of innovation, subversion, or even political upheaval, let us now move on to how ludicity in the sense of play and game concepts has affected contemporary literary culture and theory.

### 2.4 Games, Play, and Literature

When you read a poem, you make something different of/from with it than the next person, just as two playings of a game may differ. (Andrews 2007, 55)

The 1960s, 70s, and 80s saw a surge of academic interest in playful literature, driven partly by the growing importance of play across disciplines and theories (see section 2.1) and partly by a tendency toward playful structures in postmodernist fiction and other literary and artistic genres (Edwards 1998). That said, the late twentieth century didn't yet see the popular ludic mood arising across Western society that we have seen in the past five to ten years. This popularization of ludicity has been driven largely by the exponential growth of the gaming industry and the concomitant changes in popular media usage.

Previous research into the so-called "games" authors play has focused mainly on print. I've put "games" in quotes here because a more suitable term for the sort of activities undertaken by readers and writers of ludic print literature is playful activities: literary play between reader, writer, and text (in various combinations depending on the type of play). As discussed in chapter 1, games are in many ways contrary to the boundless, capricious activities normally associated with literature as play. Indeed, gameplay is an extreme subtype of ludic activities, one that is highly regulated and structured (Zimmerman 2004, 159). As Wimsatt (1973, 359) puts it, "[s]ometimes we play games; at other times, as when we gambol, or romp, or swim, or walk in the woods, or yodel, or doodle, we are just playing." Yet the latter often transforms into the former as rules and conventions are introduced into initially arbitrary play, thus creating a system or mechanics for players to adhere to.

When Bruss, in "The Game of Literature and Some Literary Games" (1977, 158), mentions interaction as a necessary criterion of a "literary game," she isn't referring to the kind of interactivity afforded by games proper, either analog (board games, ball games, etc.) or digital. After all, physical interaction between reader, writer, and print text is mostly limited to turning pages, albeit multidirectionally. The main interaction that does happen between readers and writers of print literature is of a cognitive kind, and the so-called contest between those players (Bruss 1977) is nowhere near as equal as many ludoliterary theorists claim it to be. What can be said instead is that writers produce ludic texts in order to leave them as playthings for thus-inclined readers, who are then supposed to read playful meanings into them. The author-reader relationship is therefore
definition an asymmetrical one that places the author in the powerful role of the puppet master. The reader, on the other hand, while surely having “a role to play . . . [given] a fairly passive role: to pay attention, to understand, perhaps TO think . . . but not to act” (Adams 1999, n.p.).

Therefore, the “games” authors play with readers and texts do not equate to gameplay in a narrow, ludological sense. Rather, the playful readerly activities afforded and demanded by ludic print literature can be characterized in terms of cognitive ludicity, which happens primarily in readers’ (and writers’) minds as they interact with a text (see chapter 1). Ludic (print) literature in the traditional sense therefore does not provide the ludic mechanics (the rules, challenges, risks, actions, and rewards that form the system of the game) needed for an artifact and users’ interactions with it to merit the terms literary game, gameplay, or gaming.

In view of the above observations, Andrews’s (2007) claim at the beginning of this section seems somewhat superficial in that it attempts to bring literary reading and gameplay on an equal footing based on the observation that individual readings of both phenomena are bound to differ between individuals. They surely do, but so do readings of other media and artifacts, and the degree to which the experiences of readings vary is less dependent on the choice of medium than on the authorial agenda driving the production and reception of any aesthetic artifact, as well as the broader inter- and extratextual context of the reader. In fact, playing the same game twice is far less possible than reading the same text twice, as the structures of games inherently enable if not demand variety, plurality of choices, and exploration rather than a carefully designed trajectory. Thus, when we talk about different readings of the same text, we tend to refer to different interpretations in the sense of hermeneutic processes. Different playings of a game, conversely, tend to result in entirely different games, with outcomes as varied as winning or losing, gaining and/or losing lives, credits, and other countable units, radically different navigation options, and, as a result, a large diversity of experiences of the gameworld per se. We might say that the rules and structures of a game open up an almost infinite array of gameplay experiences, which are far more diverse phenomenologically than different readings of a standard (print) text—no matter how literary its intent.

That said, literary texts are reliant on rules and other forms of regulations as well, or else we wouldn’t be able to read them. At the very least, they use human language in more or less coherent and standardized, creative, and explorative ways. Jorge Luis Borges (1943, quoted in Hutchinson 1983, viii), who is renowned for his playful, postmodern fiction, writes about the “rules” of literature as a game: “Literature is a game with tacit conventions; to violate them partially or totally is one of the many joys (one of the many obligations) of the game, whose limits are unknown.” Put another way, breaking the rules dictated by linguistic and literary conventions is, to Borges, part and parcel of being a writer. Clearly, his notion of game is a lot broader than commonly agreed ludological concepts, yet what is important here is that literature has the intrinsic quality of subverting its own conventions, of experimenting with structures for the sake of entertainment (entertaining both the reader and the writer). So while the so-called rules of literature cannot really equate with those needed to play a game, the subversive spirit conveyed by playful writing finds its ludological cognate in the sort of computer games under investigation in this study, that is, art games that seek to undermine the expectations brought toward them by players in order to entertain or, rather, engage players in a (self-)critical and/or satirical way.

Based on his research into twentieth-century American fiction, Detwiler (1976, 48–49) suggests three different types of literary phenomena where games and literature intersect: (1) playful fiction, which is characterized by “exuberance and exaggeration, that appears spontaneous and casually composed (even though it is not), that is usually funny, and that does not portray a particular game, or play a game with the reader.” Print examples of this type (1) include fiction by Richard Brautigan (e.g., The Abortion, 1971) and Donald Barthelme (e.g., “The Glass Mountain,” 1970). Type (2) is fiction that features games of various types, mostly to provide an allusion to, or allegory of, the main plot, character(s), and imagery. Sports have proven to be a particularly popular focus, especially in 1960s American novels such as Robert Coover’s The Universal Baseball Association (1968) and Joyce Carol Oates’s With Shuddering Fall (1964). Detwiler’s final category (3) is very similar to Bruss’s concept of games that authors play with readers through puzzles or jokes (see also Hutchinson 1983). Examples of this type include Susan Sontag’s literary puzzle Death Kit (1967) and Nabokov’s jocular Pale Fire (1962). Hardly any literary artifact represents only one of the above categories but rather mixtures of two or three of them, with one tendency to be more salient than the other(s).

Bruss (1977) derives the essence of what she calls literary games partly from ethological insights into the main features of play as observed in humans and other animals and partly from mathematical game theory. She breaks literary play into three types: competitive (between author and reader), collaborative (ditto), and mixed motive (a mixture of the two former types). She locates the main difference between cooperation and competition in the distinction between hint and clue, which often co-occur in
literary writing and create a tension between interdependence and conflict between reader and writer. The main problem with Bruss’s approach is a conceptual one: she notoriously conflates play and game, and her idea of literary game applies to literally every piece of narrative fiction. After all, the interplay between cooperation and conflict is present in most fictional works as readers have to fill semantic gaps during the reading process. It is therefore hardly surprising that Bruss herself admits at the end of her essay (1977, 170) that “[e]ven the notion of ‘game’ itself may eventually prove too narrow, suggesting as it does a finite set of rules, a well-defined playing space, clearly ranked preferences, and conscious calculations. Perhaps literary games will come to seem too limited and too confining in their own right.” This is indeed true, considering the fact that games are a subset of play and defined by a relatively fixed set of characteristics.

In *Games Authors Play,* Hutchinson (1983) develops Detweiler’s (1976) and Bruss’s (1977) idea of authors’ play with readers through contest further: he elaborates on the competitive relationship between author and reader, or narrator and narrative. This playful agenda challenges readers to take an active part in the reading process, most typically by solving puzzles (enigma, e.g., whodunit?), by tracing parallel meanings, for instance, through allegories, metaphors, or intertextualities; and more generally by engaging critically with narrative devices, such as self-conscious, multiperson, or unreliable narrators. Again, however, games and playful activities are presented as quasi-synonymous by Hutchinson, which creates a conceptual dilemma that he shrugs off by saying, “[o]f all games known to man, those in literature would seem to rely on rules the least” (1983, 5).

