THIS WAS UNCALLED FOR.
Acknowledgements

This thesis simply would not have been possible without the boundless generosity, patience, wisdom, love, and unmitigated gall of the communities – academic, social, residential, and otherwise – to which I belong. That is likely true of any such project, but I have at times pushed the forbearance of my friends and professors well beyond what is reasonable, and this is the place to apologise once more, and to doff my cap.

To MIT’s Comparative Media Studies program, for its generosity and excitement and openness, and for becoming my home away from home over the last several years;

To Professors Jenkins and Uricchio, for their tireless efforts in running this madhouse of a program, and giving us far more than a diploma;

To Pete and William, for last-minute miracles;

To Kurt, for advice and friendship, and prompting me to think about this ridiculous topic in the first place;

To Shankar, Diana, and Thorburn, for encouragement, extraordinary forbearance, and – though I’ve never quite managed to express it – for serving as examples of what I most want to achieve as a scholar and a teacher, and for the most important kicks in the ass I’ve ever received;

To Chris and Susan, arguably the most powerful people in Building 14;

To the students of CMS (especially Zhan, my cousin in distraction and introspection), my fellow-travelers for two years;

To the members of whos-afraid and stopchurch and the-other, though they may not know it, for their role in turning a (lost) would-be engineer into a poor (but happy) graduate student in the humanities;

To all the people who’ve donated their time and brilliance to the half-baked ideas that fill the following pages, in casual conversation or more structured settings, on the page or in hurried improvised chatter – special mention going to Jesper Juul, raconteur, fashion impresario, and genuinely expansive thinker;

To my housemates at the Babysitters Club, Sparkle Motion, and the as-yet unnamed palace/temple/bordello on Windsor St.;

To the boys and girls of tEp, who have forever expanded my definition of family;

To my other family, Mom and Dad and Phillippe, who are the molten core and the meaning of me;

To Kevin, to whom I owe a screenplay and more;

And to Abby, who has changed everything, to whom these pages belong as truly as to me:

From the bottom of my heart, thank you.
IN MEMORY OF MY MOM,
KATHLEEN G. HOLLAND
Games to Teach: An Introductory Note

The Games to Teach project in MIT’s Comparative Media Studies program is an initiative, started in 2001, to explore new ways of using games in secondary and post-secondary education. The principal investigator for the project is Henry Jenkins, head of CMS, and for the last two years the group has been managed by Kurt Squire (now departed for a teaching job at the University of Wisconsin-Madison). The program’s focus is outlined on its website, at cms.mit.edu/games/education/; basically, we’re interested in articulating theories about game design and learning through ‘conceptual prototypes’ – thought experiments in design – whose aim is to teach math, science, and humanities concepts at roughly the AP level. The motivating principle is simple: the educational software must fulfill two requirements. It must utilize the best contemporary thinking on learning environments and activities. And it must rock like the best of today’s games. If a technologically primitive Atari game can be addictive, why can’t games for teaching and learning hold players’ interest?

CMS is not an education program, nor a game design program, but we believe that an interdisciplinary focus, coupled with real devotion to the challenge of engaging learners and players in new ways, can produce real insights that will serve the next generation of games, in and out of the classroom. Indeed, the program’s name is something of a misnomer: we are interested in games for learning, not necessarily within an institutional context. That view of learning occurring beyond the limits of the classroom has been one of the animating forces behind this thesis. As a group, we have started to think about learning in new terms, terms drawn from the experience of gaming as opposed to shoehorning gaming into an already-existing framework.

This thesis isn’t explicitly about education, though one of its main sources of inspiration is educational theory. The implicit ideas about pedagogy – the value of learning through play, through exploration, through creative failure – are not original to me by any means, but they resonate with my interest in what games can offer (to varying degrees of richness and artistic accomplishment). Educational specialists are beginning to pick up on the value of games for teaching and learning, and in the unlikely event that any of them read this thesis, I hope they sense an attempt to link the interests of their discipline to the concerns of game studies and its neighbor departments (literature, even anthropology).
Chapter 1
Games, Meaning, and the Imagination

The Question(s) of Games

Our primary guiding question is simple to state, less so to answer: what is the ‘meaning’ of games (in our case: video games), and is there a better language for talking about that meaning than that which is currently employed by the practitioners of ‘game studies’? Or, even more simply: how do games work, and how should we talk about them?

The field of game studies is a young one, at least in terms of its current disciplinary language(s). Though journals on games and simulations have existed for years, they have not focused in general on commercial electronic games (like Zork, SimCity, or Pac-Man).¹ Moreover, studies of games have historically been scattered among various academic disciplines, rarely united under a single departmental roof. A new online journal, gamesstudies.org, was founded in 2001; its stated interest – the ‘aesthetic, cultural, and communicative aspects of computer games’ – is a first for a peer-

¹ I have italicized the names of computer games, as of novels; common games like chess and Go are neither italicized nor in quotes, while games like ‘Monopoly’ (closer in their materiality to being ‘texts’, in the artifactual sense of the word) merit quotation marks. There is no single formal standard for academic citation of games, as yet. The distinction is largely an aesthetic one (what looks good in midsentence to me), though there is a certain ‘textlike’ logic to the scheme (novels vs. short stories vs. random text-pieces).
reviewed academic journal.\textsuperscript{2} And websites like joystick101.org and gamasutra.com are certainly home to critical discussion of contemporary games and their cultural ramifications (as well as more creatively-oriented articles on game design, programming, and artwork). Still, critical discussion of game aesthetics is not as yet widespread, and the rhetorics of game studies have not yet reified into disciplinary vocabulary.

Beside its relative youthfulness, game studies faces a similar theoretical dead-end to that which led to a crisis in literary studies: it’s not precisely clear what constitutes a game at all. It’s clear that when we sit in front of a TV and guide Mario through the Mushroom Kingdom, or maneuver Link during his climactic battle with Gannon, we are \textit{playing} the games \textit{Super Mario Bros.} or \textit{The Legend of Zelda}; but the limits of the ‘games’ are less clear. Is metagame activity – like reading a strategy guide or narrating the action to oneself – part of the game? Does the game end, for you as the player, when you shut it off? Or are you ‘playing’ it for an unbroken period of weeks, until you solve it?\textsuperscript{3} Would the game be the game without its story? Is it, for that matter, fundamentally its story, rendering the mechanics of the game incidental, like the typesetting of a book? And never mind the question of what constitutes ‘playing correctly’.

I will not seek to answer these questions directly, nor could I. They are terminological matters, and answering them one way or another won’t change the experience for the players.\textsuperscript{4} The fact is, scholars of games face a certain fluidity in the

\textsuperscript{2} gamestudies.org/about.html, accessed 15 July 2003.
\textsuperscript{3} My friends and I would always describe such a scenario this way: ‘I’d go play soccer today, but I’m totally into \textit{Final Fantasy}. I’ve been playing for three weeks, I’m nearly done…’ The expansive video entertainments of today clearly \textit{don’t} end when the machine is shut off, anymore than a novel ‘ends’ when we close it to sleep.
\textsuperscript{4} It’s not clear that we have at this point a generation of \textit{designers}, either, for whom such answers would be meaningful or helpful. But games are a young art form. There is hope.
identity of their object of study, resulting in a confusion of tools (and a fashionable debate over their validity). Is the language of film or literary studies applicable to games? If so, what fraction of it? If not, why not, and where to from here? Is a game narrative somehow elementally different from that of a book or film? Should we simply forego traditional narrative analysis and agree that there is something irreducibly ‘gamelike’ (we might say: *ludic*) to games? These questions, unlike the above, can be answered more directly, as can the following: what about games can be most profitably studies, criticized, right now?

I claim that the study of games calls for a blend of *formal* analysis – by which I mean *algorithmic*, *narrative*, and *legal* analysis, a triad that I’ll explain below – and heightened attention to what players *do* (not in the sociological sense, though that’s certainly important, but in the *imaginative* sense). I hope to demonstrate this kind of analysis in the following pages; though I draw on a number of scholars of games and play (and film, and artificial intelligence…), my main points of reference fall broadly within studies of narrative and education.

By the three modes of analysis given above – algorithmic, narrative, and legal – I mean, respectively, analyses of how *rules* yield play-forms (literally, algorithmic analysis/evaluation), how players experience the *meanings* of games (a more literary kind of analysis), and how rule-systems enable individual, personal contributions and *interpretations* of the nature of games (again – literally, *legal* interpretations). Depending on the type of game, these modes of analysis vary in importance and applicability; a player of Go would have little call for legal interpretation, while a player of baseball would see a much more subjective side to the game (actions and their results falling along
a continuum rather than discrete states – though we might claim that all games must have a completely describable gamestate). The game of Nomic, on the other hand, is meant as a theoretical exercise, specifically designed to engage all three kinds of player-consideration; the theoretical apparatus useful for critiquing these games would certainly correspond to the kinds of gameplay they entail.\(^5\)

By the ‘imaginative’ aspects of gameplay, I mean something a bit harder to quantify: namely, the ways in which players are positioned by games, and the ways in which they’re induced to think about the worlds of games, the problems posed, and the possible paths for navigating through those worlds and problems. It is not for nothing that I use the word ‘world’ to describe the limits of the player’s in-game sensorium (a variant of Nelson Goodman’s definition\(^6\)); even a game like Tetris or Monopoly or Zork asks the player to enter a ‘different world’ consisting, for lack of a better turn of phrase, of wholly new datatyps, data structures, modes of thought.\(^7\) The world of Tetris consists of a visual representation of matrix of single-bit cells, either full or empty; a two-item stack of upcoming pieces; an up-tempo soundtrack; the speed at which pieces fall (determined by the level to which the player has advanced); and the score, an ever-climbing counter that works as a surprisingly effective dramatic device (the score is of minimal interest to

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\(^5\) Note that the distinction between these modes of analysis is not always crystal clear; however, this triad maps onto other schemata that I’ll cite throughout the paper – such as Hans Vaihinger’s fiction/hypothesis/dogma schema – and such mappings will hopefully mutually reinforce the schema they link.

\(^6\) Goodman’s Ways of Worldmaking (in particular, the first chapter) uses ‘world’ as a term for a total description of all that can be, in arguing that minds inhabit different worlds without recourse to some ‘real world’ from which all others derive. Worlds are what’s possible, and games, in that sense, are systems for making and sustaining worlds.

\(^7\) ‘Datatype’ is computer programming terminology for a particular kind of datum: a string of characters, an integer, a byte. A ‘data structure’ is a second level of abstraction atop a collection of datatypes: for instance, a linked list is a structure in which each list element contains a pointer to the next.
players while the game continues). It is not a ‘place’, though its main narrative element is spatial (the ‘story’ of the pieces falling and filling the screen). And the player? The player of *Tetris* becomes something other than herself, midway between an omnipotent god and a harried office worker or slave. Taking a perspective toward her world that is new and ineluctable: seeing the world, in other words, the way the game *tells* her to.

There is clearly a link between the interface of a game – its ‘formal apparatus’, the ‘textual features’ that enable us to play it – and the way we as players understand its content. I claim that that link can be described far more clearly and richly than it has been to date, using no specialized or new disciplinary vocabulary. The following chapters will, I hope, enact a kind of criticism that admits new nuance and illuminates aspects of the ‘meaning’ of gameplay not previously grasped by contemporary game scholars – or at least, not yet formalized.

**Games and Play**

There are too many definitions of ‘game’ and ‘play’, just as there are too many definitions of ‘art’ and ‘literature’. Brian Sutton-Smith, in his *Ambiguity of Play*, does an excellent job of collecting and critiquing the many and manifold ‘rhetorics of play’ employed by theorists of all stripes. Though his interest is generally not in the highly formalized games I’ll talk about (computer games, after all, must be *totally defined* by their code, in a sense), he is able to provide many definitions of ‘play’ and of ‘game’, each with its own particular usefulness. I will slide, throughout this essay, between a
couple of them. On the one hand, games are situations in which we can enact fantasies or extrapolations; they are rule-bound, whether tightly so (as in baseball or Quake) or loosely so (as in ‘Cowboys and Indians’ or when playing with dolls). They are generally goal-driven (Super Mario Bros.) but needn’t be (‘fort-da’) – though games without overarching goals often have local goals (Tetris).

On the other hand, a game is a set of mechanics (rules) (as in Nomic or chess) for regulating activity. It is both a pretense for behaviour and a set of consensual limitations on that behaviour. There is a sense in which the rules to baseball are sufficient to ‘define’ baseball, but playing ball means a million things not covered in the rules; this distinction is less important in video games, though certainly not unimportant.

These two definitions – games as demarcated spaces of imaginative/creative freedom, and games as rules for regulating and rationalizing that freedom – should be sufficient to get us started on an inquiry into how games ‘work’. I will refrain, as best I can, from trying to answer the now-fashionable question of the place of ‘story’ in games; however, a brief overview of the ludology/narratology debate will hopefully serve to situate my claims within the current game studies discourse.

8 Eric Zimmerman provides a superb tripartite answer to the question, ‘what is a game?’ It can be found online at www.ericzimmerman.com/nondigstuff/orgessay.html. His definition is reassuringly close to that given here, though he uses a term to which I only allude: games structure desire in systematic ways, i.e. the rules of a game constrain both the player’s actions and her desires.

9 Roger Caillois, in Man, Play, and Games, follows Johan Huizinga in describing games as taking place within ‘sacred’ spaces; anthropologist Clifford Geertz’s description of the Balinese cockfight takes a similar approach to that particular game, treating the arena (gameboard?) as a ritualized space. Another translation of that notion might be, roughly: games are spaces and circumstances in which seemingly irrational actions (like swatting at a ball with a hammer) go from ‘free play’ to ‘work’, and are rationalized.
The debate in game studies between the ludologists and the narratologists is (too) easily caricatured: the ludologues call for a critical vocabulary stemming from what’s unique and *elemental* about games, and argue that stories are a separate concern, even a throwback. Jesper Juul sums up nicely: ‘relying too heavily on existing theories will make us forget what makes games games…rules, goals, player activity…it is the unique parts that we need to study now.’ Narratologists, broadly speaking, believe that video games are a medium for telling stories, and that the mechanisms by which we play games can be well understood through the traditional analytical toolkit of literary/film studies. It is not clear that the various camps are talking to one another, which is unsurprising.

