

Critical Networks

Supporting the study of technology alongside literature and art carries an enormous political tenor. As the original benefactors of technology in the humanities, some English departments feel that they should retain ownership of the field. Having already negotiated the vertex between art theory and practice, design and art departments may cite special privilege to take on electronic texts and videogames. Film departments might feel special entitlement to videogames given their historical experience with an industrial art. And as humanities programs of all kinds continue to struggle against funding cuts, interdisciplinary programs have special appeal as tools for rejuvenating aging fields of study.

Sometimes such conflicts lead quickly to stalemate, with bemused deans denying or diverting funding. Perhaps the most public example of this kind of resistance came from the University of California, Irvine's first effort to create a minor in computer games. *Wired News* published a segment of UCI School of Social Sciences Dean William Schonfeld's response to the faculty proposal:

An academic program of study officially listed as focusing on gaming studies runs, I think, the strong risk of attracting people on the basis of prurient interest. I do not think we should send forth messages of this type if we wish to be a research university of the highest level of distinction.¹

One can assume that Schonfeld's equation of games and lubricity is more provocation than reasoned argument, but his implication is clear: even if videogames are a viable object of study, any admission of such study in public would offend the institution's traditionalist fancies.

Other institutions have set up programs specifically focused on the study of games, separate from other fields of inquiry. Whether related or not to the American academic puritanism underscored in Shonfeld's response, it happens that many such programs can be found in northern Europe. The IT University of Copenhagen, Denmark, and the University of Tampere, Finland, among others, offer bachelor's, master's, and doctorate degrees exclusively in digital games. Many theorists in this region have been associated with the strong position that the study of games necessarily requires an autonomous terrain completely separate from other fields, among them Espen Aarseth and Frans Mäyrä, whose positions on the matter I discussed in chapter 4.

No matter what objections humanists and social scientists, myself included, might raise to such separatism, there is some evidence that autonomy has been productive. Espen Aarseth founded the medium's first peer-review journal, *Game Studies*, thanks in part to the Norwegian university system, whose structure affords more institutional freedom and faster progression up faculty ranks.² Despite the fact that Aarseth has never used the term "ludology" to describe himself or his work, he and other researchers publishing in the early issues of *Game Studies* suggest schism as a first principle of game studies. Says Aarseth in the journal's inaugural issue: "Games are not a kind of cinema, or literature, but colonising attempts from both these fields have already happened, and no doubt will happen again. And again, until computer game studies emerges as a clearly self-sustained academic field."³

Aarseth and others' desire to establish a separate, specialized field of research is not unusual. Human complex systems theorist Susanne Lohmann argues that the university's primary purpose is to enable "deep specialization," and specialization has often come by way of fragmentation.⁴ Lohmann likens this process to annealing, the slow process of heating and cooling by which metals or glass are made more or less rigid. Through each individual conflict, segments of the university structure were slowly created. Although not emergent in the same way as Stephen Wolfram's fundamental units of science, these plans were not centrally controlled but emerged slowly out of the combinations of individual conflicts.

Although I agree that videogames hold a vital place in the future of both technology and literature, a return to the anxiety of disciplinarity common throughout the 1980s and 1990s hardly seems a viable solution. Instead, I contend that the future of unit analysis relies on a critical strategy that embodies the logic of unit operations itself. Universities are often testaments to system operations: academic departments deal only in specified structures of knowledge, and those

departments are highly segregated, resistant to change, and afford few exceptions for innovation. Instead of segregating disciplines into the independent, static divisions that would characterize any new academic department or critical discipline, a meaningful intellectual interrogation of fields like videogames, software technology, and information systems demands flexible organizational units that act more like adaptive networks than stodgy corporations.

In the past twenty years especially, universities have embraced the idea of interdisciplinarity as a way for multiple departments to take advantage of each other's expertise and human and material resources to facilitate convergences between like-minded interests. Comparative literature, which I discussed in chapter 4, almost always leases some or all of their faculty's time from other departments—national languages, film, and so forth. Emerging programs like biotechnology and human complex systems often muster support from a variety of established fields as these new fields evolve. Interdisciplinarity is fraught with difficulties, the most basic of them the complexity of funding and managing groups of people split between often conflicting leadership and goals. Nevertheless, the idea of interdisciplinarity is a positive step toward a unit-operational academy.

