Wargaming and Computer Games: Fun with the Future

Patrick Crogan
Bachelor of Media Program
University of Adelaide
Adelaide SA 5005 Australia
+61 8 83 03 56 20
patrick.crogan@adelaide.edu.au

ABSTRACT
This essay explores aspects of the history of wargaming in order to develop fresh perspectives on the analysis of contemporary computer games. Wargaming is considered in relation to the ludological approach to games studies with a view to developing an understanding of the marginality of narrative content in games that ludology takes as its point of departure. Wargaming is interpreted as a forerunner of contemporary modelling and simulation practices. It is associated with the modern project of programming the future by the rational means of mathematically-based measurement and projection. The influence of wargaming on contemporary computer gaming is discussed and the appeal of computer games is explored in terms of a modulation of this modern project.

Keywords
War, wargaming, model, simulation, program.

INTRODUCTION

By way of situating my interest in the history of wargaming for a consideration of computer games today, let me orient my discussion by means of two observations. Firstly, Espen Aarseth has identified a general trend in contemporary computer games toward increased content and "texture":

> Computer simulations have taken games in a whole new direction where you have more content in the games. This is not necessarily always the case but it seems to be the general trend in the digital games we get now. They are more filled with texture of all kinds – maps, world events, world music, all sorts of cultural inputs [1].

This general observation made by a leading games theorist aligned with the "ludological" approach to games studies poses something of a question about how to address this "texture" from the ludology persective. The question is made clear when one considers Markku Eskelinen's essay in the first issue of *Game Studies*, "The Gaming Situation". In that essay Eskelinen articulates the "ludology" position against consideration of any such elements in a genuinely game-centred approach to computer games [5]. Aspects of a game such as its narrative scenario, fictional setting and so forth that are employed in creating the game's goals and rationalizing gameplay are not worth examining from the point of view of this ludological project. The focus must be

on the functional dimension of the game design and play, that is, on the features that distinguish it from other media forms such as films or conventional literature. Eskelinen states that "in this scenario stories are just uninteresting ornaments or gift-wrappings to games, and laying any emphasis on studying these kinds of marketing tools is just a waste of time and energy" (7).

Eskelinen's provocative and rather extreme articulation of the ludology perspective has attracted considerable comment and counter propositions, including from myself [3, 9]. Aside from the productive insights into games provided by Eskelinen in following the ludological approach in his essay, game studies owes a debt of gratitude to him for generating further important debate on the nature of the object of study for this emerging field of theoretical work. My consideration of wargaming's relation to mainstream computer gaming takes a position in this debate, but not one in simple opposition to the ludological stance. Rather, I propose to pursue a line of inquiry that accepts in broad terms the ludological approach. If game play structures, functions and mechanisms are what matter most in analysing computer games, however, this situation has not emerged out of nowhere. I argue that it is critical for game studies to interrogate the nature and significance of this situation to avoid a positivist, uncritical stance on the novelty of computer-mediated interactivity in general and computer games in particular. As with the analysis of other contemporary forms of entertainment, historical and contextual factors—including other media forms—are relevant to this interrogation. The task would be to understand an important but curious characteristic of many (but not all) kinds of computer games, namely, their adoption of traditional media elements such as narrative, theme, character, the representation of fictional worlds in a way that makes them necessary but secondary to the essential elements of game design and play. Consequently, the "texture" and "cultural inputs" employed in digital games are worthwhile objects of consideration for this task. This is so in spite of or even because they play a different, less central role in games than in other media forms such as films, television programs and literature. Their altered role in computer games can tell us important things about the ludological nature of computer games.

I would add to this claim a further one, namely, that the very marginalising of these contextual thematics is itself a significant indicator of a broad cultural trajectory that games, rather than films or similar media forms, are able to indicate and exemplify. This trajectory is that of the inscription of cultural themes, topics and issues in simulation models whose heritage is drawn in no small part from the military-industrial assumption of the technological agenda from the Cold War onwards. Wargaming had an important part to play in that assumption and its legacy is discernible in many genres of contemporary computer games, and not only those directly drawn from wargaming precedents. Electronic computing and its progeny, the "information age," can be thought of in terms of this trajectory outwards from military research on computer modelling, strategic gaming and simulation.