On the more formalist side, Bolter and Grusin’s *Remediation* and Lev Manovich’s *Language of New Media* focus on the *screen* and the inherited cinematic qualities that, for them, characterize digital media – neither text is explicitly about games, but games act in both of those texts as occasional reference points – while Henry Jenkins and Mary Fuller talk (in their well-known article, ‘Nintendo and New World Travel Writing’) about games as systems for generating narratives in and of *spaces*. These arguments are convincing enough as far as they go, but they’re not about *mechanics*, nor rules. Neither a game’s look nor its story are sufficient to describe its meanings. Marie-Laure Ryan has written on narratives in games, but her interest is in generating a theory of narrative that accounts for the digital, and not vice versa. Meanwhile, Julian Kücklich and others call for attention to the ‘literary context’ of games, while taking pains to delineate between

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10 Throughout this essay I refer interchangeably to ‘narrativists’ and ‘narratologists’; the latter describes a discipline, the former a disposition, but the meaning should be clear.

11 ‘Games Telling Stories?’ www.gamestudies.org/0101/juul-gts/
literary critics and game critics, a rhetorical move of the have-cake-and-simultaneously-eat-cake variety.  

On the other hand, the clan at gamestudies.org has embraced the notion of a ‘ludology’ (a term for game studies with emphasis on ‘games as games’), and draws heavily on theorists like Espen Aarseth. Aarseth’s influential book *Cybertext: Perspectives on Ergodic Literature* draws a line of continuity between hypertexts, digital games, and literary works that foreground the ‘work’ of the reader (the process of textual consumption and comprehension) by drawing attention to their textuality – but Aarseth also insists on the uniqueness of *gaming* elements in games. Aarseth has semifamously warned against ‘theoretical imperialism’ on the part of those who use literary-analytic methods for talking about digital texts, in the midst of providing a new way of categorizing certain literary works in which readerly interaction is foregrounded. Among game scholars, this idea of invasive inroads by the old academic establishment is likely motivated, as much as anything, by a certain defensiveness about ‘our games’, which are too new and too *ours* to be reducible to merely another narrative form. Regardless of the source of this defensiveness (which is admittedly half jocular, but has real consequences for academia), the divide between these two positions is nonetheless a necessary starting point for any current discussion of games (whether or not one intends to take a position on either side).  

For my purposes, the centrality of narrative in games isn’t particularly important, as this essay proposes a framework in which narrative is a subclass of a more general

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13 The above examples are by no means exhaustive, but are meant to be representative of the limits of various approaches to games.
kind of structuring, ‘generative’ logic. The ludological claim, that games have uniquely ‘gamelike’ features, is hard to dispute, and this paper will take a ludological stance, but will maintain an interest in narrative. Indeed, rather than identifying narrative as the ultimate organizing principle of games – the position against which ludologists argue most strenuously – I’ll deal with narrative as an instance of the class of generative logics. The three forms of analysis given above – algorithmic, narrative, and (for lack of a better word) ‘legal’ – address games as both mechanical systems and storytelling media, and no single analytical mode is sufficient to give a complete account of how games work (though I suggest that all three are necessary). My goal is a more easygoing synthesis, not proof or contradiction. As such, this essay pulls examples from numerous discourses, and draws on several existing typologies of games and play, each unsatisfying in a (hopefully) generative way.

One well-known game typology is that of Roger Caillois, whose book Man, Play, and Games offers a fourfold division of the ‘elementary particles’ of games into alea (chance), agon (conflict), ilinx (vertigo), and mimicry (simulation). The typology is general enough to cover many different (simple) games, with the proviso that more complex games are a combination of these elements (e.g. football is largely a matter of agon, while historically there is an element of mimicry to it [simulated land warfare, in this case]; roulette is pure alea, while Monopoly is a blend of all but ilinx). Caillois also places playful activities on a continuum between ludus and paidia, or (roughly) games and free play, in terms of the constraint on the action by rules (which he sees as a ‘subversion’, in a sense, of play). This typology is believable enough as it goes, and indeed Wolfgang Iser uses it as the basis for his analysis of the ‘text-game’ in his The
Fictive and the Imaginary. But what do you do with such a typology? Caillois doesn’t really address how these play forms engage us as players, and the game forms aren’t really big enough to cover the intricate story-play of something like Zork or Half-Life.

Brian Sutton-Smith’s The Ambiguity of Play is less a typology of games than one of game discourses, and though his discussion of the value of play is illuminating, he deals very little (in that book) with the formal structures of games themselves.¹⁴ His seven rhetorics of play make for an interesting way of breaking down games by ‘theme’, for lack of a better word, but his typology comes from academic disciplinary practice, not the games themselves. A typology of games based on narrative genres would have difficulty accounting for Pac-Man, while a typology of interaction models would make no distinction between a racing game like Gran Turismo and the racing/pinball action of Super Monkey Ball; Janet Murray, for instance, gives a list of the characteristics of digital narratives in her Hamlet on the Holodeck (such narratives are encyclopedic, participatory, procedural, and spatial),¹⁵ but runs aground dealing with more mechanical games like Super Mario Bros. or Tetris. Indeed, Murray’s (brief) reading of Tetris as a reenactment of the modern-day stresses of working life is precisely the kind of indelicate ‘theoretical imperialism’ against which the ludologists rail.¹⁶ Put succinctly: the existing typologies of

¹⁴ Sutton-Smith’s goal is to outline the ambiguous ways that ‘play’ is understood, and posits that this ambiguity stems from the indeterminate, polyvalent nature of play itself. In the end, he offers his theory that play is a ‘facsimilization of the struggle for survival’ (231), a model of evolutionary adaptive variability. Sutton-Smith takes cues from evolutionary theorist Stephen Jay Gould in formulating his theory; it is outlined in the last chapter of The Ambiguity of Play. As with many surveys of play and games, most of the games he describes are fairly simple ones.

¹⁵ Murray’s description of the ‘distinctive properties of the digital environment’ is given in the third chapter of Hamlet on the Holodeck.

¹⁶ Hamlet on the Holodeck is justly renowned as an early exploration of the possibilities of digital ‘multiform narratives’; it is only peripherally about games, however. It will be a
games are generally dissatisfying in their inattention to formal features (narrative, interface, etc.). I would like to address that dissatisfaction.

On the other hand, the description of the various ‘imaginaries’ in this thesis isn’t meant as an exhaustive typology – rather, as a supplementary framework, a description of certain types of games in a formal language somewhat different from those currently utilized in the discourse of game studies. If nothing else, I hope that this evolving theory of imaginative stances can serve the work of both sides of the ludus/narrative debate.

The Argument

It is not my intention to prove a broad, all-encompassing hypothesis about the nature of games; rather to suggest answers to a series of questions about how games ‘work’, through particular modes of analysis. For instance, I’d like to understand what I see as the fundamental process of a simulation game like Will Wright’s SimCity: namely that the player learns to think like a System. I take this phrase to mean that a SimCity player is engaged in a particular kind of imaginative self-positioning and self-fashioning, and that this mental activity is shared less with video games in general than with a particular kind of fiction (games, stories, rituals). I won’t venture too deep into literary or film criticism, though it will be helpful in places to talk about non-ludic stories within the framework suggested by these game analyses. After all, one of the claims made herein is couple of years before hypertext criticism is washed out of game studies completely, but the day surely can’t be far off. The idea that Tetris is ‘about’ anything other than its own adrenaline rush, and the feeling of organically-growing complexity, seems like a misreading to me; Murray dismisses the visceral too quickly.
that games aren’t easily separable from other textual forms in our present culture; if this is the case, my analytic framework must be able to deal with those textual forms.

As a result, this essay utilizes a definition of the word ‘narrative’ that is more common-sense than strictly formal: narratives relate a sequence of events; their meanings lie in the interaction of teller and listener/viewer (whose prior knowledge and cultural situation contribute to the way the narrative is processed); they employ a kind of shorthand by which we learn to expect the release of tension or contact between events at particular times – a shorthand we might call ‘genre’. By the end of this essay, I’ll have suggested an alternate framework for talking about the work of narrative within games, one in which narratives are specific kinds of ‘generative logics’, which we might (broadly) think of as instruction sets for readers or viewers to focus attention and investment. A lecture is not a narrative, necessarily; one way of lecturing is to draw on narrative codes. Another is to present equations, say, and to link the derivation of each to those previously presented. The movement of the lecture proceeds according to a logic of refocusing. This framework doesn’t really require a rethinking of the notion of ‘narrative’, but I hope it lessens the pressure on ‘narratologists’ and ‘ludologists’ to stake out disciplinary ground.

I’ll also look at Halo, a popular and critically acclaimed first-person shooter that works like a traditional Hollywood narrative. My purpose in that chapter will be less to understand how narrative works – there’s plenty of narratological study that attempts to do just that – than to enact a kind of game criticism that attends to both that which is most
unique about games (the emergent nature of gameplay, the algorithmic\textsuperscript{17} nature of rule mechanics) and that which is most clearly inherited (narrative genre, character relationships, the ‘role’ of a player/protagonist in exploring a realistically-rendered world).

\textit{Halo} and \textit{SimCity} differ radically in their approach to narrative; the former is an interactive story, the latter a toy for playing mayor of an imaginary city, without any pre-ordained narrative (or specifically marked ‘story’ elements). Both are ‘engaging’ (what a loaded word!), exciting, ‘successful’ games. Both inspire hours- and days-long engagements from players. And yet the differences between the two are enormous. \textit{Halo} and \textit{SimCity} differ along a number of axes: realism, narrative complexity and centrality (and linearity), the amount and specific kinds of data that they require the player to process, the cultural reference points on which they draw, the sense of being \textit{algorithmic} (\textit{SimCity} feels like the machine is ‘generating’ it somehow, while \textit{Halo} has the forward motion and sense of ‘design’ of a story), the intended audience (in terms of age, education, gender, personality, etc.), and so forth. Along each of these axes, we can locate other games, analysis of which may help us describe more precisely how the two larger case studies work. (I allude to these other games throughout the essay.)

Consider chess, for instance: all action in a game of chess is tightly circumscribed by the rules, and successful play often reduces to executing a plan with careful forethought (as in \textit{SimCity}), while maneuvers are rarely thought of as ‘improvisation’ (as in \textit{Halo}, when the basic player action is \textit{reaction} to a set of circumstances and

\textsuperscript{17} An algorithm is just a sequence of actions to be carried out on a dataset; for the purposes of this essay, I take the ‘algorithmic’ nature of games to mean the way rule mechanics yield predictable player actions and gamestates. Even a game that’s not ‘on rails’ (like \textit{Mario Bros.} or \textit{Final Fantasy X}) guides the player and constrains her actions.
provocations). The chess player is very close to the rules themselves, thinking in terms of each piece’s range of movement and capture; a player of SimCity is nearly as close to the rules of the game, but the game engine is a black box whose internal workings are slowly revealed through iterative gameplay. Halo, on the other hand, works on a wholly different level of abstraction: you don’t ‘move your avatar’ and ‘instantiate a bullet object’, you walk around and kill things. Nor do things die/explode after being shot; you shoot them, or at them anyhow, and they’re expected to die as a matter of course. Experimentation in the game is not a matter of getting to know the rules, or is not generally expressed that way by players; it’s a matter of getting to know the world. How does that difference in abstraction yield a difference in engagement, visceral or intellectual? It is my contention that there is a close tie between particular formal features/schemes and resultant cognitive activity/engagement. Designers understand that relationship intuitively, and I think that game studies can come to formalize it, and generalize it.

The fourth chapter of this essay deals with online multiplayer roleplaying games and the communities that surround them, concentrating on the notion of ‘interpretation’ as it relates to rule systems and emergent cultures – but it does so by considering first a purely abstract game of rulemaking, Nomic.18 Online games shift the notion of ‘authorship’ between designers and players, inducing a unique kind of investment among players. In these sustained online worlds, the line between ‘game’ and ‘metagame’ – the former a rule-bound formal system, the latter an emergent cultural formation or

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18 Nomic culture, not discussed in this essay, is a fascinating Internet subculture, crying out for study – if for no other reason than that Nomic culture arises, by definition, in a completely systematic fashion – making the origins of cultural forms easily traceable.
discursive space – is blurred and formalized to greater or lesser degrees. This means one thing to players, another to anti-game-violence advocates, another to designers; game studies should have the critical apparatus to analyze all three (and more) of these clusters of meaning.

**Cognitivism and Ethnography**

David Bordwell gives a compelling argument for the primacy of a cognitivist perspective in film studies in his article, ‘The Case for Cognitivism’. That essay is admittedly a broad overview of a vast, loosely connected field of inquiry, but it raises in succinct form some key questions for anyone who would offer a hermeneutic analysis of the processes of media consumption and interaction. At the top of the list: to what degree should an account of gameplay be a physical/psychological/neurological account?

Cognitivist analyses of media texts focus on the cognitive processes at work in the viewer or reader of those texts; they are interested, if (by necessity) abstractly, in the internal (mental) representations and transformations that make up high-level activities like ‘reading books’ and ‘watching film’. These accounts must of course consider cultural effects and intertexts, but the assumption behind such analyses is that, sometime in the indeterminate future, we will have acquired sufficiently detailed knowledge of the brain to fully explain the workings of the mind. In that case, social relations will (presumably) come to be understood as the interplay of multiple well-understood systems, and the degree to which such relations are ‘computationally’ determined will be apparent.
Though I allude on occasion to ‘cognitive processes’, and have faith that eventually many mysteries of the mind will be understood as properties of the brain, this essay treats the mind as something of a ‘black box’ – a term in engineering for a system whose internal workings are unknown, but whose inputs and outputs are knowable (if not predictable). Whether we *internally* order the universe according to a narrative logic is less important to me than how we interact with such a *textual* logic. Of course the former could bear on the latter, but for the moment we can afford to deal with the workings of the mind in broad sketches rather than as systematic neuron-firings. In this regard, this essay works at a similar level of abstraction to computer scientist and educational theorist Roger Schank’s work on narrative intelligence and learning, *Tell Me a Story*. That book outlines a theory of learning built around internal narrative representations, in which we check newly-acquired information against personal narratives, eventually fitting knowledge into those personal stories; while his thesis is provocative, we can talk about the interplay of readers and texts without recourse to any totalizing theory of mind, particularly when (as is implied throughout this paper and made more explicit in the final chapter) the textual logics I (briefly) describe work not only in games but in stories both literal and *cultural*.

I have also entirely avoided another kind of writing on games: ethnography. I can’t do the ethnographer’s trick of ‘making strange’ the subject of games; I’ve been playing them far too much for far too long. Ethnographies of gamers are of course helpful for understanding games as a cultural field in which meanings are constantly negotiated and identities formed, but I am interested in games as formal texts, and for such an analysis (even for games), players are a component, not a focus. But there is at least one
player in the following chapters. This paper takes the form of a philosophical speculation built on textual analyses; the anonymous idealized player is myself, if anyone. The movement of this argument is a shift between the internal and the external: my own experiences as a gamer have shaped my perceptions of these game-texts, so that the evolving typology of games herein is a single individual’s reading of those games (and of the field of game studies). The debate over narrative in games is only one polarizing argument in game studies; it serves here primarily as a point of departure for a new framework. Other disciplinary vocabularies will do so as well, in work on games yet to come.