Unfortunately, the interdisciplinary relationships only go so far. Interdisciplinarity is, by definition, an exception; it requires stable, formal disciplines between which to construct working relationships. The retention of individual disciplines in the academy still means that the brave people who have tried to forge new connections between fields are inevitably robbing Peter to pay Paul. Attempts at interdisciplinary studies often lead to a deadlock of shared resources for practitioners who don't have enough time for either of their two or three departmental commitments. Even worse, the intellectuals doing the best work are often caught in the undertow of interdepartmental politics, long walks across campus, split social obligations, conflicting curricula, and complex promotion and tenure review politics. These problems unfortunately precede more important questions of pedagogy.

As the seed of a solution to these and other conundrums, I offer the idea of unit-operational academic practice. In the humanities, interdisciplinarity was an easy way to bring neighboring intellectuals into the same neighborhood community: French and Asian studies; English and art history. Extending the circle of interest across widely disparate fields—computer science, psychology, business, music, and so forth—will demand a much more radical shift. A unit-operational university would look like a complex network: a series of constantly changing relations between highly disparate groups, ideas, and resources.

Instead of belonging to static, isolated departments, faculty and students would constantly make and break ties with one another, some indefinite, some lasting only the length of a meeting. Intellectual projects would structure themselves more like software: units of encapsulated production with structured ties to multiple potential applications.

In software technology, traditional object-oriented systems have always been limited by technology platforms. Putting aside the market dynamics and antitrust lawsuits, the struggle between the dominant power of Microsoft and the emerging popularity of Linux has been undermined by the simple problem of compatibility. Windows programs just don't run on other systems, no matter how intricate and complex the networks are between such physically distinct machines. These limitations collapse the complex network of the Internet into a much more localized network driven by individual decision and accident: IT support, purchasing, user preference, and so forth. This is a familiar problem in information technology: getting the computers to "talk to each other" often involves more human engineering than any other aspect of the system architecture.

Recently, a technology standard called Web services has emerged that claims to offer a solution to the problem of interoperability. The idea is simple: the one standard to which every system already adheres is the Internet protocol used to deliver content from computers to human readers on the World Wide Web (hypertext transfer protocol or HTTP). Web services are really just a standard data format for transmitting specialized messages between computers via HTTP. The standardization of the data format and the transfer protocol represents a radical break from the traditional foundational concepts of jargon and intellectual property discussed earlier. Standards have long been the Achilles' heel of information technologies; when a third-party regulating body successfully creates a standard, it often fails to solve the specific problems of individual organizations. More commonly, software architects modify or diverge from standards to offer value-additive services that will distinguish their own version of the standard (an amusing contradiction in terms) from their competitors. Commercial advantage is really just another way to enforce a specific unit of intellectual property as a stand-in for the complex relationship of standards-based engineering. While Web services have not been immune to this sort of modification, the underlying premise of the standard allows it to resist the corruption of jargon and IP in the same way that a complex network keeps the Internet working in the face of local system failure.

Web services transmit data in two common formats, XML and SOAP. XML, or extensible markup language, is a simple, tag-based text format used to render hierarchical, structured data. HTML is structurally similar to XML, but much looser in its formatting requirements. SOAP, or simple object access protocol, is a particular kind of XML-formatted message structured specifically for executing object technology-style requests from applications on remote computer systems.⁵ The primary benefit of Web services is that two computers with nothing in common architecturally can mutually invoke software routines and share the results. For example, today it is possible for an independent software engineer who chooses open-source systems like Linux to develop applications that make a Web services request for search results from Google.com,⁶ or best-seller reports from Amazon.com.⁷ For now, many of these applications appear to be mere novelties, but industry analysts predict that the Web services market will grow to \$21 billion per year by 2007.⁸ In the near future, companies will share or sell units of fundamental business operations, potentially making the global marketplace one of knowledge creation in addition to mere capital exchange.

The unit-operational properties of software objects I discussed earlier do not change; however, the unit operations of networked data communications extend the reach of these units, creating a network of networks. If the Internet has created a complex network of information through shared viewers, Web services strive to create a complex network of procedural systems through shared applications.

