Review Essays

Procedural Rhetoric and Expressiom

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> Code is a kind of writing; just as literary scholars wouldn't dream of reading translated glosses of work instead of reading the full work in its original language, so new media scholars must read code, not just at the simple level of primitive operations and control flow, but at the level of the procedural rhetoric, aesthetics and poetics encoded in a work.
>
> —Michael Mateas

> Software [is] *a layer that permeates all areas of contemporary societies.* Therefore, if we want to understand contemporary techniques of control, communication, representation, simulation, analysis, decision-making, memory, vision, writing, and interaction, our analysis can't be complete until we consider this software layer. Which means that all disciplines which deal with contemporary society and culture . . . need to account for the role of software and its effects in whatever subjects they investigate.
>
> —Lev Manovich

If we in rhetoric and composition see ourselves as critical contributors to scholarship in new media studies and cultural rhetorics, how do we answer the charge from Michael Mateas and Lev Manovich? We are

masters of Aristotle and Burke, but where is procedural rhetoric in our burgeoning study of new media and games? To help us fill this void, recent books by Noah Wardrip-Fruin and Ian Bogost offer approaches to new media that are informed by the technological sophistication Mateas calls for and yet solidly connect with core methodologies in rhetorical studies.

Rhetoric and composition has been making a slow digital turn over the last twenty years, prodded most notably by scholars such as Gail E. Hawisher, Cynthia L. Selfe, Victor J. Vitanza and Kathleen Blake Yancey. Even so, we largely avoided the academic gold rush of electronic literature studies in the 1990s. The more recent, rapid ascent of game studies over the last five years, however, *has* touched our field: articles on games have spilled out from specialized journals and have appeared in more mainstream outlets such as *College Composition and Communication* (for example, Alexander) and *Technical Communication* (for example, Eyman). How did games find their way into our discipline? Perhaps the tipping point of digital scholarship was reached with the increased focus on digital studies in rhetoric and composition programs at Michigan State, Ohio State, University of Florida, and Clemson University. I am inclined to point the finger at James Paul Gee, however. As a foundational scholar of New Literacy Studies who turned to the study of games and literacy with his influential book, *What Video Games have to Teach us about Language and Literacy*, Gee invited literacy scholars to explore a vibrant and happening site of literacy practices. Indeed, in rhetoric and composition it is now impossible to write about games, especially games and literacy, without invoking godfather Gee.

Even as gaming literacies are being explored (for example, Selfe and Hawisher 2007) and the composition of games by game designers has been studied (for example, Robison 2008), the study of *rhetoric* in games is generally absent in rhetoric and composition. Work in the field focuses primarily on textual writing and social literacy practices surrounding games and new media, rather than on practices of procedural rhetoric and literacy that are core to the composition and experience of these works. Thus, the books I introduce in this review offer a way of translating our rhetorical ideas about how language works into digital and interactive media. Specifically, Noah Wardrip-Fruin, author of *Expressive Process-*

ing Processing: Digital Fictions, Computer Games, and Software Studies, and Ian Bogost, author of *Persuasive Games: The Expressive Power of Videogames*, offer more radically technological approaches to new media scholarship advocated by scholars such as Mateas and Manovich. Both books also provide an avenue for understanding the way that the composition of software is affecting our composition environments.

In Wardrip-Fruin's *Expressive Processing*, the field of "interactive entertainment" comes of age; its theories and methods are native to its medium, rather than borrowed from literature, film, or history. Published two years before *Expressive Processing*, Bogost's *Persuasive Games* demonstrates that borrowed methods (from rhetoric and education in particular) can help us understand meaning-making in interactive media. As game designers, literature scholars, and highly active bloggers, both Wardrip-Fruin and Bogost belong to a new generation of scholars, radically crossing disciplines from computer science, literature, rhetoric, and art in their studies of digital media. In deference to Wardrip-Fruin's preferred terminology, we might say that they theorize "playable media" from the center of a new field. Together, *Expressive Processing* and *Persuasive Games* serve as excellent introductions not only to the field of software studies, but also to rhetorical frameworks for analyzing the processes underlying digital media.

