



# Computer Game Criticism: A Method for Computer Game Analysis

Lars Konzack  
Aarhus University  
Multimedia  
8200 Aarhus, Denmark  
+45 8942 5656  
konzack@imv.au.dk

## Abstract

*In this paper, we describe a method to analyse computer games. The analysis method is based on computer games in particular and not some kind of transfer from other field or studies – even though of course it is inspired from other kinds of analysis methods from varying fields of studies. The method is based on seven different layers of the computer game: hardware, program code, functionality, game play, meaning, referentiality, and socio-culture. Each of these layers may be analysed individually, but an entire analysis of any computer game must be analysed from every angle. Thereby we are analysing both technical, aesthetic and socio-cultural perspectives.*

## Keywords

*Computer game, analysis, method, criticism, ludology*

## INTRODUCTION

Presented here is a method of analysis for computer game criticism. By focusing on different layers the aim is to analyse and thereby understand computer games better. The method of analysis is a bottom-up approach and like any method it has its flaws. As the main flaw one can see the losing of perspective by focusing only on fragments of the computer game. Thus, in order to minimise this flaw we should make a general description of the computer game in question before analysis. Thereby we shall be able to



keep our perspective on the game as a whole, trying to be as thorough and objective as possible. This will turn out to be helpful in the later analysis. In order to show how the analysis method should be used, we analyse the computer game *Soul Calibur* by Hajime Nakatani (Namco, 1999) [1]. The method consists of seven layers: hardware, program code, functionality, gameplay, meaning, referentiality and socio-culture.

## DESCRIBING THE GAME

The description should be made from two different perspectives, because a computer game consists of two different levels: a) the virtual space, and b) the playground. These two levels may under special conditions combine, but normally they are kept apart. We find the same conditions in a game of chess. The board and the pieces represent the virtual space with its own intrinsic logic. The board, pieces and the two players situated in the surrounding space are all part of the playground. These two levels of course interact, but still they are in fact kept apart from one another. Like a puzzle picture we are only able to focus on one part at a time. If we focus on the virtual space we will be able to see the aesthetics and make-believe of the computer game, and if we focus on the playground we will be able to observe the culture around computer games. As already mentioned they of course influence each other since they are indeed both sides of the same coin.

Konzack:  
Computer  
Game  
Criticism



### Soul Calibur description

*Soul Calibur* is a 3D fighting game with lots of action and an adventure to tell.<sup>1</sup> The virtual space of *Soul Calibur* consists of characters combatting one another in arena fights using some kind of weapon. Each character has its own story and combat style, fighting in different arenas all over the world (except the Americas). The game is set for a fantasy adventure in the 16th century in which characters struggle against the evil sword Soul Edge. This setting is presented in a tale of sixteen chapters – one chapter for each character to be played. The tale being told is a sequel to the story in the game *Soul Blade*. The playground of the game consists of a television and a Dreamcast game console with two joypads. It is customary to play either alone against the characters in the game, or against one another using the joypad. A player needs a joypad in order to play, and one can interact with the game using the handle and buttons. On the screen each player may see



how well s/he is doing in the game. Players will be dealing with an arcade mode, time attack, survival mode and other combat modes including the mission battle mode in which the players travel the world. Here the player fights under special conditions against the computer, winning points to be used in the art gallery, the reward being lots of *Soul Calibur* artwork. The joypad control is as follows: A button is for a defensive guard stance; B button is for kick attack; while X and Y invoke horizontal and vertical attacks, respectively. These buttons and the handle may be combined into successive attacks, staggering attacks, throws, unblockable moves, soul charges, and lots of other techniques.