**Some Prefatory Notes**

I have collapsed ‘computer games’ and ‘video games’ entirely into the latter term, which seems sensible enough, as computer games use video outputs, and the two classes of games tend to operate at roughly equivalent levels of complexity now. The same can’t be said of arcade games, which utilize much-simplified interfaces and special displays, but what’s true of video games in this paper is largely true of arcade games and other spectacular entertainments as well. And when I drop the ‘video’ modifier, my hope is that my claims about video games hold up for more ‘physical’ or ‘material’ games.

This thesis is motivated by the work of my research group, the Games to Teach group in MIT’s Comparative Media Studies program. Because of our group’s focus on games in contemporary education, parts of the argument herein are shaded with our (admittedly idiosyncratic) views on teaching, learning, and the use(s) of games. In
particular, the word ‘learning’ is given somewhat fast-and-loose treatment in places. This is a matter of intention rather than inattentiveness: while the educational establishment has moved away from a simple ‘transmission’ model of teaching,19 much popular debate about media is framed in just such terms – especially when it comes to the place of games in education. Such debates need commonsense descriptions, not technicalities, to fight popular misconceptions about media and learning. The chapter on SimCity, in particular, addresses the game in terms that may be of some value to the growing field of educational technology (no surprise, since SimCity has found some favor among teachers), without veering into debates on exactly what constitutes ‘real learning’ – such a question lies beyond the scope of this paper.

19 Jerome Bruner makes this point elegantly in his book Actual Minds, Possible Worlds, a text about learning with narrative on its mind.
Chapter 2
The Interpretive Imaginary

How to Play *SimCity*

The opening screen of a new game of *SimCity* is fairly typical of *Sim* games, and of ‘god games’ in general: a map representing open space, a ‘toolbar’ that might have come from Adobe PhotoShop, consciously cheesy music, a cartoonish visual aesthetic. ¹ Gameplay is fairly straightforward: the player builds power plants and water stations (by indicating a location and spending the money from her city’s budget), lays down rail/subway tracks and roads, and zones areas of the city for residential, commercial, and industrial use (by the same click-and-drag motion used to crop digital images). As citizens (Sims) move into the city, houses appear in the residential zones of the city; as they go to work, the industrial zones fill with factories and warehouses. In time, the Sims will begin to demand services (demand represented by graphs and notices from advisors, supply indicated by a collection of graphs and charts easily called up from a menu).

Information for the player comes through a number of interface elements: a tiny graph indicating relative demand for zoning; historical charts and graphs, tracking the

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¹ This chapter rests on a major narrative cheat: I have referred interchangeably to *four* versions of *SimCity*, from Will Wright’s original game to its third sequel (on which the series’ creator did not work). The differences between the games are not cosmetic, though it should be fairly clear to the casual observer that they’re played the same way; the underlying simulation has grown more complex with each iteration, but gameplay is largely unchanged (there is *more of the same* to do with each new edition). When a feature is unique to one or another edition, I’ve tried to indicate that in the text; such distinctions should make no difference to the argument.
development of the city; map overlays indicating water or power coverage; and more
‘subjective’ reports, like newspaper commentary and advisors’ briefings, generated
periodically by the game engine. A news ticker (in later editions) provides ongoing
coverage of events within the city (such as civil unrest begging police attention). Some
information is not available: population breakdown by race, measures of civic
participation, the state of neighboring cities relative to the player’s. Indeed, there is no
‘race’ in SimCity, and the Sims live blissfully self-absorbed lives, entirely unconcerned
with the goings-on in nearby towns. (From a simulation standpoint, this makes sense:
simulating the opinions of the individual Sims would push the engine further than it’s
capable of going.)

In time, the SimCity player deals with natural disasters and plant meltdowns (with
attendant destruction of property and devaluing of land), fluctuations in consumer
demand and satisfaction, and the inevitable decision of what to bulldoze to make room
for the mass transit system that she forgot to build early on (or couldn’t afford to build).
The main view of the city is a 3/4 (isometric) god’s-eye-view, from which the growth of
the city can be easily observed. Since the player sets the speed of the game (from ‘Pause’
to ‘Tortoise’ to ‘Llama’ to ‘Cheetah’), she is expected to think carefully about each
decision, and needn’t feel rushed or lacking in information. SimCity offers, in this regard,
an experience wholly removed from the ‘twitch speed’ gameplay so often derided by
critics of video games.²

² The term ‘twitch speed’ appears to come from games-for-learning advocate Marc
Prensky, who claims that today’s children process information faster than any other
humans have been capable of. The term has unsurprisingly been used by opponents of
games to criticize games that move too fast to possibly contain real content.
It’s worth noting that SimCity’s home is emphatically the PC; though the original game was a minor success on home video game consoles, the games are necessarily PC games – partly because of interface conventions (clicking onscreen buttons is a difficult affair with a console gamepad), and partly because of the kind of gameplay they call for (it’s much harder to imagine staring at a motionless Nintendo screen for minutes at a time, pondering a next move).

In short, SimCity is a blend of a cartoon look-and-feel (down to the caricatures of municipal advisors and lobbyists) and far more cerebral gameplay; in other words, it’s a toy (as creator Will Wright puts it), capable of prompting serious exploration within a goofy aesthetic space – a space obviously intended as little more than a pretense. But SimCity is also far more than a mere toy: it’s a tool for teaching a very particular, very vital kind of thinking. And understanding how it teaches us, as players, can give us insight into a broader class of fictions.

Fiction, Hypothesis, Dogma

Hans Vaihinger, in his 1924 Philosophy of As-If, outlines what he calls the ‘Law of Ideational Shifts’: the idea that pieces of knowledge progress along a continuum, in terms of truth value, from ‘fiction’ to ‘hypothesis’ to ‘dogma’ (124). In his view, ‘dogma’ is treated as fact: in other words, an article of faith (it is not merely a pejorative term in his view, which is key). Hypotheses are ‘up for grabs’, in a sense: like the statements ‘Wormholes exist’ and ‘We are right for one another’, they merit testing. Their truth-
values are ‘in play’(!). Fictions, on the other hand, are known not to be ‘objectively true’, though – and this is crucial for Vaihinger in his inquiry into scientific reasoning – fictions can remain useful, can retain meaning, even after they are ‘disproved’. (Consider: ‘Hamlet was a Danish prince with a tumultuous family life.’ Or: ‘God loves you.’) Even while talking about scientific proof, Vaihinger sees the usefulness of ‘poetic fictions’ to which propositions can ‘regress’ (but again: this ‘regression’ isn’t meant pejoratively). He sees hypotheses as inducing a psychic tension, while fictions and dogma are ideas at equilibrium.

The idea of provisionally useful fictions is of interest to Vaihinger in terms of scientific ‘truths’ like the nature of the atom – we continue to revise our notion of the behaviour of atoms, and though our old notions are proven to be false or incomplete, they’re good enough for the moment. We are able to continue scientific experimentation and inquiry as if we are working from more complete knowledge. (Vaihinger’s work is at some level an investigation of faith.) The tension of not knowing whether a thing is ‘true’ (factual) is, in Vaihinger’s view, something at odds with the ‘equilibratory tendency of the psyche’ (127) – but it is a productive tension (i.e. it drives inquiry).

Vaihinger’s Law of Ideational Shifts purports to classify human thoughts (a level of abstraction above cognition), but we can use it to talk about the reaction of humans to a text – as does Wolfgang Iser in his book The Fictive and the Imaginary. For Vaihinger and Iser, ‘poetic fictions’ remain props on which we can construct knowledge and self-knowledge. Iser, however, is interested in the particular fictional status of assertions

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3 Norman Holland approaches the question of readerly interpretation and narrative-processing empirically, by conducting studies of individual readers during the reading process, in 5 Readers Reading. A video game analogue to that book is sorely needed.
within literary texts. In what way is fiction ‘staged’ in the mind of the reader? How does the reader negotiate the ‘reality’ of a fictional assertion (e.g. ‘Buck Mulligan came from the stairhead’)? And, without veering into a discussion of cognitive science, what is the mental process of narrative comprehension?4

There is a concordance, it seems, between the elements of Vaihinger’s triad and Iser’s, and our subject matter: Vaihinger’s ‘dogma’ works as a kind of bedrock on which fictions can rest – that which we are willing to accept as the Real, worthy of faith. SimCity trades in a very different kind of representation than does a narrative game like Grim Fandango or even Halo; we might take Gonzalo Frasca’s distinction between representation and simulation as a starting point for a comparison. A Sim game shows us confirmable ‘facts’ – the workings of a digital world, its guts – and asks us to consider their interrelations, the emergent ‘nature’ of that world. The goal is to undo suspense, to get the player and the game engine moving at the same pace, in the same manner. The goal of fiction is, in a sense, the opposite: readers are interested in the suspense itself, the directedness. The ‘algorithmic’ analysis that would describe the workings of a simulation is less appropriate: hermeneutic, critical analysis is called for. Online games like those described in chapter four, meanwhile, serve as a kind of externalization of Iser’s ‘imaginary’, in which the nature of the world is up for debate, at play: the ‘meaning’ of such a game is always ‘hypothetical’ in Vaihinger’s sense, never pinned down. And we analyze those games in different terms.

4 Needless to say, the reader interested in these questions is better served by reading Iser firsthand than by seeking the answers here.
This concordance is meant to be suggestive, not definitive, but it hopefully makes the difference between the ‘systemic imaginary’ at play in *SimCity*, and the narrative logic of a game like *Halo*, a richer difference.

*SimCity* doesn’t work in a primarily narrative-driven way; the goal isn’t to advance a story (though the player often comes to think of local phenomena within personal narrative frameworks), nor is a concrete narrative provided by the game as accompaniment to player actions (i.e. there are no cutscenes). While narrative elements are certainly present – the newspaper reports put the game’s numerical status in the context of the city’s ongoing evolution – they are not meant to link up into a larger tale (no more than would emergency news broadcasts). *SimCity* employs a different approach to world-revelation. But it has its parallels in literary fiction and other texts.

Take *Gravity’s Rainbow*. The ‘narrative’ of Pynchon’s story is almost impenetrable to any reader without enough time to read it a half-dozen times (or failing that, a reader’s guide of some kind) – but that’s not necessarily a failing, in *Rainbow’s* case. The book is an example of what Jonathan Franzen calls the ‘Systems novel’ – a novel interested in the working of systems manmade and natural (and faintly supernatural), embodying the idea that contemporary society can’t be written about with ‘simple’ realistic narrative. The effect is quite different from that of a realist novel, moving through a story in a line; Pynchon’s tale works in waves, or like a slowly growing Venn diagram (a way of notating the overlap of sets), indicating regions of common meaning and shared significance. Pynchon’s writing has been praised for its ‘intricate symbolic order’, which is a polite way of saying that he writes in a network of symbols without any immediately obvious referent. But Franzen’s category, the Systems
novel, makes the correspondence with other media forms (like games) clear. Underneath a narrative like *Gravity’s Rainbow* is a simulation, a system, and the reader is exposed to only a limited number of outputs at once. The ‘channels’ of information through which the reader experiences Pynchon’s postwar Germany are not simply descriptive or narrative: they are *iterative, motivic, thematic*. We can find parallels to these qualities in Systems games.

Take *SimCity*. The game’s engine amounts to a kind of ‘function machine’, a black box to which the user passes individual parameters, progressing from simple one-to-one correspondences (zone for housing in an empty city, see whether people move in) to more complex interactions (see what ratio of residential to commercial to industrial zoning is appropriate given the amount of power available). There is no one point at which things get ‘complicated’, no change between ‘levels’ or stages; rather, the complexity of the game increases continuously. Calamities presented in isolation (riots, fires) are revealed to be part of a broader pattern – a kind of *motivic* development, by which local phenomena are tied into a larger schema. The tiniest randomness in system parameters keeps the game from being machine-solvable; subtle variations in each successive wave of consumer demand or price fluctuation reveal the limits of the game’s variability, and are intended to prompt player insight into the city’s inner workings: an *iterative* experience of the System. At no point is the player simply told that her city is in crisis: a sense of crisis comes from each ‘information channel’ (charts, papers, graphics,

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5 The ‘function machine’ is a concept often used to illustrate principles in high school algebra: you feed the number 6 into the ‘3X+7’ machine, and something happens, and you get the number 25 out. I use the term here in a similar way: a black box that takes a collection of inputs and returns a collection of outputs, between which *something happens*. 29
etc.) at once. The ‘story’ (the experience that the player will take away, afterward) moves
thematically.

The inner workings of SimCity’s engine are not revealed to the player at any point, neither in the manual nor through in-game means. The ‘shape’ of the simulation – a total (mathematical/algorithmic) description of the game’s reactions to whatever parameters the player might pass, what actions she might take – is revealed only incrementally. The real action of SimCity is this: the player learns to link the information presented through the game’s interface with a kind of internal model of the game system, constantly updated, until she is in a sense able to think like a system, to see the world of the Sims in terms of the system’s internal relations, to process the game at game speed, to acquire an intuitive sense for the datatypes that make up the game system. This is a particular kind of learning, affecting the way that information is processed and categorized, rather than adding to or modifying a store of data. Indeed, we might refer to this particular kind of play, and of learning, using Brian Sutton-Smith’s excellent formulation: a mechanism for increasing ‘adaptive variability’.\(^6\) For Sutton-Smith, play expands the range of stimuli to which an organism can respond, as well as the range of possible responses to those stimuli, through a kind of blending between the fantastic (imaginative) and the Real – play is a kind of ‘programming’. This is not to say that play is a deterministic activity; rather, that it expands a repertoire of behaviours. Let’s extend that analogy: if something like Halo or Star Wars constitutes a kind of ‘procedural programming’, teaching through intentional, directed narrative logic, then SimCity is (constitutionally and effectively) a kind of ‘object-oriented programming’ tool: its appeal

\(^{6}\) Brian Sutton-Smith, The Ambiguity of Play (1997), 221.
lies in the way it makes possible new networks of relations, and its focus on those networks rather than any unitary (narrative) identity.