Coined by Lev Manovich in his popular book *The Language of New Media*, "software studies" sees software as central to contemporary culture and examines it as such. This nascent field has been bolstered by a new series on Software Studies from MIT Press, edited by Matthew Fuller, Lev Manovich, and Noah Wardrip-Fruin, which Wardrip-Fruin's *Expressive Processing* inaugurates. (Had the series begun in 2007, *Persuasive Games* might also have been included.) Within the field of software studies, we might also include work by Manovich as well as Matthew G. Kirschenbaum's *Mechanisms*, which won the 2009 MLA first book award. Related fields include platform studies (see, for example, Montfort and Bogost), where scholars examine how particular hardware enables software processes, and critical code studies, a literary approach to code as texts christened by Mark Marino in 2006. These fields can trace their ancestry to early hypertextual scholarship, but they have a distinctly richer technological approach. As Chris Crawford

invites us to conceptualize Wardrip-Fruin's book in his supporting statement on the back cover, we can think of these new, cross-disciplinary approaches to software as "second-generation."

Bogost's and Wardrip-Fruin's interest in the underlying processes of computer-mediated, interactive texts such as games is what sets their work apart from more traditional electronic literature scholarship, which has tended to focus on the surface-level features of simpler media such as hypertext. Instead, they dive deep into the code, into software, into what makes the computer the ultimate simulation device. Although parts of the books are rather technical, their audience need not be limited to technophiles; both authors make a convincing case that the ubiquity of software makes it a central site of inquiry for the humanities in general.

I began this review with a reference to the fields from which these books emerge in part because the authors themselves attempt to explicitly establish their own field location. Wardrip-Fruin distances himself from "output-focused approaches" to interactive fiction and positions his book as "the first book focused on computational processes that comes from the perspective of media, games and fiction (rather than software engineering or computer science)" (3). His term *expressive processing* refers both to the "authorial expression" in processes (4) and "what processes express through their designs and histories" (5). He notes that "[r]ather than defining the sequence of words for a book or images for a film, today's authors are increasingly defining the rules for system behavior" (3). He provides, then, a way to analyze this new kind of authorship that takes into account the scripting of dynamic and interactive processes.

While the code-based processes that enact digital works are at the heart of both scholars' work, Wardrip-Fruin distinguishes his work from Bogost's in his concentration on processes per se and notes that Bogost focuses instead on human interaction with and reaction to media. This interactivity leads Bogost to align his work on videogames primarily with rhetoric. Bogost uses the term *procedural rhetoric* to describe the ways that programmers author processes in code to guide people's interactions with software or make persuasive arguments within software (ix). Specifically, he defines procedural rhetoric as "the art of persuasion through rule-based representations and interactions rather than the spoken word, writing, images, or moving pictures" (ix).[1] Aside from its nominal

connection to more traditional conceptions of rhetoric, procedural rhetoric can also serve as a productive framework for rhetoricians interested in exploring the possibilities of digital media as new "available means." Bogost introduces procedural rhetoric by analogy to the field of visual rhetoric, placing his work along rhetoric's expanding visionary line from orality to visuality to "*procedurality*" (2). The 2,500-year history of rhetoric allows Bogost to counter the perceived triviality of videogames and lends a backbone to his attempt at their critical redemption. A rhetorical framework also allows Bogost to draw on his fluency in ancient Greek and training as a rhetorician. This background, coupled with his current position teaching games and culture in a department closely associated with computer science at Georgia Tech, makes him a good translator between the domains of rhetoric and playable media. Wardrip-Fruin's straddling of disciplines (his background in literary analysis and new media composition, and his current position in the Computer Science Department at University of California-Santa Cruz) also helps him build bridges between the humanities and computer science. Scholars of rhetoric and composition may be pleased to see that both books emphasize the political as well as aesthetic importance of software analysis. In the remainder of this review, I examine the political projects of each author alongside each book's respective contributions to rhetoric, new media, and game studies.

Bogost begins *Persuasive Games* arguing against the notion of processes as inherently mechanistic. He invokes Max Weber's critique of Western bureaucratic process, juxtaposing it with the widespread notion that computers are limiting and inhumane because of the processes they enact ("Sorry, I can't override the fee; the computer won't let me"). He asserts that the problem is not with processes or computers per se, but with the overly simplistic processes coded into software. Our logic is governed by processes, but "procedurality" is the modus operandus of the computer in particular. A better understanding of procedural rhetoric can therefore help us not only better understand these computational processes governing our lives, but also learn to assert ourselves within them: "Procedural rhetoric is a technique for making arguments with computational systems and for unpacking computational arguments others have created" (Bogost 3).

After introducing the concept of procedural rhetoric in his first chapter, which may be the most useful section to rhetoricians interested in applying his theory to their own work with digital media, Bogost then applies it in three subsequent sections: Politics, Advertising, and Learning. He justifies his focus on these three areas by claiming that as traditional sites of rhetorical analysis they offer "low-hanging fruit" (64). Moreover, Bogost has experience designing and studying games in each of the three areas. This experience, in combination with his argument that videogames, more so than other forms of software, bear meaning and allow for "computational persuasion and expression," help explain his focus on gaming: each section includes a detailed discussion of a game he designed professionally (ix).