## LAYER 1: HARDWARE

At this the lowest layer we find the hardware technology: wires, signals, hardware and components. This tells us about the physical nature of the playground and the computer as tool, medium, or toy. At this layer we have not even defined whether or not the computer is to be used as tool, medium, toy, or a combination of these possibilities. A computer may be used as both tool, medium, and toy since the computer is a very flexible electronic device. Of course if we use the computer using computer games, we are in fact dealing with the computer as a toy (or tool for fun) and as a medium. The computer in question may be very different depending on whether it is a mobile cell phone, home game console, or personal computer wired to the Internet or other network facilities. What can be done depend on the physical capabilities of the computer. This however does not tell much about what kind of games we have at hand.

### Soul Calibur hardware

The hardware needed to play *Soul Calibur* is a Sega Dreamcast game console (1999) with two joypads, a CD-ROM with the game *Soul Calibur*, and of course the Dreamcast should be plugged to a television set. The Dreamcast console is able to handle more than 10 million polygons per second. I will not go further into the technical side of *Soul Calibur* and the Sega Dreamcast, since I am not an electronics expert. This aspect of the computer game should be analysed in its own right.

## LAYER 2: PROGRAM CODE

Every computer game depends on code. Therefore program code is essential to the understanding of computer games. However this layer may be difficult to analyse since we may not have access to the source code and even if we had – we would not comprehend what is going on since we may not be able to translate the code into anything meaningful. These problems taken into account, the code still gives us a good clue to what the computer does. We are able to follow trails of action, and see what happens in different



iterations. However, even with out access to the code, we are still able to describe and analyse all the other layers of the computer game. Thus it is possible to indirectly understand the code according to other layers of the analysis – especially the functionality layer.

#### Soul Calibur program code

I must admit, I did not have access to the program code of *Soul Calibur*. This is partly because I did not know how to access the code, and partly because I would have very difficult time figuring out how the code worked. In a complete analysis of a computer game every layer of the computer game in question should be analysed, but it is still possible to make an analysis of a computer game with out taking every layer into account. At least we recognize that we are not making a complete analysis of the game. Like for hardware program code may be analysed in its own right. Still much of the program code may be analysed indirectly from a functionality perspective.

Konzack:  
Computer  
Game  
Criticism

### LAYER 3: FUNCTIONALITY

The functionality depends on the code and the physical nature of the computer. Here we observe what the computer applications do. We are able to localise the computers' responses to user actions or integrated code signals. At this point of the analysis we focus on the behaviour of the computer and the computers interface reactions to user input. Espen J. Aarseth has defined a variety of the functionalities an application may have: dynamics, determinability, transiency, perspective, access, linking, and user function. Each of these functionalities has different variations, which have been thoroughly described by Espen J. Aarseth [2]. At this layer we are not even aware we are in fact dealing with a game – it might be any multimedia product or even other kinds of media program, here referred to as an application.

*Dynamics*: Text piece combinations are constant in a *static* application, while they may change in a *intratextonic dynamic* text. In a *textonic dynamic* application, text pieces may even change.

*Determinability*: An application is *determinate* if one text piece always follows another on command, if not, the application is *indeterminate*.

*Transiency*: If the mere passing causes text or actions to appear, the application is *transient*, otherwise it is *intransient*. A turn based game is *intransient*, while a real-time game is *transient*.

*Perspective*: The application is *personal*, if the user plays a strategic character, and *impersonal* if not.

*Access*: If all text pieces are readily available to the user at all time, the application has *random* access, if not the application access is *controlled*.

*Linking*: The application may have *explicit* hypertext links for the user to follow, or *conditional* links which may only be followed if certain conditions are met, or there may be no linking at all.