Another important type of literary play is the play with and on words, which includes a range of conventional stylistic tools and is particularly characteristic of poetic language. As Prawer (1969, 71; see also Hutchinson 1983) puts it, “[p]oetry and play are closely related, and many fascinating and happy games may be played with the phonic and graphic substance of language.” Yet literary wordplay, particularly in poetry, goes far beyond the confines of conventional playful poetic forms (e.g., lipograms and palindrome, figures of speech (e.g., oxymora and pleonasm), puns (e.g., homonyms and homophones), and linguistic imagery (e.g., metaphors and similes). It is the very essence of poetry to assign new meanings to words, to implement phonemic and graphemic material so as to depict extralinguistic meanings in a multisensory way, and to create nonstandard combinations and constellations of word material so as to evoke multilayered, ambivalent, and often ambiguous meanings and emotions.

Drawing on typologies of play proposed by Caillous (2001; see section 2.2), Detweiler (1976), and Spariosu (1982), we may divide literary play into different categories, although most artifacts subsumed under this term exhibit attributes that match more than one of these categories. The first and broadest category is, broadly termed, freedom, which is linked to arbitrariness and irrationality: we find random, aleatoric structures (which work on the basis of chance), for instance, in multilinear fictions and Oulpan poetry (where readers can combine the lines of sonnets in whatever fashion they like, for example). Ilinx (or vertigo) is the sort of dizziness we feel when reading such artifacts as labyrinth poems, puzzling texts (“Jabberwocky” or the Möbius strip of John Barth’s “Frame Tale”), or literary installations. Mimicry (role-play) is found in texts featuring unreliable narrators (where readers have to make an effort to un-mask the identity of a liar, psychopath, or schizophrenic). Agon broadly refers to some sort of contest between reader and writer, but it can also be a contest within the text (e.g., a game of chess, which incidentally is mostly also a parallel).

Finally, and this is something I’d like to add to the debate, there is rhythms, which is Greek for rule, harmony, and rational order. This comes closest to Caillous’ notion of ludus and relates to artifacts in which the mechanics of rules, challenges, rewards, winning, and losing form the structural foundation of the player’s activity. Nondigital examples of this type are few and far between, yet in Persian culture there is a popular parlor game called Mosh’ahere, “where one player recites a line of poetry, and a second player must then recite from memory another poem in which the first line of its first word is the same as the last letter of the last word of the line recited by the previous player. Whoever fails to come up with a fitting line is eliminated” (Milani 2008, 652). Another rare example of analog literary gaming is Uta-garuta, a Japanese card game, in which players have to speed-match poetry lines written on cards to complete a full poem. The idea of rule-based literary gameplay, which gives rise to literary games proper, forms a gap in the research literature, perhaps because the sort of literary games most people can think of are strictly speaking language or word games like scrabble, crossword puzzles, or hangman.

Against this theoretical backdrop, it is important once again to emphasize that the concept of literary gaming as used in this book refers to games proper, or elements thereof: games that exhibit specific ludic mechanics and implement them through digital technologies. These ludic mechanics can either be embedded in a (digital-born) literary work or form the basis of an art game featuring literary (poetic, narrative, or dramatic) structures and strategies. As mentioned previously, most literary games we know
from print aren’t exactly games in the sense of rhythmos—they may play with the rules and structures of language, but they tend not to embed literary structures in ludic mechanics or vice versa. Hence, it may come as little surprise that there hasn’t been much research into literary games in the narrow sense of games featuring literary structures. It is only recently, with the evolution of digital media as a platform for artistic and creative experimentation, that true literary-ludic hybridity has begun to flourish and proliferate, and it is within this context that literary gaming can now be studied systematically.

2.5 Literature Born Digital

Digital textuality is an all-pervasive phenomenon in the twenty-first century. It captures any textual processes and products performed and received in and through digital media. When it comes to books or literary texts in the digital sphere, most people will automatically associate them with commercial trends and think of e-books, that is, books that are produced for print and have also been made available in electronic form, which allows us to read them online and/or on various types of e-readers. For the commercial publishing industry, publishing print books in this so-called paper-under-glass form is still the financially safest option, if not more lucrative than selling actual print copies, which incur printing, storage, and distribution costs.

Digital literature operates on the basis of computer code and is read on an interactive screen. This means that text becomes a fluid object that cannot be read with the same degree of phenomenological reliability as that afforded by print technologies. It is reliant on the functionalities offered by digital media, such as hypertextuality, haptic interaction, multimodality, and, of course, ludicity (game-ness). A term coined by Hayles (2005) to designate the dynamic, mutant nature of digital textuality and aesthetic human–machine interaction more generally is intermedial. The ever-morphing existence of digital texts requires new concepts of materiality and textuality that are far less bound to the haptics of the artifact as tangible product (book and print) but inextricably connected to its medial contexts and connotations. Textuality becomes a pluralistic idea and the work of art an “assemblage” of instantiations.

Early forms of digital literature include interactive fiction and hypertext. Almost entirely text-based, in the sense of consisting almost exclusively of typescript, IF and hypertext fiction are programmed or scripted in specially designed software—such as Inform for the former and Storyspace for the latter. Both depend aesthetically on the specific affordances of their individual productive and receptive platforms: IF needs a compiler to transform code into natural language and an interpreter in order to be presented as finished products that reader-players can interact with. Hypertext needs, for its representation, a browser or a specifically designed offline writing and reading tool, such as Storyspace. IF is “read” by entering commands into text windows, which trigger new text chunks and, in an ideal world, narrative progression. Hypertext, on the other hand, is based on text chunks connected by hyperlinks into networks, and readers navigate it largely by clicking on overt or covert hyperlinks. Chapters 4 and 7 will focus on hypertext and IF, respectively, in more detail.

Whereas the beginnings of IF and hypertext date back to pre-Web decades (the 1970s and 80s), the 1990s saw the evolution of web browsers and graphics editors. These developments moved previously typescript-based digital literature into the age of multi- and hypermedia. Both IFs and, in a more pronounced fashion, hypertext became audiovisual, including still and animated images and sound. By the same token, interactivity transformed from entering text commands and clicking on hyperlinked words to a wide array of possible reader actions, such as drag-and-drop, roll-over, point-and-click, and various keyboard functions. The number of functional and metaphorical uses to which the mouse and keyboard can be put has increased immensely since the early 1990s, and it is now common practice to specify the type of technology or software used by an artifact to mark its genre: for example, Flash fiction, Storyspace fiction/poetry, Twitter fiction, and CAVE poetry.

Furthermore, it is common practice among digital writers and artists to develop software tools specifically for individual artifacts and the specific aesthetic effects they are supposed to evoke. One poignant example is Kate Pullinger, Stefan Schemat, and babel’s (2004) crime mystery The Breathing Wall, for which a software called Hyper Trans Fiction Matrix was developed that releases narrative information based on the reader’s breathing rate and depth (Ensslin 2009, 2011b). It works in connection with a headset, and readers have to place the microphone underneath their nostrils to allow their breathing rate and intensity to be measured and translated into narrative information.

The Breathing Wall also shows how digital textuality, when used in aestheticized form, tends to nontrivial in its demands on the reader. Indeed, readers are integrated in a cybernetic feedback loop which requires them to develop and use a range of receptive and interactive mechanisms that are physiological, kinetic, and cognitive, to different degrees of intensity. This
idea of non-trivial text interaction in digital media is generally referred to as *ergodicity* (Aarseth 1997). If, in addition to its ergodic nature, a digital text not only integrates but, indeed, thematizes and/or problematizes (parts of) the human body, its functions, and its limitations vis-à-vis the reading task at hand, it becomes an example of *physico-cybertext* (Ensslin 2009, 2011b) and *The Breathing Wall* is a key specimen of this genre.

In the past decade, digital writers have increasingly experimented with ergodicity and ludic mechanics to see how they might be embedded in literary artifacts, and to what aesthetic effects. Whereas ergodicity emerges from a broad range of interactive utilities, ludic-mechanic design tools are used specifically to afford gaming activities such as scoring points, racing against time, hitting, shooting, or collecting objects, and other types of challenges that have to be met in order to proceed in a game. Clearly, the borderlines between cognitive and/or ergodic ludicity and ludic mechanics aren’t always as clear-cut as they may seem. My analyses will therefore demonstrate the broad variety of textual manifestations of literary play and gaming ranging from minimal ludic mechanics and maximal cognitiv-ergodic ludicity to its exact reverse.