In his section on learning, for example, Bogost argues that videogames can help people reconcile abstract principles with specific practices, which are too often divorced in educational contexts. (Indeed, throughout the book Bogost values so-called serious games, or games designed for teaching, persuading, or conveying information, rather than those designed primarily for fun.) He suggests, for example, that procedurality can offer education "a possible bridge between the abstraction-poor behaviorist approach and the subject-poor constructivist approach, focusing on the way processes come together to create meaning" (249–50). Here, Bogost cites James Paul Gee, the reigning expert on the subject of games and learning, but asserts that the specifics of the game are more central to learning than Gee suggests. This is one of the more critical points Bogost makes in the book: that abstract theories about learning in games must take into account the *specific* procedural rhetorics offered in a *particular* game. Pointing to the specific procedural logics behind *Grand Theft Auto* and *Food Force,* he notes that "rhetorical positions are always particular positions; one does not argue or express in the abstract" (241). In my favorite line from the book, Bogost sums up his thoughts on the connections between the abstract and the specific in games: "The higher-order thinking skills still matter, but so does the ninja" (243). It is possible to learn abstract concepts from games; however, it is in the application of these concepts that videogames shine.

Bogost's section on politics is informed by his claim that procedural rhetoric has the power to teach us about political processes. Games, he

explains, can strip out the tired verbal metaphors (or Lakoff's "frames") and "deploy more abstract representations about the way the world does or should function" (Bogost x). Accordingly, with rhetoric at the center of his approach, Bogost cites examples of games such as Gonzalo Frasca's *September 12*, which asks the player to carry out targeted strikes on 'terrorists' in a Middle Eastern town. In the game (a type of "serious game"), programmed delays in the strikes mean that players also accidentally kill 'civilians' in the town; when this happens, 'citizens' turn into 'terrorists.' Implicating the player, the game makes a powerful and timely argument against the effectiveness of so-called targeted strikes as well as the idea that 'terrorists' can be fully distinguishable from 'citizens' (86). Games such as these proceduralize a simulation, creating what Bogost calls a "simulation gap," where players can interrogate the representation of the system with their own notions of the system. (Wardrip-Fruin picks up this idea when he asserts that a "simulation of human behavior is always an encoding of the beliefs and biases of its authors; it is never objective, it is always a fiction" [151]). Reflection on and critique of this simulation can lead players to discover that "[p]rocedural rhetorics expose the way things work" (Bogost 333).

Bogost seems remarkably sanguine about how players can tease out the procedural rhetoric in a simulation in order to critique it. In his section on advertising, for example, Bogost argues that "videogames offer a mode of engagement with products and services that can activate critical perspectives on consumption" (although this may not always be desirable for sellers of those products and services) (173). Later, referencing work on *Animal Crossing* from Henry Jenkins and Kurt Squire, Bogost argues that players of *The Sims* can contemplate "the game's ambiguous position on consumption and satisfaction" (334). Such games, he contends, allow reconciliation between the abstract associative marketing of brand with image. Good "advergames" also allow people to virtually experience specific aspects of a product (199). Even "exergames" such as *Dance Dance Revolution* "reveal the incongruence of work and exercise or leisure, and the prevalence of the ideological structures that push us to work more and move less" (316). Perhaps based on his faith in "simulation gap" critique, Bogost calls for an increased emphasis on procedural rather than narrative representations of politics. A designer of "serious

games" and "newsgames" himself, he laments that "digital democracy has failed to represent political issues through computation, favoring encyclopedic artifacts like blogs over procedural ones like videogames" (327). Indeed, Bogost cites several of his own games throughout the text, which could become tiresome, except that Bogost is refreshingly critical of his own work. He even admits that his game *Howard Dean for Iowa* was reviewed by at least one player as a "half-assed mind control experiment" (327); more critically, the game failed to include the politics that made Dean a unique candidate and instead offered a message-free model of politics about amassing human supporters.