**Thinking Like a System**

Unlike a game that ‘puts you at the center of the action’, *SimCity* isn’t about the ego (though it’s possible to be rewarded for service to the city with a mayoral monument). If anything, it’s about a kind of ego relaxation\(^7\), through which the player arrives at an intuitive feeling for the game’s mechanics. Though the behaviour of the system is actually a sum of individual contributions, the player’s goal is a very different perspective, in which the individual roles/identities of in-game elements are elided. The egocentrism of a first-person narrative like *Doom* or *Deus Ex* is quite different from the emphasis of a simulation game: we might distinguish between the ‘narrative imaginary’ to which such adventure games appeal, and a distinct ‘systemic imaginary’, a thought process (or more precisely, a cognitive apparatus) that sees the game from within. If you’ll grant that formulation, perhaps it hints at a possible explanation for why shooters are wildly popular with adolescent males, but simulation games markedly less so (there are other reasons, of course, to do with more common cultural trappings, but they needn’t be explored here).

Consider the visual aesthetic of *SimCity*. Though additional tilesets are available (from websites and in expansion packs), the visual look of each individual city *does not change* over time. Low-rent apartments always look the same, whether in 1850 (when the

\(^7\) Remember what happens to Slothrop, the ‘hero’ of *Gravity’s Rainbow*: he dissociates into a kind of ghost in the machine, his fate becoming that of the Systems he inhabits.
game begins) or 2050.⁸ There is only a single athletic stadium graphic; though there are several graphics for the ‘arcologies’ (self-contained futuristic living spaces), they are randomly drawn by the game engine. The only real personalization allowed by the game is the use of identifying signposts (I often name my wealthiest neighborhoods ‘The SimSlums’ or some such thing), and even those are mainly for ease of use (like bookmarking a webpage). From a narrative-engagement standpoint, wouldn’t a bit more visual variety make sense? Certainly. But identification with individual world or story elements isn’t the point of SimCity, as opposed to in a novel, where a reader might refer to a particular scene or character as a favorite. Texts like Tolkien’s Lord of the Rings or Ico (a recent, popular Playstation2 game developed by an animation studio) might emphasize the nature of their worlds, but texts like William Gaddis’ J R or Sid Meier’s Civilization are interested in the internal movements of their worlds. The narrative imaginary manifests as an interest in a long drive down a winding country lane in an old Studebaker, its destination, the conversation en route; the systemic imaginary focuses on the transmission.

Why make the distinction? I’m claiming that this framework for describing the inner workings of games (and the mapping between games’ ‘inner workings’ and those of the mind of the player) gives a ‘thicker’ description of games’ genre classifications than a system of classification based on what we think of as more traditional aesthetic markers (setting, plot, characters). Moreover, we are concerned here with the links between interface elements – formal features of games – and the cognitive processes they

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⁸ Graphics expansion sets, and add-on scenarios (like historical Berlin), are certainly available for SimCity. But I see these as attempts to provide narrative context, so as to mark a unique player challenge. The scenarios move SimCity from ‘toy’ toward ‘game’ (and even ‘story’), and have been of limited commercial success.
engender. Understanding that relationship, I argue, will help both designers of games (particularly games with specific goals, be they polemical, demonstrative, or pedagogical) and critics (who seek to understand the place of games in culture, and their relationship to their players).

For a gamer, far more than for the reader of a narrative text or the viewer of a film, there is a close coupling between the story or world presented by the game, and the way the gamer is expected to think about that story or world. Watching Last Tango in Paris, The Tango Lesson, or even something less narratively ambiguous (like Strictly Ballroom), we are assumed to have complex emotional reactions to the events portrayed onscreen; those reactions aren’t really predictable to the director, who can nonetheless guide us through the film’s emotional journey. But in a game like SimCity, we are being made, in a sense, to move like the game – to think at its tempo, to categorize problems and resources according to a particular scheme, to see object-relationships in a very particular light. If narrative texts give us things to think about, we might say that games (broadly: ‘Systems texts’) give us frameworks for thinking in. (Consider: into which category would a typical calculus textbook likely fall? I’d claim the former, much to the detriment of generations of grade schoolers.)

The narrative elements of SimCity contribute to this particular kind of player-engagement as well. By ‘narrative’ qualities I mean those that give a continuous human dimension to the progress of the system – those qualities, in other words, that make it possible to tell a recognizable story about the city. These include the advisors, occasional ‘newspaper’ releases, and singular disasters that pop up during the course of the game. In later releases in the SimCity series, the mayor has access to the suggestions of a council
of advisors, each with selfish interests at heart (budgetary, ecological, commercial, etc.). Disasters (tornadoes, hurricanes, alien invasion) occasionally strike SimCities, unless that feature is turned off – but of course that’s no fun. And a newspaper comes out regularly, chronicling all the simulated goings-on (in the later games it’s a clickable news ticker). The newspaper and the advisors work as ‘single outputs’ – without synthesizing all that’s going on in the city, they give a sense of it as a collection of mechanisms, from which multiple output channels can be examined. When disaster strikes, the ability to stop time and peruse various information overlays (like the water table or the power grid) enables the player to see ‘snapshots’ of the city at work: cross-sections. In mathematical terms, these snapshots represent ‘partial derivatives’ of the system, views of a single input/output channel taken by holding all other such channels constant, or motionless. The collection of all such partial derivatives describes the system, but the player isn’t simply a computer processing that mathematical description. The order in which they’re presented, the aesthetic (narrative!) context, shapes what the player comes to feel about the information.⁹

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⁹ Consider, for instance, that while the citizens of SimCity are entirely faceless, the world of SimEarth, Wright’s ecology sim, is represented by an expressive human face (in line with the ‘Gaia hypothesis’ of James Lovelock, in which the Earth is essentially a single complex organism). The feeling of responsibility is meant to be different, which in turn leads to a different intended player attitude toward experimentation. SimEarth is essentially a conservative game (the aesthetic and moral constraint is to keep the Earth smiling); SimCity’s aesthetic mandates experimentation. Visually, at least, there’s nothing to lose.
Story and System

I’ve talked about a ‘systemic imaginary’ as something distinct from a narrative mode of presentation. In the next chapter I’ll approach a different kind of game, exemplified by Bungie’s Halo, through a more narrative lens. But I don’t mean to suggest that they’re unrelated or elementally different. Rather, I think of both kinds of game experience or character as different varieties of what I call ‘generative logics’ in the next chapter, after educational theorist Andrea diSessa. Animating this discussion of SimCity, in part, is the idea that there are links between formal features and kinds of imaginative experience that are intuitively understood by designers but difficult to formalize without a closer look at those features. In the next chapter I begin, slowly, one such process of formalizing.
Chapter 3
The Narrative Imaginary

How to Play *Halo* (and hundreds of other games)

The first-person shooter (FPS) is the most straightforward of contemporary game genres: you look around with the mouse (or control pad, on a console), and you kill things with the mouse button (or one of the half-dozen buttons on the gamepad). A *Quake* player can get by with six or eight keys in addition to the mouse; player actions are limited, in general, to running, jumping, ducking, and the ever-popular ‘action button’ (a contemporary abstraction that maps to everything from ‘open door’ to ‘tip waitress’). Indeed, it is telling that so many FPS’s have only a single button to handle every action beyond killing and evasion – with few (notable, memorable) exceptions, they are adrenalin machines, pure and simple, and the much-vaunted ‘spatial reasoning’ skills they foster in players are in service of the most plain and visceral of human fantasies.

*Halo* is a console game, produced by Bungie Software for Microsoft’s X-Box system. The X-Box controller’s two triggers fire guns and grenades; the four buttons jump, switch weapons and grenades, and pick up objects. One joystick moves the player’s character (the Master Chief, a kind of super soldier in a robotic suit), and one moves the crosshairs – and that’s it. As the Master Chief, the player encounters two kinds of creatures in the world: other soldiers, and alien cannon fodder. The only items in the
game are power-ups (more weapons, more ammo, vehicles); the only direction for movement is relentlessly forward.

And that’s it.

_Halo_ is overall the best shooter yet made, a genuine masterpiece. It’s also a mammoth seller for Microsoft, a game contemporary enough and popular enough that academics likely won’t be writing about it for a few years. But it merits a close look, because the principles on which it operates are as old as Hollywood (and older), and an analysis of how _Halo_ works as both story and game can perhaps bridge between ludic and filmic critical languages.

**Story and Game**

In contrast to the _systemic_ movement of _SimCity_, the momentum of _Halo_ carries the player constantly forward – it is a game of spatial exploration, and the ground covered maps directly onto the _narrative_ ground being exposed (it is, to borrow a concept taken from Fuller and Jenkins, a ‘spatial narrative’)._1_ The pace of the story – the rate at which the player is exposed to the secrets of the Halo, which is basically Larry Niven’s ‘Ringworld’ recast as a giant weapon – corresponds directly to the pace of the player’s movement through space. In an opening firefight, the Master Chief is unarmed, an observer – and moves slowly, fitfully, through a space to which he will return at game’s (story’s) end. This is essentially the game’s tutorial: the player grows familiar with the controls without facing any danger, yet (because pretty much everything onscreen is

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1 Their article, ‘Nintendo and New World Travel Narratives’, is a key early articulation of the idea of games as opportunities for spatial exploration.
exploding or collapsing) the tension is high, and the plot picks up immediately. Once a gun becomes available – once the player’s role in the story shifts from observer to actor – the space opens up (to Halo’s landscape), the music grows expansive, and movement is unfettered.

At this point, the player goes through a standard cycle of action-game/movie character development: she acquires allies (other soldiers), gets an information source (an onboard artificial intelligence manifested as a busty woman named ‘Cortana’), performs a preliminary reconnaissance, loses the party (they’re invariably wiped out or distracted), and is given a full range of armaments (command of a tank or truck, for instance) in exchange for greater responsibility for the pace and outcome of the narrative (the hand-holding ends, and the ‘every man for himself’ stage of the game begins).

Though the previous paragraph is standard procedure for the early stages of games, it is important to note that it also describes the narratives of such films as The Matrix, 28 Days Later, The Game(!), and half the Westerns ever made. Indeed, the zombie horror film 28 Days Later begins with a brief ‘cinematic’, and features a protagonist wandering through an empty landscape as expanding waves of zombies come at him. His dress identifies him as the hero – he’s the only character to appear in bright colors, differentiated visually from his surroundings (like the title character of Run Lola Run) to jump-start the audience’s identification. 28 Days writer Alex Garland’s previous film, The Beach (adapted from his novel), featured a sequence in which the lead character turned into a sprite from a video game, leaping through a pixellated jungle to an old Nintendo soundtrack. The cross-pollination between games and film has deepened lately (the above plot describes both the game Resident Evil and the atrocious film based on it);
it seems sensible to employ a critical language that draws on the formal vocabularies of both media.

_Halo_ is, at times, more like a film than a game. For instance, the first major turning point of the narrative comes several hours into the game: the Master Chief passes through a lengthy stretch of unoccupied interiors, with ominous synthesizer notes on the soundtrack, but _silence_ otherwise. The spaces get smaller, gore appears on the walls, but no enemies are to be found (nor allies – only corpses); and, after several minutes of suspense, the player arrives at a tiny doorway, behind which a cinematic interlude awaits (_Halo_’s cinematics are rendered using the in-game engine). The Master Chief finds a fallen comrade and puts on his helmet-mounted mission recorder – and the player watches, essentially, a grainy replay of a game of _Halo_, complete with a new enemy, vague and terrifying. The brief movie ends, control is restored to the player, and _without a sound_, the room and the screen fill with a previously unseen alien species.

But at this point, the _game_ (that is, the set of actions the player can take within the given mechanical constraints) does not get measurably more difficult. Though the floors and walls are crawling with baddies, the player can mow them down fairly easily: their effect is _cinematic_, their goal to induce terror. The constant downward movement of the previous passage, the rhythmic effect of identical hallways spattered with increasing amounts of gore, gives way to a shock that is wholly (ahem) alien at that point in the story. Suddenly the space takes on an entirely new meaning: no longer merely repetitious, the string of long halls becomes an obstacle to be overcome, the distance between freedom and a messy demise. The story progresses by _reconfiguring space_, by mapping a
new meaning onto an old location (remember: the game ends in the same spaceship in which it begins).

This is the particular narrative imaginary on which many video games play: the space of player experience becomes invested with meaning, both according to the game’s internal logic – as with, for example, the rigorous architectural consistency of Super Mario Bros. – and within intertextual (cultural) frameworks. In a uniquely ludic (gamelike) way, the player imagines her way into any number of narrative experiences. Put another way: the imaginary landscape of a game like Halo can not happen without the very personal (risk-taking) interactions that games offer, but the narrative reference points (horror films, action films, even Ringworld) are absolutely essential for sustaining that experience.

The goal of the previous chapter, at least in part, was to explore links between the formal features of simulation games and the processes of comprehension – both how and what the player is asked to comprehend. Here the goal is similar: to discuss a much more narrative-centric game in a way that avoids merely narrativist or ‘ludological’ description, and to branch out from that particular criticism into a broader analysis of how story and game intertwine for the player. The closest analog, perhaps, is reader-response literary criticism, a framework for analyzing literature as a temporal experience,

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2 I find the distinction between ‘narrativists’ (whom I also label ‘narratologists’, a less pejorative label) and ‘ludologists’ a somewhat nebulous one; both sides of this central debate in game studies insist on attention to formal detail and the experience of the player, while at the same time insisting (oddly enough) that the other side is being ignorant of the ‘real’ meaning of gameplay. By and large, neither ‘group’ (each is as broadly labeled as ‘conservatives’ or ‘liberals’ today) has been particularly effective at providing systematic, comprehensive explanations of that real meaning of games. The question is largely a political one: whose discursive authority is more legitimate? The position coming out of my analysis should be clear: games are neither mere vehicles for storytelling nor wholly distinct from narrative forms.
as a pretense for active readerly engagement rather than the mere transmission of some predetermined ‘meaning’.

**Generative Logics**

In his book *Changing Minds*, educational theorist (and physicist) Andrea diSessa describes learning as a *generative* activity: ‘Interests…are fundamentally generative. They never stay the same, but constantly shift and rebuild themselves according to experiences and contexts’ (80). Literacy, by contrast, gives ‘unnatural stability’ to thought – it imposes order on the free play of ideas. DiSessa’s formulation gives rise to an interesting notion: *literacy* is a constraint on the ability to generate ideas, while real *understanding* is a process, or rather an *active state of being*, that is inherently unstable. His analogy of a roller coaster (in terms of difficulty and reward, learning involves periods of uphill and downhill travel alike) is suggestive: we learn best in motion (‘in practice’, or rather, putting *into* practice). To borrow (again) from everyday language: learning takes place ‘in the zone’, heading downhill. A small extension of diSessa’s notion of ‘generativity’ will serve to link his concern (education) with ours (games and story).