Konzack:  
Computer  
Game  
Criticism

### Soul Calibur functionality

*Soul Calibur* has a textonic dynamics. During the game new characters will appear with new action sequences, giving new ways of playing the game. *Soul Calibur* is unpredictable to a certain degree. If the user pushes the same button or button-combination and if the character is same, it will produce the same result. At this point *Soul Calibur* is determinate and predictable. But when the user is up against a computer animated foe, foe's actions are unpredictable – even though the user acts in the same way. When the game has begun, *Soul Calibur* is intransient, meaning that time influences the game in such a way, that it alone changes what happens in the game. Since the user plays a strategic role as a character in *Soul Calibur*, the game has a personal perspective. Like most computer games the access is controlled. The user must carry out a task in order to get to a certain point in the game and this may only be done in a specific order when certain conditions are met (e.g. the user must win seven matches in order to type his or her tag). This makes linking conditional. The user functionality in *Soul Calibur* has a limited textonic feature, since the user is able to write tag at certain times. But mostly *Soul Calibur* has a configurative user function, where the player makes a choice, which influences the order of the game.

### LAYER 4: GAMEPLAY

At this layer we finally reach the game structure also known as gameplay. Here we recognise the computer software application as a game. Therefore we turn towards ludology; the study of games. Ludology acknowledges different game factors: positions, resources, space and time, goal (sub-goals), obstacles, knowledge, rewards or penalties [3]. These factors can be used to analyse any game not just computer games, but keep in mind that these distinctions are made to analyse games. In play (which of course is closely related to games) the goal, sub-goals and obstacles may be difficult to find. Any game or play is based on interaction between player(s) and the game itself.

*Positions:* These are the positions from which the game is perceived. They may be those of audience, players, or judges. The players are the most important, since they take active part in the game, but there might be other



participants like team leaders, coaches or game masters. Positions will be further analysed in the socio-cultural layer.

*Resources:* These are the means by which the players are able to influence the game. This may be anything from a chess piece to a ball, or in the case of a computer game a computer controlled pixel images on the screen.

*Space:* The space is divided into the aforementioned space of the game, also known as *virtual space*, and the space of the real world from which the players influence the virtual space, which we shall refer to as the *playground*. As already mentioned, the two kinds of space may merge into one in some games.

*Time:* This is the time limit set for the the game duration. Some games may have a definite time limit, others end when some sort of goal is reached, and again others just end when the players don't want to play anymore. In some games the main goal is to race against time.

*Goal (sub-goals):* The goal is what is needed to win the game. Sub-goals are what are needed to partially reach the main goal.

*Obstacles:* The challenge of the game comes from obstacles. These obstacles are set in order to prevent players from reaching their goal(s). Obstacles are, indeed, connected directly to the goal.

*Knowledge:* There exists different kinds of knowledge in a game: open knowledge (quite often the rules or statistics), hidden knowledge (e.g. strategy of other players), and random knowledge (e.g. rolling dice or other kinds of randomisation).

*Rewards/penalties:* Rewards or penalties can be anything from points, money, time, space or resources that may be won or lost during the game.

Konzack:  
Computer  
Game  
Criticism

### Soul Calibur gameplay

The player takes actively part in *Soul Calibur* by playing a character. There can be one player competing against computer controlled bot-characters, or two players can play against each other. The computer takes the position of the judge and the foe (in the case of bot-characters). The player controls the game with a joystick by which s/he controls a character in the game. The player chooses between different modes by moving the handle and pushing the A-button, and likewise s/he selects a character. When in some kind of combat mode, the player controls the character with the buttons and by moving the handle in different directions. The standard attacks are the same for each character, but they may be slower or faster in executing them, slower characters, however, tend to inflict more damage. Each character has lots of special attacks (e. g. Sophitia has a strike called *Heaven's Gate* which works when moving left twice, making a quick tap at the B-button, immediately followed by hitting the A-button).