### 2.6 Art Games versus Game Art

By the second decade of the twenty-first century, computer games have become a well-established art form represented by a global industry whose turnover exceeds that of both Hollywood and the music industry. Since the years leading up to the boom of the gaming industry and the proliferation of commercially oriented, run-of-the-mill genre blockbusters from the 1990s onward, there has also been a steady increase in independent game design and development that has given rise to a wide range of noncommercial artifacts such as art games, online adaptations and parodies of classic platform games and shoot ‘em ups, serious games (for education and health), and politically and socially critical newsgames.

There is little doubt that games have to be primarily played rather than read, listened to, or watched. That said, in order to play games, classic decoding mechanisms have to be codeployed, such as reading the rules in manuals and quest directives on screen, listening to nonplayer characters give instructions and hints, and interpreting the navigational iconicity, symbolism, and indexicality of interface design. The ways in which characters and gameworlds are depicted audio-visually have an important effect on players’ thoughts, emotions, and attitudes—both within the magic circle and in actual life. Indeed, it is the normalization of ludic and representational features in particular that makes for computer games’ subversive potential, be it for pure enjoyment or overt criticism. By the same token, fan culture, *hakativism* (a blend between “hacker” and “activism”), indie and art game development, and other potentially deconstructivist metaphenomena now serve as an arena for social, linguistic, and aesthetic practices drawing on, problematizing, and subverting games, gameplay, and their wider social and discursive contexts.

This quasi-iconoclastic experimentalism literally *détours* aspects of commercial game development and gamer culture, that is, it appropriates ludic structures and reassembles them into new gaming architectures and practices in playful, subversive ways. As Dragona (2010, 27) puts it, “[u]sing play as a practice to transcend rigid forms and to break constraints is a distinctive feature of today’s game-based art. Artists working in the field are playing with the rules, rather than playing by rules; they modify or negate instructions, structures, aesthetics and norms, seeing contemporary gameworlds as a reflection of the contemporary digital realm.”

It is indeed this nexus between art and digital games that forms the aesthetic backdrop to literary gaming as understood in this book. However, the concept of games as art used here needs to be further refined. According to Adams (2007, 257), “the vast majority of what the game industry does is not art, but popular culture. Art . . . is not sold in toy shops. But the fact that most of what the industry produces is merely popular culture does not preclude the interactive medium from being an art form.” In other words, it cannot be denied that videogames as entertainment media have developed into an art form in their own right, with specific conventions, artistic styles, and awards. Nevertheless, to qualify as Art with a capital “A,” they need to have some kind of artistic, critical, and/or self-reflexive agenda intended to make players reflect on their medial, textual, interactive, material (or otherwise) nature. In short, games have to be conceptualized as art in order to qualify as art games, a designation that mostly means they are not intended for unreflected mass consumption and commercial profit making. This also implies that these sorts of games tend to be produced by very small groups of developers, sometimes even just one person, with very tight budgets and a strong sense of auteurship.

As mentioned in chapter 1, art games have to be distinguished from game art, whereby the latter term denotes “any art in which digital games played a significant role in the creation, production, and/or display of the artwork. . . . The resulting artwork can exist as a game, painting, photograph, sound, animation, video, performance or gallery installation” (Bittanti and Quaranta 2006, 9). Art games, on the other hand, are “videogames
specifically created for artistic (i.e., not commercial) purposes" (7). They are often humorous and/or critical, challenging, for instance, cultural stereotypes, social or political matters, or detouring aspects of the mainstream (gaming) culture in which they are embedded. They “explore the game format primarily as a new mode for structuring narrative, cultural critique. Challenges, levels and the central character are all employed as tools for exploring the game theme within the context of competition-based play” (Cannon 2003, n.p., emphasis in original), whereby competition itself is often manipulated, suppressed, and/or presented as a ludic fallacy.

With the exception of interactive fictions and text adventures, computer games tend to be predominantly audiovisual rather than linguistic in nature. Language is therefore far less foregrounded than in experimental forms of digital literature such as hypertext fiction. That said, recent experimental forms of art games and digital experimental literature have merged visual, ludic, and literary design techniques and materials. As showcased by Grand Theft Auto (a pun on the name of the mainstream console game Grand Theft Auto), a group blog run by interactive fiction writers, digital artists, writers and theorists, indie game developers, and other aesthetic new media experts, it is part and parcel of the impulse behind the “ludic turn” to bring together “interactive fiction, net.art, electronic poetry, interactive drama, hypertext fiction, computer games of all sorts, shared virtual environments, and more” (Grand Text Auto 2003–2013), thereby inspiring innovative creative practices as well as critical and analytical thought.

In computer games/gaming as literary art, then, literary and poetic techniques are employed in order to explore the affordances and limitations of rules. Literary gaming (as well as other forms of art games) implements Bogost’s (2007) concept of procedural rhetoric in that it involves artifacts—part game, part digital literature—that are persuasive: their ludic mechanics and semiotic structures are designed in such a way that they afford and demand critical, reflexive, and meditative play and seek to persuade the player, through algorithmically grounded interactions, to understand and internalize their artistic and aesthetic message. In the next chapter, I shall take a closer look at these hybrid artifacts and propose a typology that is grounded partly in technological elements and partly in psychological aspects of player-reader interaction.

3 Between Ludicity and Literariness

3.1 Introduction

This chapter follows on from my earlier research into computer games as experimental literature (Ensllin 2012a), in which I have drawn up a tentative typology, or rather textual spectrum, of digital ludoliterary artifacts. Here I shall further develop and elaborate this spectrum and illustrate it with examples of the wide range of artifacts under investigation.

With games studies established as an academic discipline, scholarly debate has moved from general, or generic, theories about digital games and gaming to a second wave of research dealing with more specific ludological and analytical concerns, game genres, and individual games and franchises (see also chapter 1 for a discussion of close-play as one such analytical concern). The past five or so years have seen a proliferation of monographs and edited collections on such diverse and specialized topics as games and spatiality (e.g., Nitsche 2008; Gazzard 2012); gaming, discourse, and communication (Ensllin 2011a, Paul 2012); players and gamers (e.g., Crawford 2011; Lankoski et al. 2011); online gaming (e.g., Taylor 2006; Crawford, Gosling, and Light 2011); casual and mobile games (e.g., Juul 2010; Reichle 2012); persuasive games (Bogost 2007); news games (Bogost, Ferrari, and Schweizer 2010); and also specific game titles and franchises such as World of Warcraft (Cornellussen and Walker Rettberg 2008) and Grand Theft Auto (Garreets 2006). Similarly, as outlined in chapter 2, several book-length studies on the interfaces between games and art have appeared in the past decade. They aim to document the growing cultural impact of the games industry as well as the broad spectrum and historical development of “Art” (with a capital A) inspired by and involving game development (Clarke and Mitchell 2007; Bittanti and Quaranta 2006; Catlow, Garrett, and Morgana 2010; Getsy 2011).
READING PROJECT

A COLLABORATIVE ANALYSIS
OF WILLIAM POUNDSTONE'S

Project for
Tachistoscope

{Bottomless Pit}

JESSICA PRESSMAN, MARK C. MARINO, AND JEREMY DOUGLASS
We can understand these survey markers as tools for geographic inscription; by outlining the area, they turn a physical pit into something to quantify and sell.

The narrative's final sentences describe the casino project in ways that turn the story about the Pit into an allegory of reading in our digital age. The tale concludes, “Large cracks parallel to the Pit’s rim have appeared in the ground where construction was to have begun and this pattern of ground deformation has preceded past subsidence events.” The sentence’s complexities exemplify Project’s writing style and also hint at the philosophical questions that permeate the work. The sentence identifies natural signs (“large cracks”) existing alongside the man-made (and man-altered) survey markers. Both types of signs can and should be read, for they present a pattern. The sentence uses a past perfect infinitive (“was to have begun”) that denotes unfulfilled conditions—the intended construction of a casino—and qualifies the description of the ground and its cracked surface. These cracks are not only visible; they are also semiotic and symbolic. They record a historical happening, designate an unfulfilled plan, and represent the need to read into the Pit. The next sentence continues to register our reliance on historical artifacts: “The Pit has swallowed part of the safety rail system encircling the Pit’s perimeter.” Part of the safety rail remains, and it is from that visible remnant that one can begin to reconstruct history.