DiSessa recounts his experiences as a young boy learning basic electronics and, through practical experiments, a smattering of physics. In his experience, the ‘truest’ learning takes place in unstructured environments, when the learner is self-motivated and working under relatively isolated circumstances (without external pressures). But we want to make an opposite claim for narrative games: namely, that the powerful
intellectual and aesthetic experiences they afford are story-driven, are powerful precisely because they are constrained, ordered according to the rules of narrative (and those of narrative comprehension). DiSessa’s claim – that lasting learning has a momentum, a self-propulsion, best suited to extended solitary, interrogative engagement with material – is compelling to me, and fits with what’s known about learning environments. In keeping with his notion of generativity, then, I would claim that narratives function as generative logics, as frameworks of devices for focusing interest, attention, intention. By stressing this intentionality rather than any particular set of formal requirements (recognizable plot, characters, setting, rational psychological progression), this definition (I hope) suggests a link between diSessa’s ideas on how learning works and our interest in how game narratives structure experience.

‘Generative’ activities are intrinsically interesting or motivating; Super Mario Bros. stays interesting because, as the denizens of the Mushroom Kingdom repeatedly remind the player, the Princess is always in ‘another castle’ – the next one, or the one after next. Satisfaction is deferred, but more importantly, the expected location of that satisfaction moves around as the player advances through the game, according to an internal logic: ‘narrative logic’, of course (a term begging clarification). The ‘narrative’ of Super Mario Bros. is the set of formal devices by which it focuses the player’s interest on what the designer deems most important (namely the navigation of the gamespace). The game doesn’t tell a conventional story (though its structure echoes that old standby: ‘boy meets girl, boy loses girl, boy rescues girl from immense lizard’), but there is a
narrative logic to what happens – the game *moves like a story.* And: the player thinks within a story space, i.e. according to the rules of the gameworld, and the conventions of contemporary storytelling. This formulation has the side benefit of suggesting why some narratives are less satisfying than others, from a reader-response standpoint: they don’t follow the ‘rules’ for refocusing readerly engagement, where those rules are both culturally contingent and unique to each reader.

Consider game mechanics, then, as *generative logics.* Rather than talking about a game as a vessel for exposing the player to a story – a viewpoint that, as a ‘ludologist’ might say, reduces the nature of gaming to glorified film-watching – we can describe the story, and the rules by which the player’s actions are constrained, as frameworks for structuring player experience. *Halo* orders the player’s exploration of the ringworld according to a classical Hollywood narrative logic. *SimCity* teaches a highly abstract kind of city planning through a *systemic* logic, revealing its structure according to the laws of a particular kind of informational organization. The experience of *Ultima Online* or *Everquest* is structured according to an *interpretive* or *social* logic. DiSessa might say that these activities are interesting (in part) because they push us to further exploration. This language of ‘generative logics’ can perhaps give us the start of an explanation for how the formal features of certain games yield this exploratory impulse.

*Halo*’s narrative structure is fairly complicated, for a popular contemporary game (and certainly for a shooter). But its overall character is one with which the game playing audience is certainly familiar: main character is introduced relatively powerless, but rapidly gains in ability; various extras are sacrificed to demonstrate the power of the

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3 i.e. It features conflict, local climaxes leading up to the Big One, meaningful places, recognizable characters, etc.
attacking enemy forces; characters with British accents are untrustworthy; black characters are noble but doomed; when in doubt, everyone should move forward, blindly if necessary; when big conflicts arise, they’ll take place in open spaces (partly for ‘cinematic’ framing, partly to aid the player’s maneuvering). The structure is common to both shooters and Hollywood action films. And what the structure does for us is tell us, in essence, what to care about at any given moment: there is a link between the rules and why the rules matter, and that is the story. The final level of Halo is a car race against time through the bowels of the Pillar of Autumn (your ship); though the game doesn’t explicitly say so, every player knows immediately to speed forward in spite of any damage she might be sustaining. This is partly cultural knowledge (the cultural ‘intertext’ of reader-response theory), and partly a result of the arrangement of game elements: it’s hard to concentrate on the surrounding enemies when the pathway is complex enough to merit the player’s full attention. The game rewards this tactic (by not killing the player off right away), and makes the danger of the last level surmountable by keeping enemy tactics consistent (i.e. there is no single stickler of an enemy that requires a radically different approach than do the rest). We know that the last sequence is a race to the finish; we’ve all been on amusement park rides, or seen them, and the dot on the screen (indicating the direction of the goal) acts as a kind of crosshair, the decreasing distance measurement heightening the drama and keeping the eye centered. It is the game’s most cinematic passage, and serves as an ideal (narrative) end to the tale.

This ‘generative logic’ is at work elsewhere as well. When soldiers die onscreen during opening cinematics, the player learns immediately that her companions are expendable; when a voice comes over the intercom asking for help, it is clear that their
nature has altered, from background decoration to a narrative focus (and indeed, saving the lives of soldiers then becomes a priority for the gamer). Without companions to worry about, spatial exploration can become a priority, but the burden of being interesting is shifted from the scenery to the enemies once the rest of the party is put in danger. Or, to borrow from pedagogical discourse: within the narrative, Halo’s unfortunate band of soldiers serves almost like a mnemonic device, marking the space as intended for a particular use, but also advancing the story (their deaths are meaningful to the Master Chief). The narrative provides a set of pointers indicating, in a sense, the optimal subjects for mulling-over at any given time. The goal (for the author/designer/teacher) is to maximize impact, whether visceral or intellectual or sympathetic; in teaching terms, narrative is a way of linking concepts such that they’re most likely to get lodged in the learner/player’s brain.4

‘Literary’ Analysis and Games

I am not proposing a definition of ‘story’ or ‘narrative’ in which neither character nor setting nor temporal movement nor causal relationships appear. My goal in this chapter, rather, is to fit game narratives into a wider framework. Wolfgang Iser talks about the ‘staging’ of a text bearing a character of fictionality, where that text provides

4 There is an implied critique here of the laziness of so much curricular design; game designers treat their (mainly young) audience with respect and care, as far as structuring the experience of gameplay. If the work of teachers is so much more ‘important’, why is the nonsensical ordering of (for instance) a typical high school world history class, which might focus on one nation at a time to the exclusion of even its neighbors, somehow acceptable, even standardized? Successful curricula, like good novels or ‘addicting’ games, have internal, generative logics that guide student (player) experience.
formal props for a particular kind of cognitive activity; part of my aim is to describe the workings of games the way he describes the workings of fiction, without requiring the narrative element on which he places so much stress.

Given that intended focus, let’s talk about Halo some more. The plot of Halo features two prominent reversals. The first I’ve described above: the aliens against whom the player has been fighting are revealed to be little more than a preamble to the greater horror to come, namely The Flood (a sea of tiny aliens resembling nothing so much as baby heads on vaguely arthropod bodies). The second comes right before the end of the game, when it is revealed that Halo itself is a massive weapon operated by sinister faux-British robots. The architecture of the place becomes sinister: the robots control the machines, and the machines are everywhere. At this point there are four warring forces on Halo (the soldiers, two alien races, and the machines), and the Master Chief’s job is to get out and get safe, killing everything bad on the way. Melodramatic, yes, but also quite effective: each betrayal comes as a genuine surprise, and ups the narrative ante substantially.

What the player experiences at these points is a reaffirmation of the need for story itself: between ‘chapters’ (levels), she’s pulled back to focus on the frame of the gameplay, the motivating narrative, and the gameplay changes as a result. Of course the mechanics of gameplay remain more or less the same (for all the game’s vaunted AI, it’s not that complicated to kill any of Halo’s villains, alien or robotic, after the first encounter); but there’s a palpable change in the way one looks at the bad guys at each of these narrative turning points. Any ‘passage’ from the game, looked at in isolation, is more or less identical to any other: shoot or be shot, anything moving is dangerous. But
given the consistent graphical language of the game, it’s the narrative frame that provides the meaning of what’s going on, that pulls the player forward through the story world.

As mentioned above, one of the most impressive aspects of *Halo* is its use of *silence*. We might contrast the weightiness of the quiet preceding the revelation of the Flood, easily the scariest moment in *Halo*, with the ‘downtime’ in another popular contemporary game, *Grand Theft Auto III*. *GTA3* and its sequel, *GTA3: Vice City*, have been showered with praise for their ‘innovative’, ‘open-ended’ gameplay; at the same time, they are both narrative-centered games, in which completing a story is the player’s nominal goal. *GTA3* differs from *Halo*, however, in the crucial sense that for most players, the former game’s narrative is little more then pretense: the momentum of gameplay is based less on narrative progression than on the player’s own self-motivated exploration of the world. In narrative terms, the player’s ability to drive around the world of *GTA3* involving herself in meaningless mayhem (and make no mistake: it *is* meaningless, consequence-free, *pornographic* violence) is less a digression than a complete abandonment of the narrative thrust; it has the effect of rendering the narrative wholly meaningless as well. The ‘downtimes’ – both the cinematic cutscenes, and the extra-narrative side missions that do not ‘forward’ the game at all, except by providing powerups for the player – are merely lags in the momentum of the gameplay. There is, in other words, no ‘generative logic’ at work except the purely visceral. The feeling of transgression that comes from (for instance) beating a prostitute to death in broad

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5 *GTAIII* is pornographic in that the interest is in violence for its own sake – it’s about the thrill of experiencing violence, not its meaning. Porn films work the same way: pure visual stimulation. The bodies are merely props, not people. Nonetheless, the unabashed way that *GTAIII* presents its subject matter *is* a kind of achievement for games, the way that *Bonnie and Clyde* was an achievement for film.
daylight and gunning down the pursuing police forces does not a story make, nor a world. There are no side missions in *Halo*, only the ever-changing prime directive provided by the main narrative, so all player actions are structured according to the linear logic of the story. In musical terms, the side missions in *GTA3* don’t grant the player total freedom (the claim that’s often made for the game); they simply delay passage between gameplay loops. *The Legend of Zelda* did the same.

This language of generative logics gives us new terms for criticism of *GTA3*’s structure. Why don’t players care about the story, past a certain early point? Because the feel of the side missions, the player’s orientation with regard to the world (it is a field rather than a line to be explored), don’t work *generatively* with regard to that narrative. We could as easily say that the side missions distract from the story – they do – but couching the criticism in terms of a broader description of narrative makes the criticism extensible. (In this regard, a theory must be ‘object oriented’.) What else can we say with the same terms? What other generative logics are at work in contemporary games? In the next chapter, we consider online games, and the plane of what I call the ‘interpretive (or social) imaginary’, which is both linked to and different from that at work in *Halo* and *SimCity*. 
Chapter 4
The Interpretive Imaginary

How to Play Lineage or Everquest or Ultima Online or…

Most massively multiplayer online roleplaying games (MMORPG’s – surely one of the most unwieldy acronyms in gaming) are essentially the same game: namely, Dungeons and Dragons. The basic gameplay of Everquest or Lineage (to name two of the most popular online games, the former wildly popular in America, the latter a smash hit in Korea) is essentially the same as in the original D&D game: the players form parties and seek treasure, killing enemies along the way, collecting items, and improving the abilities of their characters by advancing in ‘levels’ (a coarse measure of experience/ability). Any overarching narrative elements are generally subordinated to hack-and-slash gameplay (this is not necessarily true of D&D, but it’s not easy to avoid for most of the games’ adolescent male player base), which is the fastest way to improve one’s character. Players choose from a selection of ‘character classes’ (fighters, wizards, rogues, bards, etc.) with particular innate abilities; gameplay varies most widely between character classes.¹

¹ This is, unfortunately, not true of all such games. Diablo II, for instance, is a hugely popular game with a major online multiplayer component. It is not a ‘massively multiplayer’ game in the sense that only ten or so characters can exist in any one gameworld at a time. Past a certain point, the game amounts to little more than leading one’s character into a mass of enemies, triggering some sort of area-effect weapon, and clicking in order on the monsters one wants killed – regardless of the player’s character class. It is a ‘roleplaying game’ in label only; most online players experience it largely as
Of course MMORPG’s make up only a fraction of the universe of online games (though a significant fraction); in terms of hours of gameplay, games like *Everquest* would seem to be the most engrossing form of online entertainment, but they draw only serious gamers, while those who play games only sporadically tend to prefer things like online chess or bridge. The learning curve for the mechanics of *Everquest* is relatively shallow, and a player of *Lineage* learns all necessary mechanical skills within the first half hour of gameplay (it’s hard not to, when you’re barred from exploring the world until you’ve acquired those skills). The real complexity of the games, though, arises from the intricate social and conversational codes employed by serious players. Playing a MMORPG is a bit like shopping in Athens: buying power corresponds less to wealth than to the ability to haggle, and *no one* haggles like a local.\(^2\) Indeed, the secret to advancement within a persistent online world is persistence. You have to become a local.\(^3\)

Playing an online RPG feels like a blend between *Dungeons and Dragons* and a slow-moving, less improvisatory game of Cowboys & Indians; roleplaying games tend to be a bit more contemplatively paced than shooters. Often, network latency imbues player actions with a strange feel, as if the player is asking the server permission to move or shoot, biding time before the inevitable communications failure. The movement toward ‘realism’ in games faces a serious uphill battle, as far as online games are concerned, a stock-market game, in which amassing and trading equipment becomes the central attraction.

\(^2\) Personal experience has borne this out. There is a distinct feeling – for which our postmodern era needs a word, I think – that arrives in the act of being-a-tourist-and-certainly-getting-ripped-off.

\(^3\) One of the attractions of online worlds, I think, is that in general it is *much* easier to become a ‘local’ online than in the Real World.
starting with the sheer logistics of accurately representing thousands of concurrent commands. But these games have proven very effective at rewarding a different kind of engagement with players. Without using the word ‘addiction’, let’s say this: games like Everquest are remarkably well-tuned to the social and competitive desires of their players, their formal organization mapping directly onto a particular kind of self-organizing imaginative stance. If players come to embody a kind of ‘systemic imaginary’ through games like SimCity, and are pulled along through more classical narrative engagement in Halo and its ilk, the appeal of online roleplaying games is found in a kind of social or interpretive imaginary, in which players take on the role of cocreators of a social fabric, outside the ‘rules’ of the game engine but emerging from them. The ‘feel’ of an online game owes as much to players’ interpersonal relationships as to the mechanics of player-game interaction. And the relationship between those two aspects is, I argue, at least partly predictable, or formalizable. It is one goal of this chapter to suggest some ways we might go about doing so.