Bogost's attempt to elevate the status of videogame criticism seems to have been successful, as it paved the way for Wardrip-Fruin's more "second-generation" book; two years is a long time in the rapidly progressing field of media scholarship. Wardrip-Fruin moves beyond the "truly boring" question: "Is this a game?" (422) and gestures more generally to "playable media." Like Bogost, he argues that an understanding of the processes that drive "playable media" on the computer is critical to understanding the work as a whole. While Bogost analyzes both "serious games" and games for fun, Wardrip-Fruin concentrates only on fictional media. The term he uses to describe the creative authorship behind fictional, playable media is *expressive processing*, which he defines in two parts; the first refers to "the fact that internal processes of digital media are designed artifacts." We can analyze these processes for "efficiency, aesthetics, points of failure, or (lack of) suitability for particular purposes" (156). They are designed within histories and traditions of other designs, they may be typical or innovative, and so forth. The second part of the definition refers to the fact that "the processes of digital media operate both on and in terms of humanly meaningful elements and structures" (156). By this, he means that "we have as much to learn by examining the model that drives the figurative planetarium as by looking at a particular image of the stars . . . " (157). Wardrip-Fruin's diagram modeling player interactions with data and processes through surface representations significantly expands Espen J. Aarseth's concept of scriptons and textons in *Cybertext* (12).

Wardrip-Fruin begins his political approach with the notion that computational processes are already deeply embedded in our political

system. He argues that an understanding of expressive processing in media can translate into a greater understanding of how these processes work and sometimes fail in politics. He provides a compelling example of the way that computational processes define our lives in his description of the "Total Information Awareness" (TIA) program launched by the US government in the wake of September 11, 2001 (200). The TIA program imagined collecting extensive data on every American citizen, then sifting through it to determine who was a likely terrorist candidate. Wardrip-Fruin calls it "magical thinking" to have faith in the statistical artificial intelligence that the TIA system employed and offers as evidence the Association for Computing Machinery's statement to the Senate Armed Services Committee (202). Keenly aware of the fallibility of statistical AI, the ACM warns of the high rate of false positives (regular citizens identified as terrorists) and false negatives (terrorists identified as regular citizens) in the TIA system (201). From this example, Wardrip-Fruin reasons: "We live in a world in which the politics of computing are more important than ever, and where some of the highest-stakes processes—from those that generate terrorist watch lists to those that operate black-box voting machines—are kept in the hands of even more secretive priesthoods" (213–14). He advocates increased procedural literacy to help us understand this phenomenon. To move toward this goal, he provides "legible examples" of processes in media for readers to reason about political implications of similar processes by analogy. He hopes that increased work in the processes of digital media, "together with increasing procedural literacy, [will] help us make more informed decisions at the intersection of processes and politics" (217). By arguing that procedural literacy can help us become more informed citizens, Wardrip-Fruin joins a host of scholars, including Bonnie A. Nardi, Andrea A. diSessa, and Ian Bogost.

While Wardrip-Fruin's point about the political implications of computational processes is made clearly and persuasively, he buries the idea in the center of the book (chapter 6), after a lengthy history of artificial intelligence. As a result, it seems clear that his heart is in the explication of interactive fiction, rather than the application of his ideas to foster critical consciousness. In contrast, Bogost devotes a significant portion of his text to promoting games for political reflection and to

analyzing games already used in political processes. He declines to take a specific political stance, but argues that procedural representations of politics would increase understanding and participation in politics. However, neither scholar elects to take on the political debate about access to source code for critical programs. Wardrip-Fruin mentions the case of Diebold voting machines, where the issue of code access sometimes crops up, but he maintains a steady focus on the processes rather than specific code or language of programs. (Ironically, though, Wardrip-Fruin's analysis of the interactive fiction *Tale-Spin* hinges on the author's recent discovery of the 1970s-era code.) Bogost insists that knowledge of code is not necessary for procedural literacy or an understanding of procedural rhetoric; a deeper level of access to software is therefore irrelevant to his argument. In other words, both scholars leave work to be done on the political implications of their arguments about processes enacted in software.

Wardrip-Fruin organizes *Expressive Processing* according to three effects that point to tensions between surface representations of playable media and the processes that drive them: the *Eliza* effect (chapter 2), the *Tale-Spin* effect (chapter 5), and the *SimCity* effect (chapter 8). The *Eliza* effect, named after Joseph Weizenbaum's famous *Eliza/Doctor* program that parodied a Rogerian therapist, refers to the way people can bring assumptions to playable media and attribute a more complex system underlying an interaction than actually exists (15). The *Tale-Spin* effect is named after a 1970s story generation program that produced rather dull stories but relied on a complex AI algorithm to create them; this effect refers to "works that fail to represent their internal system richness on their surfaces" (16). Finally, the *SimCity* effect describes "systems that shape their surface experience to enable the audience to build up an understanding of their internal structure, especially a relatively complex one" (16). This effect is named after Will Wright's popular game *SimCity*, in which players plan a city and succeed or fail based on the game's model of effective urban planning. In *SimCity* and similar games, players must uncover the underlying logic in a system in order to play it. The *SimCity* effect is thus reminiscent of Bogost's "simulation gap," where seeing into the simulation allows us to question the assumptions the simulation makes. Both authors imply that this effect is what educational games should strive for.