Project presents and promotes excavatory reading practices. Its narrative centers around the actions of individuals who actively read (and read into) the Bottomless Pit and who also leave traces for others (including you, dear reader) to discover and explain. Such excavatory reading is important, the work suggests, because “In recent years the Pit has both widened and gotten alarmingly deeper.” On that ominous note, the tale of the Bottomless Pit ends. The work concludes by signaling the proliferation of change, by noting the growing instability of surfaces, and by suggesting that we need to direct our attention to these transformations. We claim throughout this book that learning to read the Pit—and, thereby, learning to read Project—is about learning to read our changing contemporary media landscape. Project invites such metacritical analysis, but it is also very much a work of its own time that exemplifies a particular moment in electronic literary history.

Context: Situating Project in the Field of Electronic Literature (Jessica)

Project dates from the early years of the new millennium, and its aesthetic is exemplary of a strain of work popular during that moment in the history of electronic literature. Before the adoption of interactive animation authorware (such as Director and Flash) in the late 1990s, which transformed the field of electronic literature by introducing highly visual, time-based, and kinetic poetics, hypertext was king. Hypertext literature was text-based and presented nonlinear reading paths through a link-and-node structure of connecting “lexias,” 1 and, as a result, it was characterized by poetics of exploration, disorientation, and exhaustion. As electronic literature entered an era of sophisticated visuals and interface design, novel-length hypertexts were displaced by short animations. The new, highly visual and even cinematic aesthetic flourished in such online journals as Poemshelf.com (edited by Megan Sapnar and Ingrid Ankerson, which published new issues quarterly from 2000–2004), whose title describes the aesthetic of the literature it presented. Exemplary of this type of work is Young-Hae Chang Heavy Industries (YHCHI), 2 a critically acclaimed artistic duo who use Flash to present a flashing aesthetic of image, text, and sound—epitomized by its one-word-at-a-time delivery—that produces a minimalist and yet sophisticated aesthetic effect. Like YHCHI’s work, Poundstone’s Project is compact and poetic in ways that offer multiple entry points for readers seeking connections across diverse artistic genealogies, from literature to film to graphic design. As I have elsewhere argued, such speeding, unstoppable work both invites and challenges close reading. 3

The introduction of Flash, and other similar animation software, produced a pivotal moment in the history of electronic literature. In her schematic history of the field, N. Katherine Hayles identifies this moment as the division between two “generations” of electronic literature. Hayles explains,

First generation works, often written in Storyspace or Hypercard, are largely or exclusively text-based with navigation systems mostly confined to moving from one block of text to another. Second generation works, authored in a wide variety of software including Director, Flash, Shockwave and xml, are
fully multimedia, employ a rich variety of interfaces, and have sophisticated navigation systems.\textsuperscript{4}

As with any narrative of media history, linear succession was neither clear nor decisive but, rather, recursive and remediative.\textsuperscript{5} Yet, the importance of this shift in electronic literary aesthetics is important to note, both for understanding digital literature and for recognizing how Project is exemplary of a signal moment in the history of electronic literature and its emergent poetics.

Though Project reflects this period in electronic literary history, it is also unique, both artistically and because of its artist. Project’s importance to the field is signified by its inclusion in the Electronic Literature Collection, volume 1, an online digital anthology published by the Electronic Literature Organization that curates and archives important works of born-digital literature.\textsuperscript{6} Unlike other writers included in the ELC, William Poundstone is the author of fourteen print books of non-fiction and has been twice nominated for the Pulitzer Prize. His books range in scope and focus, but all share an interest in unearthing and explaining the central facets, figures, and complex theories of our technoculture. His print oeuvre traces the intersections of computing, cognition, and capitalism: The Recursive Universe: Cosmic Complexity and the Limits of Scientific Knowledge (1984), Prisoner’s Dilemma: John von Neumann, Game Theory, and the Puzzle of the Bomb (1992). How Would You Move Mount Fuji?: Microsoft’s Cult of the Puzzle—How the World’s Smartest Companies Select the Most Creative Thinkers (2003), Priceless: The Myth of Fair Value (and How to Take Advantage of It) (2010). Poundstone’s books explore and expose: Big Secrets: The Uncensored Truth About All Sorts of Stuff You Are Never Supposed to Know (1985), Bigger Secrets: More Than 125 Things They Prayed You’d Never Find Out (1986), Fortune’s Formula: The Untold Story of the Scientific Betting System That Beat the Casinos and Wall Street (2005). These thematic interests carry over into Project, as does Poundstone’s formal method of storytelling in which he develops a fixation point for his reader’s attention and then draws a complex constellation around it. To see how he translates historical storytelling into digital literature, we dive into Project and examine the first screens that the reader encounters: the prefatory elektronscreens.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{Project.png}
\caption{Title screen of Project. (Screenshot by authors; with the permission of William Poundstone.)}
\end{figure}

\textbf{DIVING IN: THE ENTRYScreens (JESSICA)}

Project begins with a title screen that then dissolves into a start screen. The word “START” appears in large, trim, sans serif, white capitalized letters at the center of the screen. The word remains static as a pulsing circular ball expands and contracts around it. Composed of a lighter blue than the background, the circle cycles through a range of colors and creates the effect of a vortex at the center of the screen. The vortex focuses attention on the noun-verb “START” and invites the reader to click on it with their mouse pointer. Doing so activates the main animation and begins the flashing story of the Bottomless Pit.\textsuperscript{7}

However, before the reader’s pointer can reach the word, its movement triggers something unexpected. A ring of seven icons swoops in from the outskirts of the screen to encircle the word “START.” Whenever the reader’s mouse hovers near “START,” the icons appear, like summoned attendants to the entry portal. The icons are summoned by an event specified by the source code, and the reader cannot begin the work without encountering this circle. These icons further demand attention because they are punctuated by a succession of fluorescent colors and moving stimuli that make the images impossible to ignore. The circle of icons contain titles that overlay the image and that reference the larger cultural histories and discursive circles in which the work operates. With titles such as “Concrete Poetry & Subliminal Advertising,” “Aporia,” and “System Requirements,” these icons orient the reader to approach the work within specific poetic, cultural, and technological
Clicking on any one of the seven icons that encircle “START” opens a new screen—what we call an “entriescreen.” These single, static screens are filled with text laid out in paragraph form. Each provides a specific historic or technical context for approaching the work. These entriescreens are “paratexts,” echoing Gerard Genette, for they are neither separate nor superfluous. A reader could choose to skip the screens and dive right into the story of the Bottomless Pit, but each screen provides meaningful content. They serve to explain, frame, or anchor the main text and its design poetics. For example, the entriescreen titled “Aporia” presents Project as sharing “the spirit” of the Oulipo and other constraint-based artistic experiments, including “a number of exercises in randomly distorting semantic content while preserving elements of structure—among them the telephone game, exquisite cadaver, and the Oulipian N+7 algorithm.” Such experiments are often identified as predecessors of born-digital computational poetry because they emphasize the process of generating texts, not just the final product. In effect, such experimental poetics share an understanding that a poem can be a process or algorithm as well as the result of them. By referencing such poetic exercises in its prefatory screens, Project’s paratexts situate this digital work within a longer genealogy of procedural poetics.

The title of the entriescreen “Concrete Poetry & Subliminal Advertising” references a different form of experimental poetry—concrete poetry—and offers the following provocative claim: “Subliminal advertising is coeval with concrete poetry.” The relationship between these two genres is central to Project. After all, the imagery used throughout Project—from the icons on its paratextual entriescreens to the image-texts of its main narrative—is drawn from advertising and consumer culture. Each entriescreen features an icon as its background so that the text of the aforementioned entriescreen “Concrete Poetry & Subliminal Advertising” is presented upon a small white silhouette of Brazil, a birthplace of concrete poetry. Clicking that icon opens a static expository screen whose background is a large, white single-prop airplane. The incongruous image is better understood in the context of the relationship between subliminal messaging and concrete poetry. For Brazilian poet Délio Pignatari’s foundational work of concrete poetry, “beba coca cola,” transforms the words “coca cola” into “coca” (cocaine). This work was published alongside the seminal manifesto “Pilot Plan for Concrete Poetry” (1958). This sly game of commodity-turned-illegal-drug provides a context for Poundstone’s single-prop airplane icon, which symbolically imports concrete poetry into the U.S. in a fashion that evokes media panic over Brazilian drug trafficking. The airplane icon also puts the word “pilot” invoked in the title of that famous manifesto. As the paratextual entriescreens suggest, Poundstone’s vision of the coevolving concepts of subliminal advertising and concrete poetry is central to Project, even if it is not the primary focus.