A Detour Through Nomic

Before we talk about Lineage and its ilk at (slightly) greater length, I’d like to start with a more theoretical discussion, and then talk about the socially complex field of contemporary MMORPG’s (which I see evolving, in part, from the experiments in ‘text-based virtual realities’ during the 80’s and 90’s). To that end I’ll mention Nomic, a game devised by law professor Peter Suber to explore the concept of reflexivity in law. The game consists solely of a ruleset, which describes modifications to itself, rules for
winning (players receive points when their proposed rule changes are voted into law; 100 points wins), and procedures for resolving disputes in interpretation. Suber’s original ruleset contains 29 rules, some open to interpretation, some straightforward. As Suber puts it, ‘While most of [the] initial rules are procedural…[there is] one substantive rule (on how to earn points toward winning); but this rule is deliberately boring so that players will quickly amend it to please themselves.’

Suber initially imagined people playing Nomic seated in a circle, say at a party; as a face-to-face game, however, Nomic is a catastrophe. Keeping track of 29 written rules through a series of amendments is bad enough; but after only a couple of rounds, the ruleset can get unmanageably large, and mere recordkeeping makes the game unplayable. For this reason, primarily, the game has found its home online, played over email with the aid of scripts to automate its recordkeeping aspects. (The largest, longest-running game of Nomic has gone on since 1993, and currently seems to have in excess of 300 rules, after thousands of proposals.)

I mention Nomic because its gameplay is basically a pure demonstration of what I refer to above as the ‘interpretive imaginary’; the fundamental action of gameplay isn’t proposing rules and amendments so much as discussing them and negotiating their possible meanings and ramifications. Though the rules don’t mention ‘discussion’, and no in-game value is placed on this process of negotiation, it is this layer of activity that

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5 I have written about Nomic in somewhat greater depth in a paper available on my website, at web.mit.edu/mr_mole/nomic-resnick.pdf. That paper deals with Nomic as a tool for teaching programming, and offers a different view of the interpretive side of Nomic, comparing the processes of rule-making to compilation and debugging of computer programs. It is also more explicit than this essay on the educational benefits of such a negotiated imaginative space.
makes Nomic an enjoyable game rather than a mere legal exercise.\(^6\) In tabletop roleplaying games, such conversation (discussion of the rules, talking about the game rather than the story) is known as ‘metagaming’; it often serves to break up the consensual hallucination of the gameworld. That label is an apt one: conversation within the game seems to exist at a level of remove from the ‘game reality’ of rules. Nomic formalizes this notion of metagaming, by dealing provisionally with objects not covered explicitly in the rules, separating out these two ‘orders of existence’ for the purposes of game mechanics. If we think of Nomic as a set of mechanics for governing online communities – not a stretch by any means, given the way the game is generally played today, via email and websites – the primary difference between Nomic and something like Ultima Online is the formalism applied to ‘game custom’. But this aspect of online games, this rule-derived ‘game culture’, is a major part of the attraction of these games, partly because of its informality, the impression it gives of player authorship. Because of the rules that govern and flatten out the distribution of power in online game communities, game cultures promise a kind of democracy of creativity not possible in an ‘inherited’ world. Everyone in Everquest can at least pretend to be an author.

**Identity Politics**

In her book *Life on the Screen*, Sherry Turkle describes the Internet as a kind of giant reflective surface, a stage on which those on the network can explore new kinds of

\(^6\) Of course any reference to Nomic’s rules begs a clarification: I refer to Suber’s initial ruleset. There are infinite permutations of Nomic, as a cursory glance at a couple of email games’ rulesets reveals. It is certainly conceivable that a Nomic ruleset could regulate in-game conversation, with a single amendment or new rule.
identity formation within varying degrees of anonymity. Though her work on identity formation in online communities was done during the MUD\textsuperscript{7} era (before, among other things, the vast unchecked expansion of the World Wide Web), Turkle’s broad insights are certainly still applicable in today’s era of what are little more than graphical MUD’s. What she describes – essentially a matrix through which identities can be passed – might also be discussed in terms of a ruleset, a broadly conceived ‘imaginary’ in which identities are \textit{structurally} conceived of as ‘in play’. For MUDders and MOOers, certainly, the origin of MUD’s in \textit{Dungeons and Dragons} is a constant influence on the form of online interactions: debates about the ‘reality’ of online identity, and the status of digital socializing, romantic or otherwise, were common when MUD’s ‘grew up’ in the early 90’s, and discussions were often couched in terms of ‘playing a role’ or character. The ‘rules’ of online communication come partly from logistics (some types of communication are impossible online, some impractical, some merely frustrating), and partly from an agreed-upon social standard. The making of social rules on MOO’s is curiously reminiscent of Nomic, actually: by and large, MOO’s tend to be democratic places, and though ‘game custom’ (the unwritten definition of socially normative behaviour) is technically non-binding (in the sense that no one can make you think or act a certain way in a text-based VR), ‘violations’ of MOO custom are taken very seriously. It is the sense of joint authorship that makes for such militant self-regulation, I think:

\textsuperscript{7} MUD stands for ‘Multi-User Dimension (or Dungeon)’. A MUD is a text-based virtual environment, essentially a multiplayer real-time \textit{Zork}: players move around by typing commands like ‘south’, and speak by typing ‘say <foo>’. MOO’s, or ‘MUD’s Object-Oriented’, are socially themed MUD’s in which user-written code is more prevalent. While MUD’s are essentially social games, MOO’s are closer to rich chat environments than anything else. LambdaMOO, the largest MOO, ‘houses’ more than 4000 players (‘netizens’?), usually about 150 at a time.
‘cheating’ in an online game like Everquest isn’t a big deal because the only people whose predictions are dashed are the designers. But in communities in which users are called on as writers and interpreters of rules, the notion of ‘property’ (intellectual or geographic) is greatly altered. It’s worth noting that one popular variant of MUD code is the MUSH: multi-user shared hallucination. The name captures the essence of the social contract: rooted in fictionality.

Games like Everquest, and ‘places’ like LambdaMOO – Howard Rheingold’s ‘virtual communities’ – offer a kind of two-layered existence for ‘players’. On the one hand, there is the rules-based, deterministic existence stemming from the fact that the players’ avatars are digital objects passed between servers and clients. The exigencies of networked computing and modern interface conventions alike demand that, for instance, all displays of emotions in a MOO take the form of first-person simple declarative sentences. Similarly, a player on Everquest can’t ‘bake a cake’, because the action hasn’t been animated by the game’s designers. Nor would it ever occur to an Everquest player to do so: the world is not built such that a baker will last very long. On the other hand, there’s the social layer, the ‘interpretive’ layer, in which the ‘meaning’ of rules is negotiated among players. It is here that cultural formation takes place, and a new set of rules is formulated by consensus. Though players have more definite metrics for success and failure in a rules-bound world, that world is rendered more meaningful by a kind of back-and-forth between this rules-based layer and the more freely speculative cultural field.

An example: players of Diablo II quickly exhaust the single-player mode of the game, which is stultifying in its repetitiveness. The online game, however, offers a quite
different set of rewards, particularly the homegrown mercantile exchange centered on armour and weapons. Of course Diablo’s designers, Blizzard, had foreseen the players’ interest in this sort of trading activity; for the popular sequel they drew on plenty of experience from the original Diablo. But this phenomenon doesn’t just spring from teenage boys’ fascination for exotic-sounding implements of death (though that’s a factor). Consider: Diablo II has almost no visual variety to its weaponry and armour, and special abilities aren’t indicated visually in any way. Gold is plentiful, as are experience points (past a certain point in the game, one can skip 10-15 levels in a day, a project that can take weeks in single-player mode). The only meaningful currency comes in the form of statistics, and armour trading provides a way for players to link the action of the game (a banal demon hunt in various dimly-lit cathedrals and dungeons) with a regime in which they can assert a new kind of dominance (mercantile exchange). Blizzard doesn’t score the collection of goods in the game, it’s peer-reviewed, and that makes all the (social) difference. This separate, interpretive layer of the game – in which players decide for themselves what the ideal combinations of weapons and armour are, while cooking up hierarchies of play styles and character variants – has a legalistic hue. After all, the ‘letter of the law’ (law of code, rules of the game, written social standards) is less important to the online Diablo II community than the player-authored unwritten code of conduct. It’s not, as video game opponents might say, that teenage boys like to own things and kill things; it’s that, for once, they’d like to make something that matters. Virtual cultures, game cultures, can afford them that opportunity.
Evaluating Online Play

The feedback loop that exists between the written (coded) and unwritten (encoded?) laws of online communities works in both directions. We might discuss the formal ‘success’ of a model for online communities in terms of the variety and fluidity of feedback it offers. In LambdaMOO, for instance, there is a close link between social norms and coded laws; users can author their own verbs (extending the ability of their avatars to act in the world), inscribing social norms as code. At the same time, ethical discussions on various intra-MOO discussion lists (like the venerable *social-issues bulletin boards) start with the code itself, and discussion of social possibilities often transforms into discussion of their implementation in MOOcode. At the same time, since there is no real ‘weight’ to those transformations – the ability to freely describe any player action in blocks of text means that the ‘reality’ of the place rests as much in the hands of verbally dexterous fast typists as in those of the wizards, or MOO administrators – the meaning of this feedback loop is wholly interpretive. In other words, the ability of players to modify the MOO has meaning only insofar as the MOOers are willing to pretend it does. But because the MOO is to some degree advertised this way, there is a close linkage between the code and the players’ expectations. After all, most publicity surrounding LambdaMOO came from a Village Voice article that described it, in the early 1990’s, as a freewheeling sci-fi democracy embodying principles of ‘power to the (virtual) people’.

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8 In the interests of disclosure: the author has been a ‘citizen’ of LambdaMOO for more than eight years, having joined not long after the Village Voice article, by Julian Dibbell, first appeared.
Everquest and Diablo II differ from LambdaMOO, however, in that their ‘legal’ and more loosely derived ‘cultural’ layers don’t feed back into one another. Because of the rigidity of representation in these graphical worlds – everything in Diablo II just feels like a tile in a tileset, much like in SimCity – there is no opportunity for players to affect the basic fabric of those worlds in any lasting way. It’s possible to play Diablo II online and never participate in the ‘arms race’; it’s possible to treat Everquest as a single-player adventure game that happens to have chatty NPC’s (non-player characters). But LambdaMOO has the effect of opening up possible interpretations within the game’s basic fabric, in a way that the other games don’t. The representational layer – graphics, sound, statistics – of the graphical RPG’s makes user/world feedback a much more limited, marginal affair.

It is this interface between the deterministic and the interpretive – between law and culture, online – that works as a ‘generative logic’ for online game communities. Playing Everquest or Lineage is satisfying only in a circumscribed way, because the world is finished (the authors have finished their work, the inputs and outputs are totally defined), and the only space for meaningful inscription lies outside the ‘official’ metrics for evaluation. This kind of framework makes it easier to inspire a visceral thrill.

Interpretation is kept to the local. Playing on LambdaMOO or Nomic, on the other hand, leaves a constant slight feeling of dissatisfaction, because the worlds of these games are

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9 The first time you step into a virtual world, there is a feeling of limitlessness; like anything else, online games invariably deflate that feeling, some faster than others.

10 This formulation suggests a few things about why action movies and games are so morally simplistic, so graphically repetitive, so slavishly formulaic. Repetition is viscerally thrilling when a player or reader can master it. But the thrill of directing the unruly, the limitless, is of a wholly different order. Scores that go up to infinity become meaningless: yet another lesson from game designers to curricular designers.
never quite finished. The upshot is, the *players* are constantly engaged in the task of finishing those worlds. It is the difference between ‘how will this end?’ and ‘how could I end this?’ The dissatisfaction is generative.

Wolfgang Iser talks about the ‘imaginary’ as a kind of plane on which an interaction with the fictive can be *staged* – in the senses that both actors and therapists use the term – and in a social sense, online communities serve a similar purpose. The ‘cultural’ layer of these games is the collective improvised performance that correlates with the ‘scripted’ aspects of game mechanics; they are corresponding fictions (one told by the designers, the other by the community) working within the plane defined by the rules themselves. For Iser, dreams are spaces within which the real and the imaginary become indistinguishable – to borrow terms from anthropologist Gregory Bateson, the symbolic ‘map’ of our unconscious mind becomes equated with the territory it represents. Readers and gamers blur this distinction on purpose. Remember the term MUSH: multi-user shared hallucination. In online games, the ‘meaning’ of the experience is precisely this sanctioned (encouraged) blend of the real and the symbolic, within an imaginary framework. Such games are structured to encourage players to *interpret* constantly, freely, and safely (behind the safety of a screen and a modem, for instance). The rules structure these interpretations; the hallucinatory quality comes from the difficulty we have in telling, online, what is the territory and what is the map. The line is not so rigidly defined *there* as *here*.
A Final Note

The next great leap for electronic games may well come in the form of handheld location-based games with an online component – games played on a PDA or dedicated portable gaming platform (like a Game Boy Advance). Location-based computing opens up extraordinary new possibilities for games, enabling designers to treat the physical world as a dynamic element to be incorporated into stories and mechanics. These games will make for radically subjective player experiences, in which everything from posture to footspeed to dining habits will dictate the flow of gameplay. A new kind of analysis is called for, one that takes in the ethics of metagame activity, the flow of prior knowledge into the domain of game knowledge, the ways that space is reconfigured by passersby. Initial gestures at theorizing such games are being made, but they remain a prime space for game-theoretic work in the near future.

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11 By Games to Teach, for instance.
Chapter 5
Next Thoughts

Game Studies and Disciplinary Practice

The broad concept outlined in this essay – of ‘genres’ based on kinds of reader/player investment, rather than any particular set of aesthetic or generic markers – and the kind of formal analytic framework I’ve (broadly) provided – based on the notion of ‘generative logics’, following Iser and particularly Andrea diSessa – is not meant to be a total encapsulation of how games and other texts work. Nor is it meant to cover all kinds of games. Rather, I hope I have suggested some ways of talking about games, and provoked some insight into how games work on and with us, that do not rely on the shakily defined categories so prevalent in contemporary game studies (such as the forced dichotomy between abstract notions of ‘game’ and ‘story’).

One motivating question behind this particular piece of game criticism has been the following: do the terms I’ve laid out make it possible to say new, smart things about games, about stories, about us? More broadly: how do we evaluate the ‘success’ of a critical theory of media? How can we tell whether the granularity of a given disciplinary discourse is sufficient for its subject matter? Is it really important to have a totalizing definition of ‘game’, or is such a definition merely another philosophical tool to play with?