Wargaming, Modelling and Programming

To restate this claim, I am concerned with the difference between a programmatic and reflective relationship to "cultural inputs" and "texture". That is to say, the modelling of a situation to explore its parameters and methods for controlling it interactively describes a computer game's response to cultural themes or content in contrast to a filmic one that is based on a narrative procedure of retrospective configuration of events-elements, a procedure that serves an interpretative function. This is quite an abstract and

schematic description of the difference between computer games and films, or rather film narratives.[1] It is meant to isolate the most fundamental difference between the two forms at a very general level of operation and cultural meaning, namely, the difference between their operational orientation to time. Whatever else they are doing, computer games provide a future-directed modelling of a scenario aimed at an eventual solution to the games challenges, while narrative films relate a fictional sequence of past events for contemplation and interpretation of their significance. It is at this level of temporal engagement of the gamer that I want to consider the significance of the tradition of wargaming for an understanding of computer gaming.

While the use of games in the study and preparation of war has a recordable history stretching back a very long way, the modern tradition of wargaming as a recognized component of military training and planning has its origins in the Prussian "Kriegsspiel" practices of the early 1800s. From there it gained popularity with military classes across Europe and subsequently in the United States of America and elsewhere. As Andrew Wilson has pointed out in *The Bomb and the Computer: Wargaming from Ancient Chinese Mapboard to Atomic Computer*, modern wargaming needs to be thought of in terms of the rational project of the Enlightenment that is associated with the major philosophical, political and economic transformations affecting Western European societies from this same period [12]. Wilson describes the increase in wargaming activity that ultimately led to its adoption by the Prussian military apparatus, citing the "belief that war was an exact science" and the "quest for 'true principles' to guide its conduct":

In 1780 Helwig, Master of Pages to the Duke of Brunswick, devised a game that for the first time used single pieces to represent whole military units rather than individual soldiers. Five kinds of terrain were represented and could be used to build up a battlefield divided into 1,666 squares. The various arms were given different movement rates, and provision made for an independent "director" to apply the game rules. The forces on each side included no less than

60 battalions of Grenadiers
25 battalions of Pontoniers
8 squadrons of Dragoons
10 squadrons of Hussars
10 batteries of Field Artillery
3 batteries of Siege Artillery
2 batteries of Mortars (3)

Games such as this, played on a flat table with squares or on a plaster relief model representing different terrain types or a map with diagrammatic indications of terrain, were the forerunners of Lieutenant von Reisswitz's wargame which in 1824 so impressed the Prussian Chief of Staff, General Karl von Müffling, that he recommended

[1] It should be noted that not all films are narratives, and even narrative films do not only operate as narratives. For instance, war films and other film genres function to provide spectacles of special effects that suspend narration and can relegate narrative operation to a secondary role.

its adoption as part of the military academy's training and research curriculum. Reisswitz' game was turn-based and had complex rules which set out procedures for determining the outcome of individual conflicts between pieces in different circumstances such as relative unit strenghts, terrain occupied, and so forth. Conflicts between pieces were arbitrated by an umpire who applied the rules. This often meant the rolling of different kinds of dice to introduce an element of chance into deciding the outcome of a battle. For example, "if Blue, with 200 men, attacked Red, with 100 men, Blue's chances were taken as two to one and a die selected with four blue faces and two red" (5). After the outcome was decided, loss tables were used to calculate how many men were put out of action on each side.

Here at the outset of modern wargaming are the principal features that Wilson rightly identifies with the worldview of the "Age of Reason", features which remain discernible in the more recent computer-based evolution and intensification of wargaming practices in both military and commercial contexts. The representational features of the wargame—such as the individual pieces standing in for whole military units, the scaled reduction of physical space to the dimensions of the game board or miniature terrain-analog, the formulas for calculating conflict outcomes and losses, the representation of uncertainty and unanticipated factors by means of dice throws—all these served the purpose of what subsequently became known as "modelling" in the service of simulation. The ludologist Gonzalo Frasca defines simulation as follows:

Simulation is the act of modeling a system A by a less complex system B, which retains some of A's original behaviour. [6]

Frasca argues that a key difference between traditional representational forms (such as narrative representation of events in time) and a simulation is that representation typically operates from the "bottom up", that is, from the specific case or situation general reflections are drawn. In the case of representation in the service of simulation, however, a "top down" process is in play in which the more general features of a system are modelled and various specific situations can be deduced or examined in an experimental fashion. This projective or experimental characteristic of simulation is crucial to its appeal to modern military thinkers since Müffling. It is what is at the heart of wargaming's modernity, namely its potential to offer a rational basis for predicting and therefore controlling the future. The model reduces the complexity of the original situation—in this case actual military conflict, and later the wider context of strategic-political interactions—so that mathematical and statistical calculation can be employed both to determine the outcome of individual wargames and to compare and collate the results from different wargames. These comparisons suggest the "true principles" of warfare with potential applicability to future conflicts in the real world of "system A".