That history contextualizes the work’s own subliminal text—text that flashes faster than the text of the main narrative and thus interrupts the primary narrative stream by appearing in between its visible words. In an authorial statement introducing Project in the Electronic Literature Collection, Poundstone claims, “The piece is, as far as I know, the first to use subliminal effects in a work of electronic literature.” This statement draws attention to the very thing his poetic elides. Using Flash authorware, Poundstone displays words so fast the reader cannot grasp them; then, through statements like this one and also through his paratextual entriescreens, he focuses attention on the presence of this subliminal text. The result is a palpable tension between what is hidden and seen, surface and depth, and Poundstone goes out of his way to introduce this context before the narrative even begins.

He does so explicitly on the entriescreen “Subliminal Con.” The text on this screen introduces a pivotal backstory for Project, one that cements the constellation composed of computational poetics,
advertising, and visual poetry. The entryscreen tells the following apocryphal tale from American cultural history:

In September 1957 ad man James M. Vicary announced that he had used a device called a tachistoscope to flash split-second ads during movies. The ads, too fleeting to be perceived consciously, worked. One that said ‘Drink Coca-Cola’ increased sales 18.1 percent. A similar ad for popcorn boosted sales 57.5 percent.

The entryscreens provide a brief history of the fallout from Vicary’s subliminal stunt, which Vicary later decried as “a gimmick.” We explore Vicary’s experiment in chapter 4, where we consider it as both an important cultural event and a media-based artistic experiment, but now we want to explain that the purpose of these introductory screens is to direct the reader’s attention toward certain aspects of the work and away from others. In so doing, they function much like visual priming mechanisms, which serve to influence perception and prove central to Project’s poetics. Poundstone’s framing ends when the reader clicks “START,” as the circle of icons are swept off beyond the pale of the screen, replaced by an onslaught of fast-flashing content.

THE VISUAL LAYERS (JEREMY)

Just as the Pit is the central character in the narrative, so too is it the primary design feature of Project’s interface aesthetic. From the moment the work begins, a pit-like vortex of concentric circles pulses at the center of the screen. As the work plays, it remains—sometimes modulating in color, but always present. The vortex evokes a sense of depth in the flat interface and simultaneously affects the reader’s attention on the location at center-screen where words appear. In this way Project presents a visual pit on-screen upon which and within which it flashes the tale of the Bottomless Pit. The connection between these two pits is crucial. The convergence of aesthetic and narrative depth informs the reader’s perception of the work as “having depths” that may be excavated; thus, in order to perform analysis of the work, we first need to identify the various elements—or, to use the depth metaphor of the work, the layers—that comprise its on-screen aesthetic. This chapter lays the foundation for further analysis by striving to carefully consider the layers of visual elements employed on-screen to produce Project’s aesthetic. We do so using two approaches. First, we analyze from a distance; we diagram the abstract system of the work operating at full speed. Next, we move up close; we carefully unpack a specific frozen moment as captured in a screenshot—a single frame.

Conceptually, we can describe visual layering in Project by using a depth metaphor that proceeds from bottom-to-top or from back-to-front, such that elements that are closer to the viewer may act to conceal ones that are further away. Project’s screen is composed of six main layers, all of which will change in content but not in order, and nearly all of which are aligned to the center of the screen:

1. The Background layer, containing background color
2. The Rim layer, containing shifting radial graphics
3. The Icon layer, containing a white clip art image
4. The Text layer, containing either a story word or subliminal word
5. The Image layer, containing a small colorful subliminal-graphic
6. The Exit layer, containing a pulsing red EXIT mark in the lower-left corner

The background (layer 1) is always present; its primary state is blue, though it oscillates, often, between different shades. This background color may become black or even shift to shades of pink. The rim (layer 2) appears upon a cerulean background. The rim consists of many circles shifting between multicolored gradients that give the impression of flatness or depth, even alternating between these states right before our eyes. The rim produces a smaller circle at center-screen, a scope of sorts that serves to focus the reader’s attention. The rim also frames within it the combinations of text and image, the imagetexts, that present Project’s narrative content and serve to comprise layers 3, 4, and 5. The first of these is the icon layer (layer 3), which displays a constantly changing figure: an airplane, a dagger, a martini glass, a house, a bomb. Each icon is rendered in a simple abstract style; it is the same style that the reader first encounters on the entryscreens. The icons are white, flat shapes that appear at center-screen, and they offer a stark visual contrast to the graduated colors of the rim and background layers. These images are icons in the semiotic sense; they present both an illustration and a figurative meaning. Specifically, they are symbols taken from the visual languages of maps, of international signage, and of advertising. They are also cultural commodities from consumer capitalism, and
they operate at a conscious and an unconscious level, for we can read and recognize them without context or explanation. Atop these icons appear words (layer 4) that flash one at a time in an ongoing stream. The story words appear in black, while the faster-flashing, subliminal words are most noticeable when they appear in white. Sometimes these subliminal words are made invisible by a lack of contrast with the color of their surroundings; other times, they are obscured by a small colorful image (layer 5), such as a floral pattern or a cartoon face. These images sit atop the text layer and occlude the words behind it. The effect is a momentary but unmistakable palimpsest, a visualization of layered depth on-screen. The final element to note is the EXIT sign (layer 6), a word in red capitals which rhythmically appears and vanishes in the lower right corner of the screen. This word is also an icon in the particular sense that it affords a software action; clicking it takes the reader out to the start screen. It is also, at the same time, a symbol—not just the word exit, but a recognizable image of a standard building exit sign, and its appearance suggests the idea of Project as an architectural space.

We have described these layers as if each may be considered separately, yet they interact in complex ways in space and time, pushing the limits of their legibility. Not all layers are visible at all times; layers appear, disappear, and change at different speeds and with different rhythms. Layers also may overlap in space, combining, occluding one another (when appearing above) or concealing through lack of contrast (when appearing below). Pictures may combine with icons, or may occlude words; icons may be obscured by story words or may instead conceal subliminal text. Each moment of Project presents us with a new composition. Whether we watch these moments dance by at great speed or we instead contemplate one as a still image, the compositional logic remains the same. However, by closely considering one instant of Project in which all layers are present, we can better understand the interactions of elements and how they combine to produce a cumulative expression.

For our close reading I have selected a screenshot of one moment in one run of Project. This screenshot is captured ephemera; it is quite possible that this image may not again appear in precisely this way during any subsequent viewings of the work. As instants in Project go, it also captures an uncommon occurrence—a moment in which all six visual layers are simultaneously visible. Here, the word “psychologists” appears on-screen, framed by a biohazard icon and partially occluded by a small circular image of blossoms, with the red Exit in the corner.

To read this image, we begin by employing the framework developed above, describing each visual layer and observing how they synthetically build toward a poetic gestalt. The background (layer 1) presents a typical variation of sky blue, and the rim (2) also appears in its usual shade of teal-blue. The biohazard icon (3) is centered on-screen, and its central segment (the negative circle at the center of the symbol) is both framed by the rim and, in turn, frames the image (5), which is a circle of brightly colored blossoms. The text (4) is sandwiched between icon and image, with the word nearly occluded by the image. Its beginning and end poke out, revealing letters that appear about two and a half minutes into the sequence, in the line “Government psy____ists have noted the self-validating elements of these stories.” Whether this word designates psychologists, psychiatrists, psychotherapists, or some other group is unclear at this moment and in this particular iteration of the text (although multiple viewings will reveal that the word is in fact “psychologists”).

The word invokes professionals who attempt to read and explain the unconscious, yet this word is blocked, interrupted, and challenged by the image layer. The screen thus expresses a main trope in the work: the parallel between the Bottomless Pit and the pit of human perception and cognition. This parallel is pursued and presented formally in this screenshot, for the appearance of the word designates the need for and impossibility of interpretation. The word is hidden yet legible and thus invites reading across the gaping hole designated by flowers.
placed upon a biohazard sign. In this way, the screen invokes a Freudian psychoanalytic effort to read the gaps, absences, and occlusions—
to make legible the latent meanings. As this screen suggests, albeit briefly and even subconsciously, psychological experience is an impor-
tant dimension of Project. The final layer (6), the Exit sign, is also cap-
tured in this screenshot and, in the context of the interpretation just presented, it serves to suggest a desire to evade analysis and escape the
analyst’s couch. Or, in light of the presence of the biohazard symbol, we might understand this screen to be suggesting the hazards of such
readings of the psyche.