Web services offer an interesting object lesson for the problem of institutionalized education. The market forces of anytime-anywhere computing (sometimes called ubiquitous computing) have driven the growth of Web services. A significant force behind Web services adoption is the reduction of integration cost among disparate systems. However, a much larger force (and arguably the force driving the need for systems integration) is the public market's tenacity for application services in the first place. And in this context, "services" stand above any particular service; individual software developers want to take advantage of the existing systems that other individuals and corporations have already created. The transition from isolated object technology to Web services is a transition from unit operations in semi-static isolation to unit operations across a complex network.

Michel Serres conceives of an "ultimate parasite" who "produces disorder and who generates a different order."⁹ In a reconfiguration of cyberneticist Claude

Shannon's conception of information as a relationship between organization and disorganization (signal/noise), Serres suggests a fundamentally creative force is at work in disorder. Reading Serres, Mark C. Taylor argues that knowledge emerges through a process of screening in which selected information is destroyed.¹⁰ This practice is similar to Hayles's notion of a cybernetic dialectic, and another example of the production of meaning through a process of inclusion and exclusion.

No matter one's moral opinion about the value of ubiquitous computing and its impact on contemporary social practice, the process and infrastructure for the exchange of procedural unit operations now makes possible alternative models for production. Conceptually, extending this logic to the practice of research would yield a network of units of criticism, a kind of postdisciplinary critical network. *Critical* in every inflection of the word: for one part, it embraces criticism like the various forms of literary and philosophical inquiry. For another part, it underscores a kind of general analysis that relates to other fields. For another, it admits to a certain danger of collapse and the need to keep that possibility in mind. And for yet another part, it telegraphs an exigency of action.

Taylor has experience practicing this balance. In the early 1990s, he organized a joint seminar on media and philosophy with his students at Williams College in Massachusetts and those of Finnish philosopher Esa Saarinen at the University of Helsinki. The classes met together via videoconference. In *Imagologies*, an immaculately designed book on the preparation of the course and its subject matter, the authors include some of the email and telephone exchanges they produced in organizing the seminar in 1992.¹¹ At the time, merely setting up point-to-point videoconferencing was a significant task and investment, and the accounts of the process highlight the challenges of finding sponsorship, raising money, and accomplishing the technical achievement of connecting the two groups across the Atlantic. *Imagologies* is more about an infrastructure problem than a cultural or academic problem. While it posits many claims, in essence the thesis of the book is that a convergence of information technology and humanistic intellectualism is simply *thinkable*.

In 1998, Taylor and investment banker Herbert A. Allen began a new kind university based on an intersection of education and technology. The two founded the Global Education Network (GEN) in 1999, an electronic-education organization that delivers online coursework from top-tier universities. Underlying the founding principles of GEN is Taylor's claim that the values of the modern university, inherited directly from the Enlightenment, are outmoded and obsolete. Taylor's collaboration with the corporate world is important, and I will return to it in a moment.

Taylor traces the origins of the modern university to Kant's 1798 work *Conflict of the Faculties*, which served as the blueprint for the University of Berlin. Kant's model accounts for separate departments each with different responsibilities, fashions stable programs or curricula, and distinguishes between the "higher" and the "lower" faculties. The higher faculties, such as medicine, law, and theology, serve external ends. The lower faculties, such as philosophy and literature, include "historical" and "pure rational knowledge." Taylor marks this distinction as the fundamental principle in Kant's account of institutional knowledge and as the basis for our contemporary division between professional schools and liberal arts schools.¹²

The two fundamental assumptions of the modern university's low faculties are those adopted by Humboldt, *Wissenschaft* and *Bildung*. These concepts refer to the disinterested and intrinsic pursuit of knowledge, or "knowledge for its own sake." Taylor argues that this assumption drives contemporary satisfaction with a concept of the university that is now over two centuries old. The pursuit of knowledge is often likened to an economy of expenditure without return made famous by Bataille, Derrida, and Levinas. Bill Readings summarizes this ideology in his influential book on the emergence of the market university: "Thought is non-productive labor, and hence does not show up as such on balance sheets except as waste."¹³

The ostensible goal of such positioning is to protect the so-called low faculties from the high faculties' attempts to colonize, hold responsible, or otherwise capitalize on them. In times of need, it is often true that the humanities suffer more under the budget knife, but the isolation of the humanities from more professional programs and from industry at all costs has also contributed to a perception of unreality. Nevertheless, isolating the lower faculties for fear that the higher faculties will infect or destroy them only furthers the continued decline of the former. As Taylor points out, such a position is fundamentally inconsistent with many of the basic tenets of critical theory, including Derrida's many analyses of the undecidable ambiguity between risk and opportunity, poison and cure. A conceptual reorganization is in order.