Leaving aside a critique of the assumptions informing the simplification of "system A" (real war) into "system B" (wargaming model), a critique which would need to refer to many authors—including Carl von Clausewitz, Martin Shubik and Manual De Landa—it is most important here to identify what makes wargaming so characteristic of the modern age. Wargames evince the privileging of rational means for conceiving the world and humanity's involvement in that world. Bernard Stiegler cites Heidegger's work on the modern age of technology as one of the most acute analyses of this

tendency to seek a measurable determination of the future implicit in the "ratio" of rationality. He summarises Heidegger's analysis of the modern age of "calculation" in this fashion:

> The possibility of refusing the horizon of authentic possibility [namely, the horizon of one's own death and mortality], takes root in "concern" (*Besorgen*), a relation to the future which conceals in the future the opening of all authentic possibility. Concern is constituted by a mode of anticipation which, as foresight, essentially aims to determine possibility, that is, the undetermined. The support of all concern is "equipment" (*das Zeug*), itself the support of the system of references that constructs the significance of the world; and the horizon of anticipation, the originary structure of all worldliness, is the *technical* world—the technicity of the world is what reveals the world "firstly" and most frequently in its *facticity*. Facticity, understood as what makes possible the attempt to determine the indeterminate (to take flight from "the most extreme possibility"), forms the existential root of *calculation*. [11, p. 6]

This is a telling, if challenging summary of the "concern" motivating the development of technology in the context of our discussion. For Heidegger, in Stiegler's view, the modern impulse to anticipate the future both comes from and is supported by the equipment of the "technical world" which we inhabit and whose meaning is derived from "the system of references" it constructs. This anticipation is expressed in the effort (and hence the belief in the ability) to "determine the indeterminate", that is, to know the future so as to secure oneself from the impact of unknown eventuality. The world as facticity, that is, as what is given to the human as already there, seems to promise this possibility that the possible future can be known in advance. Calculation is rooted in this promise of the technical world, a promise that for Heidegger is in truth an escape from the encounter with the "most extreme possibility" of the future, namely one's inevitable but undetermined death.

In relation to wargaming as a phenomenon of the "Age of Reason", this reading of the essential metaphysical ground of modernity takes on the appearance of an account of the legitimacy of wargaming. Adopted as a method of training for military officers, wargaming contributes a new technique to the equipment available to improve the conduct of war, that most unpredictable and potentially lethal future possibility. The rules and mathematical formulas which frame and enable gameplay are derived from the "facticity" of former conflicts and experiences. The routine playing of the game to develop skills and research general principles for successful military strategy and tactics represents a programmatic employment of wargaming. Indeed, wargaming could be thought of as an archetype of the modern conception of the program, that is, an organisation of the exterior world (including the future as an outside) by rational, mathematical means. The pro-gram projects what is already known and recorded—in the form of technique, tool and more complex technical systems—forward as a means of solving the challenges met in the world in the passage of time. The wargaming program anticipates the "invention" of simulation as a process of modelling which rests on the assumption that complex external reality can be conceived as a system with definable borders, interacting elements and behaviours. A simulation's reduction of "system A" to arrive at "system B" is premised on the pro-gramming—"staking-out" in advance as Stiegler says—of the exterior milieu as a system as such [11, p. 196]. For Stiegler, technology is bound up with this programmatic orientation to the future.

What then of wargaming in the recent era in which computer programming and simulation become dominant features of the human encounter with existence? In this era (which is our era) the computer, understood as "Turing's machine" able to simulate other machines by means of mathematical programming languages that enable what Stiegler calls the "largest possible indetermination in the functioning of machines", formalises and generalises the modeling principles of wargaming [11, p.80]. In *The Bomb and the Computer* Wilson relates part of the long and detailed history of the dissemination of wargaming and its influence on various military conflicts. In the 1940s and 1950s, along with its fellow travellers in the new techno-scientific disciplines of Operations Research, Systems Analysis, computer-assisted code-breaking and Cybernetics, wargaming updated and intensified the "quest for 'true principles'" to guide the conduct of war in its tactical, strategic and logistical dimensions [8]. Wargaming (more often known as simulation or modelling exercises) was (and is) conducted across all branches of the U.S.A's armed services, the U.S. Department of Defense, the Chief of Staff office, and by numerous government-supported "think tanks" and research centres. On the one hand this proliferation of wargaming has been accompanied by considerable questioning of its capacity to predict future possibilities with any certainty—in particular at the level of strategic and strategic-political simulation [12, p. 116-120, 2, p. 108]. On the other hand this has not impacted significantly on the level of use of simulation and gaming across the military sphere.