The screenshot has an unoriginal, “found” quality to it, in that it ap-
ppears to be assembled from preexisting anonymous ingredients such as icons, generic fonts, and stock images. Its aesthetic of remix and ready-mades turns attention to the selection and arrangement of the ele-
ments and layers used on-screen. For example, the image of the blossoms (layer 5) is no mere anonymous scrap of texture. It is a sample
from the center of the “Unikko” pattern, an iconic piece of Scandinavian design that is both an object of art and a mass-market commod-
ity.13 The blossoms of the unikko—or poppy—are a source of opiums,
and since antiquity poppy blossoms have served as a symbol of both sleep and death. The relevance of death and sleep (particularly dreams)
to psychology and psychoanalysis is undeniable, and laying the poppies above the text “psy____ists” serves to both disrupt and exemplify
the mysterious, stimulating questions about how the psyche works and
how we perceive what we do.

The image is an emblem; it exemplifies a concept that exceeds and escapes the meaning of the original word it replaces.14 Moreover, this
combinatorial emblem is a momentary gestalt of individual elements
from the six layers. Each element appears on the screen in its own
time; all cohere for an instant; then, things change, and the emblem loses coherence and is gone, soon to be replaced by another. It is not
enough to say that these layers create a combination of connotations,
for this emblem is a unique visual sign whose layers evoke their own
complex signifying logic. Combined in this way, the word and images illustrate a paradox of containment: the images appear inside the word
(between “psy” on the left and “ists” on the right) while simultaneously
surrounding the word (which is sandwiched between the poppies
layer before it and the biohazard behind). Within and without, simulta-
nuously terrifying and stupefying, dangerous sedative and delightful

commodity, the word “psychiatrists” is thus reworked by Project into
an emblem that is read in its stead. (“Government psy____ists have noted . . .”) Recognizing this fact shows how Project’s on-screen poetics rep-
resent and promote an understanding that perception is always in the
process of being interrupted and recontextualized.

Understanding how this interruption happens in Project requires
doing more than reading into the visual layers of the work’s interface
design. Having considered how visual depth is presented on-screen, we are now poised to explore the technical depths of the software that
produces it. As Mark shows below, this software also employs a meta-
phor of layers to describe and enable its operations.

FLASH: HOW IT WORKS (MARK)

So far we have used the metaphor of “layers” to describe Project’s palimpsestic and emblematic on-screen aesthetics. Through close inspec-
tion, we identified six layers that produce the interface design, but
exploration of the Flash file that produces Project reveals that these six
layers are, in fact, generated by forty-nine separate layers in the source
code. So, while we see six layers on-screen, what we see when we open
Project’s .fla source file in the Flash authoring environment is quite
different. Nonetheless, there remains a guiding principle and recur-
ring metaphor shared by Project’s interface design and Flash’s graphi-
cal user interface (GUI); the layer. Flash employs layers as one of a set
of operational metaphors in its GUI. Indeed, to author a file in Flash
is to engage with a constellation of spatial and temporal metaphors for
creating and manipulating code. These authoring metaphors mediate
the work’s creation and also resonate with Project’s narrative and aes-
thetics. For these reasons, we engage with them in order to understand
the role that code authoring plays in Project and its resulting poetics.

Layers are just one of the many metaphors Flash uses to communi-
cate with its users and to convert the abstractions of its program-
ing environment into more familiar terms. The interface simulates a
drafting table or light box—concrete physical elements in the working
environment of visual artists. The software affords users the option
to drag cutout shapes around in space rather than having to specify
those shapes and their movements mathematically. However, Flash is
also built on spatial and temporal metaphors adapted from film and
theater. For example, Flash employs the conceptual term “frame” (as in a frame in a film) to refer to a single segment of the digital animation; “timeline” describes the visual representation of a series of frames (similar to a film strip); “stage” designates the area that will appear on-screen when the program is run; “keyframes” are the beginning and ending points of the animation; and “tween” describes the animated transitions and transformations that fill the frames in between two keyframes.

When building an animation in Flash, the programmer views the authorware screen from a point-of-view positioned above “the stage” and looks downward onto its interface. This visual metaphor is a convention used in many popular image authoring programs (such as Photoshop or Gimp). The Flash manual compares its layers to “transparent sheets of acetate stacked on top of each other.” However, because Flash is time-based, the authoring environment also provides a cinematic timeline view that displays a stack of layers, each made of a strip of frames which extend the duration of the piece.

This timeline view presents time horizontally, and it arranges layers of different content vertically. Continuing the film editing metaphor, time segments are organized as a progression of frames that move forward in time from left to right. Marks on the timeline (grey or purple rectangles spanning one or more frames) indicate when content will be presented in the animation, either as image via the screen or as sound via speakers. The timeline is divided into frames, and a frame with a black dot indicates a keyframe—that is, a location on the timeline where new information has been placed. Grey frames that extend after each keyframe represent how long that information will be delivered, whether displayed on the screen or played over the speakers. An arrow symbol that stretches between keyframes over purple cells denotes a tween—that is, a place where the program is creating an animation effect.

Layers present both a depth metaphor for arranging visual assets and an organizational structure for arranging content. Simply, content placed on lower layers in the stack will be displayed beneath or behind any content placed on higher layers. Conventionally, designers also use different vertical layers to separate content types (such as code, audio, and visual elements), although a layer may combine elements of all three. Since the timeline mimics a filmstrip, the relationship between the visual content on the layers and the way it will be displayed on the screen is more immediately apparent than in the case of the sound or code content. This layered system of viewing and building produces a depth metaphor, and it is tempting to extend this metaphor—connecting Project’s on-screen aesthetic to its programming environment and beyond—to the reading of its source files and codes. The result would be a vertical axis in which screen output is the top layer and the code is somewhere deep underneath. But we should proceed carefully here. Matthew Kirschenbaum and others have rightly warned against approaching code through such depth-based metaphorical paradigms as “looking under the hood.” As Wendy Chun suggests, pursuing the code in such a manner presents the search for an inner essence that
is an ideological enterprise, a kind of projection. Our interest in code here, however, is not pursued out of a misguided belief that it represents some deeper, original truth. We seek to read Project's code in order to understand its relationship to the on-screen poetics it produces. The code is "underneath" the visual metaphors of the integrated development environment (IDE) only inasmuch as it is represented by and produces that development environment. However, these graphical representations are part of the code of the piece as well.

Project employs depth metaphors from its interface design to its narrative content to its code. Thus, a media-specific analysis of the work needs to take into consideration that which connects its content, form, and platform: the metaphor of depth. From the diegetic pit to the pulsing vortex on-screen to Flash's "layers" of programming elements, this work uses depth as a central trope. Flash uses depth as its operational metaphor, and it produces an on-screen animation—like Project's narrative about a bottomless pit—through the arrangement of "layers." Thus, not only can we consider a Flash file to be a pit of layers, but Project's on-screen appearance and narrative tropes demand that we do. However, just as in Poundstone's story about a pit that produces sinkholes, the topology of metaphors that constitute Flash also prove unstable ground on which to tread.

Although metaphors, such as layers and frames, have become standard (and hence transparent) in film, photo, and illustration editing software of all kinds, such metaphors are deceptive and unreliable in Flash. For example, if we follow the cinematic metaphor, we see that each frame on the stage represents the appearance of the screen for a segment of time. This description sounds like the concept of "frame" as found in a film reel; however, the analogy to film breaks down in significant ways. Unlike film, images in Flash are not indexical signs; the images are data objects. Nor are these images delimited to the frame because they are sets of data that can be manipulated, dragged, and dropped in ways that connect them to multiple frames. Also, a designer can pause the progression of the timeline indefinitely, stretching one frame to any length of time. Another important distinction from film is that the program refers to the space within any individual frame as a "stage" as opposed to a screen, a linguistic decision that shifts the frame of reference from film to theater. Thus the metaphors used to present and interpret the interface shift between a performance space and a series of snapshots.