In addition to providing detailed expositions of the three playable media objects for which his effects are named, Wardrip-Fruin describes the expressive processes at work in computational story generators such as *Brutus, Façade, Terminal Time*, and others. These descriptions are sometimes a slog, as he goes into detail about how each of them breaks down actions and uses different kinds of character and author control to generate stories. The point, at least as I see it, is not for readers to know precisely what all of these systems are doing in order to create interaction fiction (with greater or lesser success). Instead, readers should understand how the systems behind these pieces of interactive fiction have different effects on the results, and that the analysis of the systems is critical to understanding the pieces themselves. This is, of course, Wardrip-Fruin's larger point in the book. While I wish he had cut down some of these descriptions to make for easier reading, the sheer volume of analysis contributes to his argument.

Wardrip-Fruin claims that *Expressive Processing* is really two books. The first makes an argument that we need to pay more attention to the processes that underlie digital media, which is the idea of "expressive processing." The "other book" is about the history of innovation in these expressive processes, driven by his love for digital fictions and games (18). In this "second" book, Wardrip-Fruin pulls from the history of artificial intelligence (AI) to describe the processes driving each of these story generation systems. His interest in the "process intensity" (he attributes this concept to Chris Crawford) of new media authorship leads him into the history of AI, which has focused on process authorship (83). He reviews the traditions of "neat" and "scruffy" AI: "neat AI" is a formal approach in which intelligence reflects logical relationships that can be expressed explicitly in mathematical terms, while "scruffy AI" came out of linguistics and psychology and uses "conceptual dependency" and semantic structures (97–99). He explains, "AI researchers and game creators are interested in models of the world, and behavior within it, that can be implemented. They [both] require models that can be operationalized computationally, and this creates a bridge between the two groups" (83). In his historical account, story generators are fascinating tests of different AI models. For instance, the idea that human action derives from planning is central to *Tale-Spin*, but this is now a deprecated view of human nature,

thought to be biased towards the West's conception of the "rational actor." Wardrip-Fruin argues that this shift in perception from the 1970s model of human behavior renders *Tale-Spin* a less interesting simulation of human behavior, but a more interesting work of fiction.

Like Bogost's, Wardrip-Fruin's text can be rather self-referential. Especially in the long history of his own progress through interactive fiction in chapter 9, the book feels like it moves within a tight in-group of artists and academics, writing and performing mostly for each other. That may be the case—but if so, Wardrip-Fruin is part of this innovative in-group. Through this book he has invited others to contribute to the understanding of interactive fiction methods and natural language processing: the book went through MIT's standard anonymous peer review process, but Wardrip-Fruin also invited others to review the manuscript on his collaborative blog, *Grand Text Auto*. In the recent tradition of McKenzie Wark's *Gamer Theory* and Siva Vaidhyanathan's *The Googlization of Everything*, Wardrip-Fruin uploaded portions of the manuscript every day, opening them up for review by readers of his popular blog. The book is peppered with citations from blog reviewers, including authors of the playable media he cites, who would never have been designated peer reviewers by an academic press. Wardrip-Fruin's book, then, not only moves playable media critique forward, but also pushes digital and print publishing into new and productive spaces.

Specialized journals such as *Games and Culture* and *Game Studies* offer rhetorical analysis of games, but few scholars of rhetoric and composition have ventured into those publication venues. Yet Thomas Malaby and Timothy Burke argue in their introduction to a recent issue of *Games and Culture* that game studies is ecumenical and interdisciplinary and "an open, inventive spirit . . . surrounds the study of games and virtual worlds at the moment" (325). Rhetoric and composition scholars might then be welcome in such venues, provided they arrive with methods and studies that can translate the discipline's core values to those in education, anthropology, law, and economics. Should we venture further into the study of interactive and "playable media," *Expressive Processing* and especially *Persuasive Games* will be required reading.

For those unconvinced by the need to focus on new media objects in rhetoric and composition, these books offer a way of thinking about *all*

computational processes undergirding our composition and communication software environments. Given that processes enacted by computers already significantly impact our lives, rhetoricians of all stripes might take note of Bogost's and Wardrip-Fruin's discussions of how processes can be used persuasively and expressively.

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Notes

1. Because the concept of procedural rhetoric encompasses far more than games, Bogost's title, *Persuasive Games*, is somewhat misleading.

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