The tradition of amateur, hobby and commercial wargaming has also played a not insignificant part in both the development of military wargaming and its dissemination into non-military culture—if such a term continues to make sense today. What has recently been termed the "military-entertainment complex"—an increased interchange of personnel and software between the U.S. military organisations and defense firms and the commercial gaming and simulation industries—is only a further spiral in a relationship that has developed since the 1940s and before [7]. Wargaming plays a major role in this relationship. The influence of "hobby" wargaming on both the military and commercial computer games sectors is one of the most obvious indicators of this. For instance, Sid Meier, developer of the "god game" series, *Civilization*, had a background in hobby wargaming and had worked for a "Baltimore-based defense contractor" prior to entering the commercial games industry. His early games for Microprose included several combat flight simulators (*Hellcat Ace*, *F-15 Strike Eagle*), wargames (*Conflict in Vietnam*, *Crusade in Europe*) and a strategy/action combination game based on a submarine simulation (*Silent Service*) [4, p. 186 - 190]. His preparation for work in commercial gaming is typical of many other designers and developers, many of whom move or have moved between military and non-military employers.

Beyond the direct influence military and defense organisations have had on commercial gaming via the traffic of personnel between the two regimes of simulation programming, it is important to keep in mind the pervasive influence the military-industrial complex has had on the development of computer programming. In the area of wargaming applications the influence of Trevor Dupuy's "Quantified Judgment Model" (QJM) is perhaps the clearest indication of this more general level of influence. Developed by a career soldier with enormous influence in military wargaming, Allen describes the QJM as follows:

His [Dupuy's] Quantified Judgment Model is known throughout the world of gaming as the QJM. Both professional and amateur war gamers use the QJM, or adaptations of it. The QJM encompasses all of what gamers call the gaming community: the military establishment, which uses games in the Pentagon and the war colleges and for other types of training; academe, which uses political-military games in international studies; commercial companies that sell board and computer games to the public; and defense firms that use games to develop and sell weapons systems. [2, p. 68]

The QJM is Dupuy's version of the rules and tables governing the interactions of different units and different weapons systems in different circumstances (including unit strength, "lethality index" of weapons, level of training/morale, terrain occupied, defensive or aggressive posture, and so forth). It was promoted by Dupuy as an improved, more reliable basis for modelling conflict than the "simulated facts" of nuclear wargaming that some military wargaming critics argued were pervading military simulation practices [2, p. 60]. The QJM was successfully promoted as an improvement in the modelling of war by means of a curtailment of speculative calculation in favor of historically-grounded algorithms for conflict simulation and loss estimation.

Allen was writing in the 1980s prior to the 1990s explosion of the pc-based computer gaming industry. The influence of the QJM and similar "packages" for modelling conflict across the existing gaming community is reflected today across the range of conflict-based game genres. It is most obvious in "classic" turn-based battle games such as the *Panzer General* series (Strategic Simulations Inc., 1992-2000), originally designed by another board game wargamer, Joel Billings. Here, play takes place on a map covered with a grid of hexagonal shapes. The "hex" grid is a hobbyist innovation (subsequently adopted in some forms of military wargaming) on the traditional square-shaped grid and allows for an improved interaction between multiple units [2, p. 96]. Movement rates and the algorithms for calculating the results of conflicts are drawn from the QJM example.

The most recent iteration of the *Panzer General* series, *Panzer General 3D* (2000) retains a turn-based, hex grid map for gameplay, albeit with improved 3D graphics of military units and conflicts. The major evolution in strategic wargaming has been the shift to real-time stategy gaming, exemplified in Westwood's *Command & Conquer* series from 1995. *ShÛgun: Total War* (Dreamtime Interactive, 2000) combines a real-time battle mode with a turn-based campaign mode incorporating strategic and logistical activities (such as forming alliances, and building and training military units). Once a conflict is produced from this turn-based activity the player has the option of shifting to the real-time interface to fight it out or allowing the computer to simulate the conflict and automatically generate an outcome. Modelling at two levels, that of strategic/resource management similar to a "god game" and tactical simulation in real-time, is combined in the game. Conflict simulation continues to be based on an analog of the QJM calculus in which unit arms, strength, fatigue and morale play a part in deciding the outcome, while the longer duration modelling of strategic and logistical dynamics follow *Civilization* in reiterating strategic-political simulation practices. The origin of computerized modelling of strategy at this level is the Rand Corporation's "Social Science" and "Economics" divisions, established togeter in 1948[8, p. 68].