Still, depth can be deceptive. An artist working in Flash can arrange the appearance of the screen by positioning objects on the stage along an x- and y-axis. However, in order to arrange objects along the z-axis, with depth, an artist will typically create an arrangement of layers. What remains invisible to users who have come to internalize these metaphors is the slippage from one conceptual framework to another. For example, the terms "higher" and "above" map one spatial relationship in the authoring interface (layers closer to the top edge of the screen) onto another spatial relationship in the animated output (superimposed layers appearing "in front of" or "behind" others). Depth is built into both the operational metaphor of the system and its use. However, through the use of code, programmers can move objects inserted through any of the layers to different positions on the z-axis. This point is important because it reminds us how the conceptual underpinnings of the authorware are, for the most part, more of a convenient set of user interface metaphors than an actual set of technical limitations. In other words, programming in Flash is not just about code, data, and technology. It is about metaphors.

The force of these metaphors is that they turn the act of programming into an act of symbolic manipulation: algorithms represented as analogies. Like the Bottomless Pit described in Poundstone's Flash-based work, the Flash authorware operates through a collection of metaphors and symbolic structures that serve to obscure hidden operations and present an interface that masquerades as a physical space. For example, the vertical depth of Flash's layers is purely metaphorical—a depth without thickness. The fact that these operational metaphors resonate with the poetic metaphors presented in Project is neither an accident nor an extraneous point. It is this very deceptive nature that gives these metaphors particular importance for analyzing Project. Indeed, Flash's operational metaphors of depth and layering present another kind of bottomless pit. Most importantly, they invite consideration of the connection between literary form and programming format.

In this chapter we offered an overview of the work's story and situated it in the field of electronic literature. We dived into entriescreens, read the visual layers of the work's imagetexts, and explored the metaphors of the Flash authoring environment. We now move to build upon this foundation by considering the other central technology that informs Project's poetic and is invoked in its title: the tachistoscope.
EX Nihilo, Nihil Fit

Judy Malloy at her office at Princeton University.

Figure 6.1

Dene Grigar

Born-Digital Media

The Sappho Syndrome, and Other Concerns in the Preservation of...

Afterword
Monitors, Hope Tank at MIT.

While holding the piece, I am thinking about the work of Nick Perrett, who leads the Design and Production Projects at the Massachusetts Institute of Technology (MIT). His work in the area of narrative and interactive media design is focused on creating immersive experiences that engage users in complex, multi-layered narratives. His approach to narrative design is influenced by advanced technologies, such as virtual and augmented reality, which allow for more dynamic and interactive storytelling.

In addition to his work at MIT, Perrett has also been involved in several high-profile projects. One notable example is his work on the narrative-driven video game, "The Last of Us," which explores themes of survival, love, and loss in a post-apocalyptic world. His work on "The Last of Us" has been praised for its innovative use of narrative design and its ability to create an emotional connection with the player.

Another project that Perrett has been involved in is "Life Is Strange," a narrative-driven adventure game that explores the lives of teenagers and the challenges they face in their daily lives. The game is praised for its use of narrative design to create a sense of immersion and emotional resonance with the player.

Perrett's work is not limited to video games. He has also been involved in the creation of interactive installations, such as "The Immersive Theater," a project that uses advanced technologies to create immersive experiences for audiences.

Perrett's work is an excellent example of how narrative design can be used to create engaging and thought-provoking experiences. His approach to narrative design is influenced by the latest technologies, but it is grounded in a deep understanding of storytelling and the human experience.

In conclusion, Perrett's work is an excellent example of how narrative design can be used to create engaging and thought-provoking experiences. His approach to narrative design is influenced by the latest technologies, but it is grounded in a deep understanding of storytelling and the human experience.
a critical component for an effective learning environment. The library of
books is the cornerstone of our educational mission. It is the space
where students can come to explore their interests, learn, and
develop their skills. As a result, the library is a vital resource for
all members of the MIT community.

In addition to its role as a physical space, the library also
hosts a variety of events and programs throughout the year. These
events range from lectures and workshops to book clubs and
special exhibitions. Each event is designed to encourage
participation and engagement with the library and its resources.

One of the most popular events is the annual MIT Book
Sale, which takes place each spring. This event is open to the
general public and features a wide selection of books, from
classic texts to contemporary works. The proceeds from the
sale are used to support the library and its programs.

The library also offers a range of resources for
students and faculty, including access to online
databases, special collections, and research
services. These resources are designed to
support the academic and research needs of
the MIT community.

Overall, the library is a crucial component of
the MIT experience. It provides a welcoming
space for learning and research, and
supports the academic and professional
success of its users.

Afterword

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The loss of work can be accidental, and it can be purposeful. Electronic media are a risk for theapparatus syndrome for two reasons: First, electronic media don't stay accidentally current for long. The march more apparent with Respect to electronic media. These issues are architecture and expression. In the impulse to preserve data, each gets lit as icon; but it is not the working and other media forms side by side or in multiple electronic media. A complex documentation artifact of electronic media are unique. But we'll show in chapter 5 that the human experience includes two distinct encounters with the electronic document. When the human experience includes the human experience includes the electronic document. And as we showed in chapter 5, it's through a critical assessment of a construction and a complex solution to the problem of their working or design. How many of our readers can remember before the electronic media supplanted there may be no way to appreciate the complexly intertwined electronic and multimedia in electronic computers. Even if one approaches it with the marveling and delighting electronic media, one will find that the electronic document is inextricably linked to the human experience. The human experience is inextricably linked to the human experience of the electronic media, which are enabled and installed in the electronic media. We are hamstrung by a condition we call the appliance syndrome, the digital divide.

What will differ a lot about the first two resources are exhausted—which is exactly what Doshi argues occurs, where are tens of works, such as Sarah Shipton King of space (1993), "For every large body—which can be expanded, back into the sphere of ideas," one may think computer software could solve the access problem. But know electronically led them away and may bring them back again.

Electronic literature in a manner of speaking, an electronic literature in a manner of speaking, and in the case of art that is digital, an electronic literature in a manner of speaking, what paper; computer screen—site or the other way to use for marking at the table, model—those not something anymore, to come with the model—complicated with all. The human sense and medium in the same medium. Do mainly the medium—holding with the medium—hold in the electronic document. The human sense, most of the human sense, will combine to reorder 8:40 from the electronic human sense that is electronic, we will combine to reorder 8:40 from the electronic human sense that is electronic, and combine to reorder 8:40 from the electronic human sense that is electronic,
ancient Rome, ruled that city, which, ironically, was known for its religious and ethnic tolerance (Manning 2015).

While any censoring of history and culture is alarming—Bly raises this issue in We Descend—erasure of women's contribution to history and culture is especially troubling. Like papyrus, this history is being painstakingly recovered—layer by layer, strip by strip. Women wrote, have always written. Sappho is proof. But how many more Sapphos, whose works we never knew, were also thrown into the fire? How many more such works will end up there, thanks to those who see women's writing as a threat to society?

It is particularly important to document electronic writing by women because of its connection to computation, itself closely associated with science. Many of the women who produce electronic literature code their own work. As we pointed out in chapter 3, Malloy mastered many computing languages in order to create the six versions of Uncle Roger. The author of this chapter coded her own hypertext fiction, Fallow Field (2004), and non-fiction, The Jungfrau Tapes (2003), after teaching herself HTML in order to publish scholarship online.

Women's electronic contributions contest the notion that science and technology are masculine endeavors to which women are ill-suited. Such claims are grounded in the Western philosophical tradition beginning with Plato's Republic and Timaeus. In Republic, Plato characterizes science and math as rational pursuits connected to mind, beyond and superior to the irrational material world of reflections, shadows, and objects. Implicit in his hierarchy is the assertion that women reside in the material world, unable to transcend the shackles binding them there. Timaeus, produced late in Plato's career, claims that women cannot understand the transcendental world of math, science, and the ideal forms because they are morally incapable of doing so; they are at the core less than men (Plato, 42b–c).

These falsehoods still enjoy credence today. Women continue to face allegations that they are less able than male peers to handle the rigorous thinking the sciences require. Preserving their technical achievements is that much more important as a result.