In answer to that first question, I would say (hopefully!), the notion of ‘generative logics’ has a broader appeal than as just another substitute for ‘genre’ in discussions of
games. Consider Noam Chomsky’s ‘propaganda model’ of media\(^1\) as a description of a particular, highly deterministic, *fantastic* generative logic – one in which the contemporary distribution of political power blends with a commonly accepted notion of ‘authorship’ to yield the popular myth of Our Time. In Chomsky’s model, the citizenry ‘learns as it goes’, getting its ‘misinformation’ through the same channels that teach it how to read the same. In terms of vocabulary alone, it is not a stretch to call children’s programming or MTV a kind of ‘in-game tutorial’ for watching the news – particularly as news and entertainment programming come to so closely resemble one another. Of course this ‘generative logics’ vocabulary isn’t necessary to talk about Chomsky’s ‘philosophy’, but it provides a link between media analysis and political practice that hopefully avoids the determinism of Chomsky’s own view of audience reception.

The first level of *Super Mario Bros.* tells us what to watch for in subsequent levels: the game teaches us how to play it. The formal features through which this is accomplished are neither mysterious nor ‘intangible’. By identifying these formal features (architectural consistency, musical cues, patterns of enemy behaviour, level layout conventions, a consistent visual aesthetic) we can not only gain insight into the ‘gaming process’ (analogous to the ‘reading process’ of reader-response criticism) but a basis for describing new kinds of possible interactions with games. The earlier analogy between game design and curricular design was chosen specifically for this reason. If we accept a link between, on the one hand, the ways that games engage and direct our

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\(^1\) See most any of Chomsky’s political writing, particularly his *Manufacturing Consent*, which he coauthored with Mark Herman. Chomsky’s view of the media is essentially this: western media are neutered by corporate and political interests, and serve to eliminate debate and make meaningful dissent impossible. Chomsky seems to imagine an equally neutered reader, though he himself serves as something of a counterexample (albeit a unique one).
intellectual and emotional focus, and on the other hand, the ways that other learning activities are structured (at the textual level, the social, the cognitive), we can begin to port disciplinary practices from one field to another (e.g. from pedagogical practice to game design, and vice versa). A framework for criticism that leaves no room for action is self-indulgent at best; I hope that the foregoing is not that.

**What (and How) Should Game Scholars Study?**

Critical discussion of games is split between those who make games – people like Greg Costikyan and Warren Spector, whose outlooks on games are expansive, but grounded in practical considerations like hardware requirements and economic constraints – and those from academia, who seem to share a political interest in expanding the dialogue about games without actually moving it beyond peer-reviewed journals and symposia. To be sure, plenty of smart discussion of games goes on outside the academy (as with literature or film), but games are such a hot-button issue in public discourse that there is a need for passionate but *levelheaded* critical commentary from scholars, *in the public forum*. At this point, mentioning the Columbine school shooting in a paper about games is gauche, but that horrific event still stands as one of the key moments in the ongoing, (generally) low-level moral panic about games and children. Two major issues are at stake: first, it's important to let the non-gaming public know what contemporary electronic entertainment is (more or less), if only to forestall political action that might quell the creativity and expansiveness of the game industry at its best. Second, the discussion of games *within the industry* needs to move beyond the
embarrassing limitations of current genres and preoccupations (in which nearly every real-time strategy game is a *Dune* 2 clone, millions are spent on *Street Fighter* look-alikes, *Tomb Raider* games continue to come out alongside equally bad films while every digital female looks like Lara Croft, and *GTA3* is spoken of like the first wave of Impressionist art). The academy is equally guilty of the opposite offense: a reliance on strangely conservative conventions (celebrating hypertext and the films of Tziga Vertov[!]) as exemplars of a ‘new digital aesthetic’) alongside a peculiar interest in legitimating the worst of the game industry’s rubbish. It is a mixed blessing that so many game scholars were and are *fans.*

The field of game studies doesn’t need *more* philosophy (does anyone?). What it needs is more coherent, generous analysis of individual games, genres, cultures, gamer practices, and communities. And those analyses must be turned around, and turned into new, innovative practices for designers and players. Indeed, the form of the game design document is curiously well suited to presenting theoretical positions in ways that are implementable and debatable. The next generation of game scholars will, I imagine, have access to extraordinary tools for putting together quick and dirty demos of *games* themselves, not just the concepts behind them; this will have tremendous effects on

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2 You get the sense that some of the praise for *GTAIII* is motivated by the mischievous joy one feels in saying something naughty and not getting caught.
3 Game studies is to contemporary academia what television studies were a couple of decades ago: a discipline whose practitioners could (often) remember the earliest examples of the medium, who are eager to bring their personal interests into the halls of academia, in spite of the fact that very few texts from their chosen medium of study are aesthetically worthy of induction into any canon. It’s one thing to talk about the brilliance of the end of *Metroid*, or the final battle in *Zelda*, or the score to *Castlevania*, but embarrassingly few works to date show the kind of all-around mastery of craft of, for instance, *Touch of Evil* or even *Pulp Fiction*. Much of contemporary writing on games almost seems to *apologize* for the industry’s shortcomings. It’s not a new problem.
technology in education, public perception of games, and the feedback loop between the art world and the academy. The idea of games as commentary on other games isn’t new (the world of interactive fiction, for instance, is full of intertextual references, but it’s a bit of an anomaly: primarily textual), but as game design becomes more accessible to a wider percentage of the game-playing public, we’ll begin seeing experimental games that are more than mere curiosities, but are rather an expected part of popular discourse on games.

There are studies of games from a design perspective, of course. But the close integration of design and criticism – a critical stance blending formal analysis and a more response-oriented view, working with both the game and the code that constrains it, the algorithms that define it, even criticizing in the form of alternative designs – will yield a positive disciplinary side effect: the lowering of discursive walls at an early stage of the formation of game studies. One could point to hypertext studies as an analogous critical field, but as yet hypertext fiction is an almost entirely fallow field, and hypertext criticism is not a source of major insight into games. An indigenous body of critical work on games is arriving, however, and the native metaphors of programming will both empower designers in critical discussions and ground otherwise potentially airy academic discussion. As Marie-Laure Ryan has pointed out, most people who write about

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5 Already we have people like Lev Manovich and Eric Zimmerman, but Zimmerman’s background is in design (at which he’s quite talented), learned the hard way; and as for Manovich, a man who cites Man with a Movie Camera as a kind of originary point for digital art has some serious rhetorical ground to cover before engaging contemporary video games. The creators of hypertexts suffer from a similar ‘high purpose’ to their work, historically – which is probably part of the reason hypertext fiction never took off.

6 gamestudies.org is a useful repository of such research, as are the many websites run by game designers and scholars. The links pages at ludology.org and game-research.com are also good starting points.
hypertext have read far more about the medium than in it; this fate will not befall a game studies shot through with close attention to the building blocks of games themselves.

**Games and Education**

Animating the foregoing discussion is an interest in games for teaching and learning. The notion of narrative as one of many ‘generative logics’ is intended, in part, to lower a barrier for interdisciplinary discussions of learning among those outside the educational establishment, where new tools can still freely challenge pedagogical orthodoxy. There is a tacit assumption in many discussions of computer-assisted pedagogy that a good teacher is irreplaceable; I wouldn’t challenge that claim, but would counter it with: ‘irreplaceable’ doesn’t mean ‘necessary’. The formal structures of games, as I have begun to suggest above, neatly accomplish a number of cognitive tricks that ‘capable teaching’ doesn’t always cover. Books like *The Out-of-Sync Child* make the case for a synaesthetic approach to teaching; without delving into cognitive science, we might consider the possibility of inducing similar effects (heightened concentration, physical comfort, emotional investment, a focusing of the sensorium) within game settings, by means similar to those employed by novelists, filmmakers, pitching coaches…If one of digital technology’s main advantages is its ability to produce increasingly convincing facsimiles of the ‘real world’, at least for the eyes and ears, mightn’t games begin to offer an answer to the old claim that the only real learning happens in the real world? It is games’ extraordinary power to quickly and convincingly
situate players – justifying the most (seemingly) illogical of actions with wholly imaginary rewards – that is their greatest asset educationally speaking.

Education theorist James Gee has written *What Video Games Have to Teach Us About Learning and Literacy*, a generally excellent introduction to video games through an educator’s eyes; Gee’s basic argument is that video games constitute rich learning environments (not a new argument, but one that bears repeating), and he outlines 36 ‘principles of learning...built into good games’ (12). There is plenty of research to suggest that he’s aiming precisely at a rather broad target (including that of my group, Games to Teach), but he pays more attention than any other educator to the formal features of contemporary games, and his language of ‘appreciative systems’ (broadly, the ability to formulate goals according to the logic of a particular semiotic domain) is similar to the language of ‘generative logics’ used herein. His analyses of individual games, however, are quite brief – his interest is in a theory of learning, and he uses games as his domain – and he’s come to gaming only recently, so the book spends some time stating what is fairly obvious to gamers.

Nonetheless, Gee’s book signals that the time for renewed conversation between media specialists and educators has come; sustained analysis of game forms could enrich his argument, and contribute to a growing appreciation of video games among educational researchers. The work of Games to Teach suggests some tentative first steps; a closer link between game scholarship and game design – in other words, a movement within game studies to *embody* theory in game prototypes, as GTT has begun to do – will only carry this work further. Such an approach might take cues, for instance, from the design (and design *scholarship*) of Eric Zimmerman, whose *Sissyfight* game embodies
the principles of design that he writes about in his forthcoming book *Game+Design: An Interactive Design Handbook* (with Katie Salen). That move to ‘rapid prototyping’ will help the movement for games in education immensely, as one major barrier to widespread adoption of games in classrooms is a lack of ready availability and familiarity. The study of games can only benefit from quicker, richer feedback of this kind.

As mentioned earlier, games like *SimCity* are already used in classrooms. But their internal workings remain a mystery to many teachers (you wouldn’t expect a 7th grade history teacher to know about the A* pathfinding algorithm\(^7\) that enables units to move smartly around computer maps, for instance, though it’s not unheard of). Those who are pushing for games in education might (ironically enough) use (abstract) games as an ideal teaching tool in these cases: by familiarizing teachers with the design *concepts* underlying more complex games – through training sessions focused on the design of *mechanics* and *interaction* – they could be made to feel both more comfortable with games and more in control of the ways that games can structure classroom activities and student/player actions. Much as *SimCity* encourages players to ‘think like a system’, it’s easy to imagine a game that encourages players to ‘think like a designer’. Indeed, Nomic is one of these games; its abstraction (as I’ve briefly mentioned) encourages an expansiveness and thoroughness on the part of players, and what more could be asked of curricular designers and school rulemakers?

\(^7\) [www.gamasutra.com/features/19970801/pathfinding.htm](http://www.gamasutra.com/features/19970801/pathfinding.htm) offers a good introduction to the subject of pathfinding and search.
So I’ve written a paper, and (semiseriously) called it a toolbox; as such, I bear a
certain responsibility to the reader to provide something useful at the turning of the last
page. I hope that the analytic framework presented (in roundabout fashion) in this paper
is such a thing; its completeness or correctness is of less importance than its utility, its
suggestiveness. A critical method isn’t an algorithm, after all. These final paragraphs are
intended as a parting shot, then: the bullet-points version of the foregoing.

Games differ from books and films in the degree of agency they grant the player,
but games clearly inherit numerous formal features and narrative conventions from those
older media forms. Games also allow kinds of player interaction that no other media form
can offer. As such, a description of the meanings of games must take into account both
the unique properties of games and those derived from its cousin media. There is no place
for a kind of video game New Criticism, as so much of the course of a game is decided
by the player; a typology of games, or a theory of the role of games in culture, must be
sensitive to the particular imaginative activities of those players.

Game studies should be interested, I think, in what it is that games get us to do,
and how games get us to think. If we are indeed characters in a game’s story or world
(one popular way of looking at gaming and reading), our own actions – both physically
and within the game’s individual language – should be an object of critical inquiry. But
we should also pay close attention to the formal features of games, the narrative and
interface and cultural elements that are to video games what rhyme schemes and metrical
patterns and metaphor are to poetry. As such, a framework linking those formal features

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6 We teach Marx in literature classes, so this request for amnesty is not unprecedented.
to the imaginative activities of players can give a satisfyingly complex field within which to place ‘genre’ and ‘story’, and will hopefully be suggestive enough to link up to other disciplinary vocabularies and interests. I’ve identified a few ‘generative logics’ in this essay, which I think of as the imaginative engines powering particular kinds of game experiences; future work will describe others, or replace the logics I’ve described here, I’ve no doubt. And that work will contribute to the ongoing metagoals of humanistic scholarship: to catalogue and describe human nature, to map the imagination, to connect our many pasts in order to change our future.

In a few short years the contemporary video game will quite possibly be the model for the basic kind of public entertainment in western culture – a distinction held by the cinema during the first half of the 20th century, and the television after WWII. Until that time, I believe that critical scholarship on games can help discover new ways to integrate these extraordinary technologies into contemporary society, and pave the way for new social and cultural forms, informed by what scholars and artists have crafted before. Knowing the logics by which texts shape our imaginations, we might prepare for those texts yet to come; mapping the Imaginary in all its forms, we might yet give birth to forms unknown.
Annotated Bibliography

The list of works that has informed this essay contains much more than just the sources cited in the text. I have included brief notes with some of the entries below, explaining their contributions to the foregoing. If my interpretations of these authors are occasionally indelicate in their reappropriation of terminology, I point to the deliberately interdisciplinary nature of my inquiry by way of explanation.

[A literary-critical text, essentially, that’s become something of a manifesto for ludologists. Weird how that works.]

[Takes a whole book to make a beautiful, indispensable single-paragraph point.]

Bordwell, David. ‘The Case for Cognitivism.’
www.geocities.com/David_Bordwell/caseforcog1.htm..
[I confess to getting little from cognitive theories of textual consumption, but Bordwell is such an engaging writer that this essay is still appealing. His bibliography is useful for identifying ‘initiatory’ texts in the broad promise(s) of cognitive science.]

[Some good writing on narrative, possible worlds, and learning in here. The original focus of this thesis was more education-centric, and this was a book I turned to early when thinking about imaginative world-projections.]

[A useful starting point.]

[Though not mentioned in the essay, this astounding novel proceeds according to a multifarious logic that’s both narrative and systemic, and points up the limitations and advantages of both kinds of fiction. Scary as hell too.]

[A breathless account of living in LambdaMOO. Dibbell is not well liked on Lambda, in part because his ‘Rape in Cyberspace’ article, which serves as this book’s first chapter, opened the floodgates to a mass of new users on the MOO, but this book is deadly in its insights into what makes the MOO go. Heavy on the hyperbole, though.]
[DiSessa is all over this thesis. His writing about education is fresh and intuitive, and his concept of ‘committed learning’ is an empowering one to me as a young teacher. His concept of ‘generativity’ has been pulled (hopefully not too violently) from a particular context and taken off in new directions here, but my usage should be in keeping with the spirit of his argument.]