Critical networks require an embodied study, a fusion of theory and practice. Badiou's name for this is a *thinking*:

I call thinking the non-dialectical or inseparable unity of a theory and a practice. To understand such a unity the simplest case is that of science; in physics there are theories, concepts and mathematical formulas and there are also technical apparatuses and experiments. But *physics* as a thinking does not separate the two. A text by Galileo or Einstein

circulates between concepts, mathematics and experiments, and this circulation is the movement of a unique thinking.¹⁴

Badiou's other examples of domains that represent a thinking include politics and psychoanalysis; unlike science, the latter domains can't rely on the repetition of mathematical proof and laboratory experiment. These domains address singularities rather than repetitions; in Badiou's words, they "attempt to find a possibility which is *not* homogeneous with the state of things."¹⁵ Thinking produces what Badiou calls *events*, disruptive restructurings of a situation. But Badiou takes thinking beyond the event, offering a special kind of fidelity that a thinking requires. Badiou encourages individuals faithful to an event to "then *show* other people the relation between the statements and or writings and the singular process. One must *rally* these others around a thinking, by referring to what does not repeat itself."¹⁶ Successful comparative videogame criticism strikes me as another kind of thinking, one that musters the cultural critic as much as the programmer, the artist as much as the marketer.

This approach differs fundamentally from other postdisciplinary gestures that strive to fashion theory as a cement to fill the fissures between disciplines. Taylor argues that deconstruction has attempted to take this role in the modern institution, serving as a mercurial fixative that hopes to replace and converge the lower faculties of Kant, while holding that adhesion in characteristic deconstructive suspense.¹⁷ This transformation purports to effect material institutional change, but as Taylor points out, that change is always limited "*within* the precincts of the university. . . . Politics, in other words, is always *academic* politics."¹⁸

In order to engage videogames as a horizontal field for literary or artistic production, the humanities must begin to interact with a wealth of intellectual and professional engagement, including engineering, architecture, computer science, biology and biotechnology, design, and the private sector. Industrial and fine arts like film, architecture, and painting have done this for years, as have engineering and the computer sciences, faculties which could be said to oscillate between both the higher and the lower registers. With the production of cultural meaning taking so many forms in so many industries, a feedback loop between the research practice and market practice can only accelerate the rate at which each understands and mediates the other. In objection to industrializing the humanities, some would claim is that the pursuit of intellectual capital must be free from the reigns of material capital. Taylor argues that the most impor-

tant barrier to break is “the wall separating for-profit and nonprofit organizations and the wall separating different educational institutions.”¹⁹ It is indeed useful to hold the academy responsible for understanding and mediating between critical interrogation of material production and the material production of industry itself. In so doing, we should strive to return clear-thinking individuals back into the market. This goal can be accomplished partly through critical networks whose sole charge is to continuously reinvent themselves.

Some change is happening already at the microscopic level. Among the attempts to identify the trouble with the system university itself is *Virtual U*, “the world’s first higher education simulation and learning tool,”²⁰ mentioned earlier in chapter 8. Funded by the Alfred P. Sloan Foundation, *Virtual U* is a videogame that teaches its users how to manage an American college or university. The player takes the role of the university president and manages resources in much the same way as the mayor of a *Sim City*. In *Virtual U*, software technology structures the player’s experience, both educating him or her on aspects of university management and reinforcing the assumptions underlying such a structure. The game is an inspiring amalgam of software engineering, game design, management, and public policy, and in that sense it is a promising specimen of a critical network in practice. But ironically, by seeking to train Ed.D.’s in the practical art of perpetuating the University of Berlin and its progeny, *Virtual U* threatens to perpetuate the assumptions that prevent critical networks from coming into being in the first place. The simulation fever that reigns in *Virtual U* is its ability to represent and facilitate administrative change in academic institutions of all shapes and sizes. To take on areas like videogames, institutions need a facilitating infrastructure that will allow the structure of intellectual inquiry to change and expand.