Early Attempts at Archiving

This author became involved with documenting women's technological enterprises in the late 1990s and early 2000s, when she managed a MOO (multi-user domain object oriented) at Texas Woman's University
At that time, she collected email messages and other forms of electronic writing by authors Cynthia Selfe, Gail Hawisher, Cynthia Haynes, and others for a project called the Women’s Collection of Electronic Texts (WCET). WCET aimed to ensure that women’s electronic writing lived on, archived and available for study. Driving the project was concern that women, in some future, would not be seen as technologically savvy enough to have written in electronic spaces—that, like Sappho, only one female writer would project her legacy through the ages. And because alone, she would be seen as an anomaly, an exception to the rule. WCET preempted the idea that women did not produce electronic writing in the late twentieth and early twenty-first centuries, were incapable of mastering the technology needed to write in online spaces, could not learn to handle a computer much less learn to code. We cannot let such myths take hold.

WCET ended owing to lack of funding, but ELL, supported at a research institution and having a broader vision of collection, has fared better. Pathfinders and this book, both stemming from years of labor, have now documented two female writers among the many Strickland and Marjorie Luesebrink identify in their research. We have many more women to go.

Figure 6.2
Opening screen of TWUMOO showing WCET.
Yet our concerns are not limited to women’s writing. Sappho stands for many, including men. Recognition of women is the primary challenge to patriarchy, but that challenge may make us aware of others subject to forgetting. We worry equally about the lost work of any racial, sexual, or intellectual outsider, and of those whose art strays too far from commercial or ideological mainstreams. Creatively, if not literally, our mothers were computers (see Hayles 2005)—those intimate links between the ideal world of numbers and the reality of animals and machines. Our mother-computers had daughters and sons, and we want the future to remember all of them, even though we know this can never be possible.

A Broader Vision of Digital Preservation

At the heart of our endeavor is concern for the preservation, archiving, and dissemination of digital objects. Our broader vision sits at the junction of two streams of thought.

On one side, scholars are asked to acknowledge the importance of physical objects and mechanisms. Here we follow Kirschenbaum’s insistence, in contrast to Friedrich Kittler, that software is a thing, a phenomenon linked to particular creations, institutions, and practices, thus amenable to systematic treatment even as circumstances rapidly evolve (Kirschenbaum 2014). At the same time, we affirm the ideas of D. Fox Harrell, for whom digital productions, like all aspects of culture, remain in a sense phantasmal, based partly on projection and inference, “results of the imagination” (2014, 4). Software is a thing but also something more. It is a set of processes that include affordances, emergent effects, and crucial indeterminacies. In this sense, digital objects require us to engage and to sustain engagement through commitment.

Kirschenbaum’s materiality and Harrell’s imaginary converge in the act of reception, a practice once understood as reading or interpretation but which now overflows those terms, as objects of digital expression take on elements of operation, configuration, and play. As Eskelinen observes, the general scheme in precomputational expression was configure to interpret: the text was unfolded or otherwise made available for parsing and consideration. But as expression becomes dynamically mediated, the figure once known as reader (now also user, operator, player) interprets to configure, evoking particular states from a phantasmal space of possibilities. In David Myers’s terms, this means engaging the system in “recursive contextualization” (Myers 2010; see also Eskelinen 2012, 21). This change in the textual frame poses a significant challenge for those invested in the posterity of
digital productions. How do we balance our desire to preserve software as material object against our understanding of that object as a container of multitudes—a phantasm, as Harrell would say? How do we save both the thing itself and the something more of its potentiality? These problems are exacerbated by our need to save the work of women and others exposed to the keen edge of forgetting.

From the beginning of our current work, we have identified collaboration as a logical response to the daunting challenges we face. In our Pathfinders project, we recorded experience of early works of electronic literature in their original technical contexts, with both authors and ordinary readers as participants. The results are intended to provide at least a nominal trace of these increasingly fragile objects, both in their materiality and their configurative possibilities. However, one incident in our earlier research caused us to expand our definition of collaboration. The migrated version of Uncle Roger allowed us to familiarize ourselves with Malloy’s text without relying on our limited stock of vintage computers, for which every minute of operation had become precious during that day of videotaping her traversal and interview. Though we did not intend to use the migrated version for recorded traversals, we were forced to do this for this part of the work after the single Apple IIe available at our filming location suffered a failed power supply. This failure was unfortunate in some ways—the migrated version does not preserve certain features of Malloy’s original work—yet it also had consolations. Availability of a backup version allowed us to record a traversal of a second part of Uncle Roger in addition to the section for which we were able to use our vintage machine. More importantly, the change in plan focused our attention on two matters: the value of multiple approaches to preservation, archiving, and dissemination; but more than this, the complementarity of approaches based on their values and limits.

Obviously we were grateful that Malloy had migrated Uncle Roger. In addition to meeting our emergent need, the migrated version keeps her work directly available to scholars and casual readers. However, as discussed in chapter 2, we discovered important departures from the original design, in which writing was presented on the 80-space, character-mapped screen of the original Apple IIe. The migrated version uses longer line lengths that change the reading experience in subtle but important ways. We also discovered the migrated version is not compatible with current, 64-bit computer systems. To use the migrated version we relied on machines still running nearly ten-year-old software, again potentially raising problems of fragility and obsolescence. Malloy may soon have to rebuild a seventh
digital version of *Uncle Roger*. Clearly, migration is an ongoing commitment, not a singular solution.

And yet migration and its close cousin, emulation, which aims to deliver a completely seamless re-creation of an original system’s function on a newer platform, have value even to researchers interested in other means of preservation. Our experience with Malloy’s text—as well as conversations with colleagues working on other methods of preserving, archiving, and disseminating digital texts—got us thinking about a project beyond *Pathfinders*. We were inspired to pursue combined and coordinated approaches across multiple sites, underscoring the value of expanded collaboration and application to many types of digital art—including video games and virtual worlds. As a result, we have begun to frame what we believe are essential questions about digital preservation: What approach is most desirable for a given digital object? How can different approaches be combined or coordinated to best serve the interests of future scholars? What can researchers working on one sort of digital production (electronic literature, in our case) learn from those concerned with different but related areas (e.g., video games, digital writing more broadly conceived, or social-network discourse)? How, in other words, can researchers approaching the posterity of digital texts from diverse directions benefit from exchanges of perspectives and results?

In asking these questions, we believe we are responding to a key challenge of digital humanities generally: how to transmit the heritage of a culture whose objects are multiplying not simply in number but also in types of system or interface—and where the nature of those varying interfaces greatly complicates the task of identifying, collecting, and otherwise treating the object. No single approach is best in this situation. Multiplicity and diversity are required. Sappho is the patron poet and computer-mother of us all.

**Final Thoughts**

Over the span of our careers, our field has seen the critique of literary canon and its replacement by communities of interest or response, constituting what Richard Lanham has called an “attention economy” (2006, 70). As with Hayles’s and Liu’s migration to the literary, the attention of scholars has moved from universal or totalizing bodies of discourse to more contingent structures: protocols, platforms, and interfaces (see the work of Emerson, Montfort and Bogost, and Galloway). In his recent reflection on video games within a constellation of cultural forces, Bogost proposes a new
emphasis on “media micro-ecology,” in which any local type of semiotic production articulates in complex but significant ways to a larger universe of objects, technologies, and signs (2011, 6). We see the wisdom of this approach but believe it requires more than individual critical reflection. Media micro-ecologists may each have their own pieces of terrain to explore and preserve, but each patch of ground still belongs to a larger continent of expression. No matter how atomized our work, no matter how much branching it undergoes, we will need sooner or later to return to a common space.

As Liu observes, “Where postindustrialism extends its baseline back only as far as the last financial quarter or year, the humanities respond by asserting that the real value of knowledge can only be gauged across centuries and millennia” (2004, 381). Writing is the primary means by which humanists have extended their work through time, but with the advent of digital media, writing is challenged. Merged with software systems, writing and other forms of expression are subject to disruptive forces of obsolescence in material as well as social terms. Media objects themselves grow more complex, from the basic duality of cybertext—between encoded or latent text and what users see—to the intricacies of particular interfaces and architectures. If the humanities are to continue their contribution, it is essential that humanists evolve ways of dealing with relentlessly advancing media. It is also clear that multiple approaches are needed. Some objects may lend themselves to software emulation or migration, while others, constrained by property claims and other issues, may be better served by documentation of experience. Others may require preservation of original platforms. Each method brings unique affordances and limitations. Scholars committed to the posterity of computationally intensive expression need a frame of reference that integrates approaches across a broad domain of application. We are all together in this thing—art, history, technology, the culture of women, men, and machines. Though the task is impossible, we must struggle never to forget.