[Possible worlds literary theory proved to be of secondary importance for this paper, but it was a starting point.]

[Fish chronicles his move from classical literary criticism to a radically reader-centered theory in this book of essays; useful for its insights into the social mediation of meaning, and the implied ‘consensus’ model of cultures (in his case tiny critical audiences, but the model holds up in larger groups, as David Thorburn has shown).]

[Frasca’s website is a useful resource for game theorists; he is at his best when the theory is high-flying, as (for better or worse) are many writers on digital media.]

[An oft-cited article drawing parallels between travel narratives and the spatial-exploration aspects of games.]

[A narrative about Systems, as difficult as *Gravity’s Rainbow* but without Pynchon’s weird romanticism. Like *House of Leaves*, it moves fast but according to an intricate logic. Possibly the coldest Great Novel.]

Gee, James. *What Video Games Have to Teach Us About Learning and Literacy*. Unpublished manuscript.
[This book is aimed at a popular audience, but draws on some progressive notions about learning and memory – particularly learning as a socially situated act. Of a piece with DiSessa’s book, in my mind. Analysis of individual games is brief and at times simplistic, but excitingly accurate.]

[The notion of ‘thick description’ comes from Geertz; I imagine an analysis of video gameplay as precisely that. His famous cockfight essay, ‘Deep Play’, implies but does not deeply explore a complex idea of games themselves.]

[A philosophical source for Iser and the possible worlds theorists. The early chapters are useful for Goodman’s views of how fictions gel into Truths.]

[A System for storytelling, evolved from tabletop miniatures wargaming. And a limitless resource for those interested in how games hang together. The new revisions, by Wizards of the Coast, are quite clean; Advanced Dungeons and Dragons was a monstrosity, built piecemeal over years of additions. There’s probably a dissertation or two in the design of this game, and several more in the culture surrounding it.]

[The idea of a ‘manufactured consent’ is a rich one, even beyond the political point that Chomsky wants to make, about which there is nothing to say here.]

[Holland’s empirical studies of readers are a unique line of experimentation, and an untapped resource. As I said in the essay, we will certainly need a Norman Holland of games before long, methodology-wise if nothing else.]

[An attempt to sum up some of the ideas behind Games to Teach, as well as a proposal to take game design more seriously as an intellectual enterprise. The paper is not as tightly integrated as it might have been, but there are some real insights mixed in.]

[A meditation on the nature of the reading process, a kind of study that Iser calls ‘literary anthropology’. The final chapter is called ‘Text, Play, and Games’, and uses Caillouis and Huizinga as a starting point for an analysis of the nature of the reader/text ‘game’. Though I relied heavily on Iser in early versions of this essay, I all but abandoned him in the final draft in favour of more explicitly game-centered texts.]

[A collection of essays and dialogues. Particularly interesting is Iser’s conversation with Norman Holland, whose 5 Readers Reading was another influence on this paper.]
[Kolson wrote an insightful early paper on *SimCity* from an urban studies standpoint, which saw print right around the release of the sequel, *SimCity 2000.* This book also treats that game at length, in the context of a larger study of urban planning and design. The paper shows an intuitive grasp of the system working within *SimCity*, though Kolson claims he’s no gamer.]

[An interesting if fluffy book on sensory integration dysfunction in children. Leads directly into an argument for games in the classroom, but doesn’t talk about them, more’s the pity.]

Kücklich, Julian. ‘Perspectives of Computer Game Philology.’
www.gamesstudies.org/0301/kucklich/.
[Kücklich pushes for a ‘computer game philology’, porting concepts from literary criticism to game studies, advocating for a new model of player/text interaction that’s neither strictly ‘ludological’ nor ‘narrativist’.]

[Dashes of poststructuralism with a digital bent. A needed reference point, but attempts to retrofit literary theory and criticism for use on games often come out unwieldy – see Murray for another example.]

[Manovich’s interest in ‘avant-garde’ cinema and digital art are alienating to me, I confess. His talk of *screens* is interesting, but at times his descriptions of ‘new frontiers’ in digital art are laughable. Still, an important recent attempt at a poetics of new media, one of many, I’m afraid. And his discussion of ‘database logic’ ties into my ‘systemic logic’ thinking, though we have very different interests in the topic.]

[An early and much-acclaimed book on digital storytelling. Her particular disciplinary bias is clear from the point in the opening chapter where she declares that *War and Peace* holds the sum of human knowledge. Dismissive of popular ‘low’ games, smart on the features of digital texts in general, and like everyone else, she goes on about Eliza for a while.]

[Another book that contributed early but was later abandoned for more game-centric writing, which I mean as no disrespect to Dr. Pavel.]

[Reads like an ad, though his outlook on learning is smart. Prensky gave us the handy turn of phrase ‘twitch speed’, though, for which pundits give thanks.]

Pynchon, Thomas. *Gravity’s Rainbow.*
[A text altogether too laborious for me to recommend it as secondary reading simply to illustrate a point. But it is one of the best examples of a ‘systems narrative’ that I know of.]

Ryan, Marie-Laure. ‘Beyond Myth and Metaphor.’ *gamestudies.org/0101/ryan.*
[Not an article about games, really, so much as about narrative. But an interesting typology at the interface between literary-theoretic and game-theoretic inquiry. Eventually we’ll stop talking about Propp, but not for a while, it seems.]

[Important to note: this is not *Virtual Reality as Narrative.* Ryan is a narratologist in the classical sense of the word. But her book provides powerful examples of how to bend and reapply metaphors as one moves across disciplines. And she’s quite rigorous in her treatment of various narrative forms.]

[File with Pavel.]

[Schank semifamously said it was more important to learn HTML than French; this book isn’t convincing to me, in part because he seems so deliberately contrarian. The idea of narrative memory is what (for me) hooked up generative logics, Iser’s imaginary, and narrativist outlooks on games, though.]

[An article going well beyond the Fuller/Jenkins argument about spatial exploration, concentrating on games as an aesthetic medium.]

[Authoritative and generous, this is a study of play theories as well as of play itself. The last chapter contains Sutton-Smith’s theory of what play is really for, and it’s provocative and feels convincing. Ties in neatly to arguments about the learning potential of games, as well, but without sticking to hoary pedagogical terminology.]

[A narrative written to justify and explain a (linguistic) System.]

[Dated now, but this book contains plenty of insight into the significance of online identity play.]

[This work of philosophy concerns itself, in part, with the nature of scientific inquiry, and the processes of cognition that shape that inquiry. Citations of it pop up in the strangest places. A major source for Iser’s *F+I*, with real resonances for the Games to Teach project.]

[Zimmerman designs fascinating, simple games like *Sissyfight*, which are a good fit with the games-as-theory outlook of Games to Teach. The case studies will be worth the cover price on their own.]
Annotated Ludography

There is no set standard for citing games of which I’m aware; I’ve given publisher information and release dates, as well as URL’s where possible and appropriate. Hopefully the brief descriptions will orient nongamers; I’ve not cited any games that would be new to serious gamers over the age of 15, with the possible exception of Zork, which (regrettably) seems to be fading into the mists.

[A genuine revolution: Warren Spector’s Deus Ex is as viscerally exciting as a shooter, as nervewracking and sneaky as Thief, as cinematic as Halo – and centers on a cool X-Files knockoff plot, to boot. This game is set in a fully realized world rather than a series of locations for shootouts; it is a testament to the game designers’ philosophy of openness and interactivity that Deus Ex works nearly as well as a balls-out shooter as it does as a sneaker.]

[The original Diablo was a sensation: a roleplaying game that had plenty of action, creepy settings and effects, and surprisingly good graphics. This sequel is better in every category, but at day’s end it’s little more than a hack-and-slash dungeon crawl done reasonably well. Its online component is slightly more interesting, in that it adds a different scale of gameplay (you really only play through the single-player game once, but in multiplayer it’s much more exciting to move between worlds and repeat adventures at ever-increasing speeds). The imbalance of high-level play would make for an interesting game design case study. And I’d be lying if I claimed never to have been addicted to Diablo, so the wizards at Blizzard must have done something right.]

Everquest. 989 Studios, 1999.
[a.k.a. ‘EverCrack’, one of the most popular (and ‘addictive’) online roleplaying games. Essentially a graphical MUD with many fewer built-in verbs and a much broader fanbase than MUD’s have typically enjoyed, EverQuest has been the subject of economic and sociological analysis from the academy – as well as somewhat more savage criticism from gamers. It is probably most interesting, now, for the ways that its gameworld have interfaced with the comparatively real world of eBay and today’s offices (where it is a notorious productivity leech).]

[Unanimous winner of numerous ‘Game of the Year’ awards from the video game press and industry, GTAIII is often cited as a ‘great leap forward’ for video games. It is essentially a blend between shooter, racer, and cinematic adventure gameplay, with an emphasis on sordid violence and mob-movie clichés. The world of the game is expansive and attractively rendered, but it follows a somewhat token approach to interactivity. The sequel, Vice City, offers more of everything that made the first game popular (violence, sex, open-ended side]
missions, and a tremendous number of cars and motorbikes to drive). Both games have come under fire for their nihilism; in this case, the usually silly reactionary critics may well have a point.]

[The game that made Deus Ex possible. And its forthcoming sequel will make Deus Ex, and most likely 99% of all contemporary shooters, irrelevant.]

[Others disagree, but I call this a near-flawless shooter, the best yet. Picked as the ‘killer app’ for Microsoft’s money-hemorrhaging X-Box, this game is good enough for the role, but is more of a refinement of the genre than a revolution in gaming.]

[A fascinating experiment by an animation studio to make an old school puzzle game that pushes the boundaries of contemporary game animation. The result: an elegant castle-exploration puzzle game that is possibly the most ‘cinematic’ game yet. Though the puzzles themselves are sometimes simplistic (put item A in slot B to open door C), they work organically in the context of the game – the end result of Ico is both real character identification and an overpowering sense of the gameworld’s fullness.]

[Zelda is to adventure games what Mario Bros. is to platformers; they share a designer and a cartoonish aesthetic (as well as an audience). The mythology of the Zelda games – the title refers to the damsel in distress – has grown with each sequel, which can’t really be said of Mario, but the lead character, a young boy named Link, is slightly less recognizable than the mustachioed plumber and his sibling, Luigi. And the Zelda games have evolved along similar lines to the Mario series; the latest sequel, The Windwaker, is sumptuous and engaging.]

[A massively popular game in Korea, somewhat less so in the U.S., Lineage is another online RPG set in a medieval-Europe-derived fantasy world, but with a unique system of clan fealty. The government of South Korea took steps to ban Lineage from public Internet cafes, which should give some measure of its popularity and the seriousness with which players treat the gameworld; nonetheless, the gameplay itself is nothing to speak of, though the narrative constraints within the game are somewhat interesting.]

[It’s not possible to talk about roleplaying games without talking about this, an anomaly in a field full of anomalies: an open-source game project that gets simultaneously tighter and more expansive with each release. After more than a
decade of Internet-wide development, Nethack is the deepest game ever (though its antecedents have more levels, none has more depth and variety of gameplay). Now on version 3.4.x, Nethack is one of the few games that people still play, continuously, for years on end without finishing.]

_Pac-Man._ Coleco, 1980.
[Another milestone game: the board is a maze filled with edible dots, some of which grant superpowers; the player’s (Pac-Man’s) job is to eat before the four unfriendly ghosts – Inky, Binky, Pinky, and Clyde – eat him. The original arcade sensation was completely deterministic, but no matter: Pac-Man was one of the original game characters, and the simple gameplay was completely viscerally exciting. Still addicting.]

[Another classic simulation, from designer Sid Meier. Based loosely on Avalon Hill’s classic diceless board game, Civilization takes as its subject matter the history of the world, from cavemen to spacemen. It amounts to a resource-management simulation by the end, but its epic sweep and inner historical narratives make it a beloved classic. Civ2 is considered one of the finest video games yet made; Civ3 is a retooled version that attempts interesting things with the concept of ‘culture’ as a commodity. Kurt Squire has done an interesting dissertation on teaching history with the latter game, showing both the limitations and the promise of such a tool.]

[The original SimCity was a fun, relatively simplistic urban planning simulation with a cartoon aesthetic; its sequels are massively popular and expand the complexity of the underlying city simulation without sacrificing the original’s playability. The Sim family of games has since grown to include farm, evolution, and theme park simulations, among others, with varying degrees of success. The look of SimCity has been adopted, as well, by many simulation games.]

[The archetypal ‘platformer’, in which an Italian plumber named Mario jumps over obstacles and onto evildoers in his quest to retrieve Princess Toadstool from the nefarious Bowser von Koopa. Like so many other games, Mario Bros. is essentially a hand-eye coordination challenge, though it allows for more deliberate gameplay than its most well known imitator, Sega’s Sonic the Hedgehog (which privileged breakneck speed above all). Its myriad sequels have constantly pushed the boundaries of standard platformer gameplay; the 64-bit versions are considered some of the finest video games ever made.]

[Falling blocks must be maneuvered into completed rows as they fall, which frees up space for more blocks to fall. That’s the premise of this most addicting of puzzle games, which moves at twitch speed but somehow seems more ‘thought-
provoking’ than something like *Doom* or *Quake*. Countless clones (like the more topologically complex *Hextris*) have made this a ubiquitous time-waster in offices and dorm rooms all over the world. And: it’s a Soviet game!]

[Infamous for the bustiness and wardrobe of the lead character, the *Tomb Raider* games feature a neoprene-clad female Indiana Jones. Their interface – an over-the-shoulder variant of the standard FPS look – has greatly influenced adventure gaming, in that it offers a more ‘movielike’ framing than a view through the character’s eyes. The protagonist, Lara Croft, has become a bit of an icon in gamer/digital culture.]

[Another graphical MUD, based on the famous *Ultima* roleplaying saga. This game made it possible (though not really fashionable) to play a mere tradesman; its economy is the subject of a couple of well-known scholarly studies, which went a long way to legitimizing future work on games.]

[Infocom was an MIT startup in the 1970’s; *Zork* was a version of Crowther and Woods’ *Adventure* game, which was essentially a single-player MUD with puzzles galore, set in a fantasy version of a real system of caverns. *Zork*’s greatest achievement was its voice: the writing evoked both the gleefully clever comedy of a fantasy game, and the curious melancholy of the fallen world in which it was set – the Great Underground Empire. The five original *Zork* text adventures are still among the most engaging games yet made, though their all-text aesthetic seems jarring to those who only know the cinematic representational scheme of *GTAIII*. This is the source of the occasional reference to ‘a maze of twisty passages, all alike,’ and the enigmatic field west of a white house.]