A structural change in our thinking must take place for videogames to thrive, both commercially and culturally. The commercial videogame market has doubled in revenue since 1995.²¹ The landscape is cutthroat for developers, who rely on publishers for funding, distribution, and marketing. The videogame publishing market has consolidated, and many publishers are publicly traded companies who are risk averse by nature. With game development budgets reaching tens of millions of dollars, developers must rely on publishers for financing, and to get that financing they have to present a game that the publisher believes can make money. Although privately funded projects akin to independent films are conceivable, continued industry and public support in the form of commercialization remains the industry’s prime mover. Publishers

typically take on games for which success is assured. This either means the game is by a well-known designer, of which there are only a few, or it follows the same model, genre, or tradition as previously successful games. This is neither a new story nor a surprising one.

Videogame criticism has a role to play in this cutthroat corporate ecosystem. The market does take the public's changing needs into account, but only visionaries who are able to understand the types of cultural texts that will prove successful will succeed themselves. It is here that a configurative relationship between criticism, production, marketing, and other fields can evolve industrial, humanistic, and artistic responses to videogames. For both the academy and the industry, this relationship requires a structural change that not only expands the boundaries of criticism and development but also fosters meaningful collaboration across these boundaries, collaboration that functions by creating new unit operations for literature, computer science, art, marketing, and other domains. Videogames ask the critic to ponder the unit operations of procedural systems. It is only appropriate that we also begin thinking of such criticism as a thinking, in Badiou's sense of the word: a set of relations between parts, not just in the text, but in the world as well.

22. Ibid., 210; 103.
23. Ibid., 209; 102.
24. Ibid., 210–211; 103–104.
25. Ibid., 215; 107.
26. Ibid., 216; 108.
27. James Joyce, *Ulysses* (New York: Vintage, 1990), 221.
28. Ibid., 225.
29. Ibid., 225–226.
30. Ibid., 234.
31. Ibid., 225.
32. Ibid., 230.
33. Ibid., 231.
34. Ibid., 226.
35. Ibid., 224.
36. Ibid., 233.
37. Frasca, “Sim Sin City.”
38. Immanuel Kant, “Perpetual Peace: A Philosophical Sketch,” in *Perpetual Peace and Other Essays*, 110.
39. See Michel Foucault, *Discipline and Punish* (New York: Vintage, 1995).

Chapter 12

1. Katie Dean, “Gaming: Too Cool for School?” *Wired News*, January 15, 2001, <http://www.wired.com/news/culture/0,1284,40967,00.html/>.

2. [Http://www.gamestudies.org/](http://www.gamestudies.org/).
3. Espen Aarseth, "Computer Game Studies, Year One," *Game Studies* 1, no. 1 (2001). Available at <http://www.gamestudies.org/0101/editorial.html/>.
4. Susanne Lohmann, "Darwinian Medicine for the University," in *Governing Academia*, ed. Ronald G. Ehrenberg (Ithaca: Cornell University Press, 2003), 77.
5. Interestingly, Microsoft Corp was a primary evangelist and architect of SOAP, a non-proprietary standard.
6. [Http://www.google.com/apis/index.html/](http://www.google.com/apis/index.html/).
7. [Http://www.amazon.com/gp/browse.html/ref=sd_allcat_ws/103-7007929-2315857?node=3435361/](http://www.amazon.com/gp/browse.html/ref=sd_allcat_ws/103-7007929-2315857?node=3435361/).
8. Anthony C. Picardi and Laurie A. Seymore, "U.S. Web Services Market Anaysis, 2002," *IDC Research* (December 2002).
9. Michel Serres, *The Parasite*, trans. Lawrence R. Schehr (Baltimore: Johns Hopkins University Press, 1982), 3.
10. Taylor, *The Moment of Complexity*, 204.
11. Mark C. Taylor and Esa Saarinen, *Imagologies: Media Philosophy* (New York: Routledge, 1994).
12. Taylor, *The Moment of Complexity*, 241.
13. Bill Readings, *The University in Ruins* (Cambridge, Mass.: Harvard University Press, 1996), 175.
14. Badiou, *Infinite Thought*, 79.
15. *Ibid.*, 82.
16. *Ibid.*
17. Taylor, *The Moment of Complexity*, 254.
18. *Ibid.*

19. Ibid., 260.

20. Despite the objections I raise below, *Virtual U* is a not-for-profit endeavor that distributes the source code for its engine for free, inviting experimentation, improvement, or alteration.

21. [Http://www.theesa.com/facts/top_10_facts.php/](http://www.theesa.com/facts/top_10_facts.php/).

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