This generic cross-fertilization in real-time strategy exemplified by *ShÙgun: Total War* is in keeping with the wider development dynamics of computer game genres in a commercial milieu. The history of Strategic Simulations Incorporated (SSI) illustrates the process of dissemination of military wargaming principles across a wider field of game genres. From concentrating on war-based simulation gaming such as *Computer Bismarck* (1980), *Guadalcanal* (1982) and *Kampgfruppe* (1985), SSI moved onto god game simulations (*Rails West*, 1987) and role play and fantasy adventure in games such as *Questron* (1984) and (in partnership with Electronic Arts) *Advanced Dungeons and Dragons: Pool of Radiance* (1988) [4, p. 158-162]. The modelling of system dynamics drawn from the practices of wargaming (among other fields to be sure) inform all of these programmings of the Turing machine.

Entertaining the Illusion of Control

Returning to our opening problematic concerning the ludological position on the marginality of "texture" or representational content to the essence of games as games, this dissemination of the wargaming modelling principles across a wider field of computer gaming could be understood as indicative of that position. In this view, as a model of gaming, wargaming is not essentially tied to war but is applicable to a variety of game types. This would tie in with the claim that war or conflict-based games are not primarily about interpreting historical war, or even war as a cultural or metaphysical theme.[2] Reflection on war would be the "value" or primary function of narrative entertainments dealing with war. Or at least it would be one major aspect of those forms. The depiction of war as spectacular "special effect" is another longstanding function of warfilms, something which arguably is held in common with the audio-visual representation of war in computer games. The deliberate resemblances between *Medal of Honor: Allied Assault* (Electronic Arts, 2002) and *Saving Private Ryan* (Steven Spielberg, 1998) are only the latest instance of this use of war as spectacular "texture" in both games and films.

This appeal to the audio-visual "spectacle" of war is something which is not central to all wargames and, moreover, something which is irrelevant to the consideration of the wargaming influence on the wider field of computer games (even if "spectacle" per se is not irrelevant). What is the wider appeal then, of the engagement with modelling and simulation that derives from the tradition of wargaming? It is playing with the illusion of control, control, that is, of the model's illusion of a more complex system. Citing Ted Freidman's discussion of *Civilization II*, James Newman argues that ultimately one plays a computer game to learn how to "think like a computer" [10, p. 11]. This involves a relationship between player and gameworld "best considered as an experiential whole that synthesises action, location, scenario, and not merely as a bond between subject and object within a world" [10, p. 10]. Mastery of this experiential whole amounts to attaining this "synthesising" perspective in a manner in which the gameworld can be managed to resolve the game challenges. This is something relevant across and indeed beyond wargaming genres to all gaming based on modelling an illusionistically satisfying complex system—whether it is fictional, hypothetical, or historical.

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[2] Some wargamers would disagree with this claim, particularly those who prefer immensely detailed recreations of historical battles.

As a recreational practice and a form of "entertainment", then, computer games exhibit that curious phenomenon of games and other entertainments in that they can be understood as a modulation of absolutely serious practices. "Entertainment"—from the French root word, "entretenir", to hold between or suspend—amounts to a reframing of the serious business of modernity, namely, programming the techno-scientific regulation of the future. Computer games, the entertainment form of the computer age, suspend the onerous task of managing the determination of the indeterminate, with all its attendant anxieties concerning the shortcomings of the programming designed to eradicate the unforeseeable, the contingent and the irreducibly complex. Instead one can play out mastery of the indeterminate through a game of mastery of the model.

This appeal, then is perhaps both to the illusion of control and to an acknowledgment of the illusion as illusion that the computer gaming context authorises in its suspension from the serious mode of information processing. Games play out achieving the imperative to anticipate the future, to attain what Stiegler calls a "synthetic living present" that overcomes the temporal delay of the future and the spatial delay of distance [11, p. 225]. This is what the all the reductions made in the modelling of the more complex "system A" hopes to achieve by bringing it within reach spatially and temporally. But this playing out of a synthesising mastery of the program indicates perhaps that its projected goal can, at best, be played at in a modelled world. It's fun while it lasts.

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