The virtual spaces of *Soul Calibur* are different fighting arenas all over the world, while the playground is situated in front of a television screen. The arenas are always a limited space, and the player loses if s/he moves outside the arena. Most fights are played out with a time limit, depending on combat mode. Time is used as a measure of how good the player is, the quicker – the



better. The goal is to win the game by knocking out the opponent, whether this is another player character or a computer controlled bot-character. Sub-goals are to win, and thereby to get more characters to play with. The obstacles are of course the fighting opponent, but the limits of space and time are also important obstacles. In a mission battle mode there are lots of varied obstacles, from harsh time limits and difficult attacks to narrow ledge fights and poisonings of characters. Every game is fought one character against another, and when one party loses all its life or gets pushed off the arena, the other character wins. Remaining life is open to knowledge, and generally so are characters and weapons, too. In some mission battles, however, characters or weapons are hidden. The computer chooses strategy and bot-character at random. When fights are won, more and more information on characters becomes open knowledge. The player is rewarded with artwork, new characters and new outfits. The penalty for being wounded is loss of life. And when all life is lost, the player has to start all over again.

## LAYER 5: MEANING

Here we find the semantic meaning of the computer game. This is best studied through the use of semiotics: the study of the meaning of signs. In some games we find lots of meaning, in others the meaning, if any is very abstract, and we may even find near meaningless games. Keep in mind though that there is no linkage between game quality (the significance of a game to particular gamers) and the semantic meaning of the game, since the game may indeed have its own intrinsic meaning, which cannot be measured from outside the game. But even though we may find narratives in games, they must primarily function as a game – otherwise it falls flat [4]. All the semantic meanings of the game are secondary to the gameplay's primary ludologic structure. The signs conveying meaning are indeed superficial, but still they help in putting the game into perspective. Two games may have exactly the same gameplay, but by having different ornamental signs and narratives (such as pictures, sounds and/or text) they convey different meanings of what is happening within the game.

### Soul Calibur's meaning

The game makes sense, and does so by having a functioning gameplay and by creating meaning for the player. There are sixteen different characters – all of which have humanoid appearance. 'Taki' is a female ninja in a red ninja suit, using two knives. 'Edge Master' on the other hand is an elderly man wearing a small chest armour and plus fours (knickers). He is able to use any weapon. The appearance of 'Lizard Man' corresponds to his name. This monster wears a cuirass (body armour), a short sword and a small shield. 'Mitsurugi' is a typical samurai with katana. 'Voldo' is an Italian pit fighter wearing a costume mainly made of leather straps, and he is using folding katars (scissor hands). This is just to name a few characters. Each of them has his or her own



individual fighting style based on culture and personality. The designers have really worked hard on the choreography to create dramatic personalities. All of the characters play their own parts in the game's backstory. However, the player does not need to know these narratives in order to play the game, and the narratives have only superficial influence on the game. Therefore it is not fruitful to try to understand the game starting from these narratives. Still, they give some flavour to the experience. Likewise, the nineteen colourful 3D arenas of *Soul Calibur*, from Valentine Mansion in London to the Hoko-ji Temple in Kyoto have only a little impact on the gameplay, setting space limits for the arena fights, but they are visually impressive.

Konzack:  
Computer  
Game  
Criticism

## LAYER 6: REFERENTIALITY

Referentiality becomes apparent when comparing computer games with other games and other media. Here we target the characteristics of the game setting and genre. These characteristics are signs, ornaments or game structures that have originally been used in other media or other games, and which have been put into use in the game we are about to analyse. They give new meaning by transferring meaning from where it originally appeared (e.g. the game *Donkey Kong* refers to the movie *King Kong*). The setting is a sign system that helps us to relate to the virtual environment. These sign systems may have been taken from narrative genres or historical sources. We often find two types of genres present in computer games: 1) computer game genres, and 2) narrative genres. The computer game genres are genres like action/arcade, adventure, and strategy. The narrative genres may be based on literature, movies, or theatrical drama. However, it is not necessary for a narrative genre to be present. The computer game genres have lots in common with game genres in general. For example, Roger Caillois presents a ludological categorisation that introduces four game genres: *agôn*, *alea*, *ilinx*, and *mimicry* [5].

*Agôn* is a contest game, in which the player may win by being skilled; e.g., ball games, chess, or fencing.

*Alea* is a game of chance, in which the player wins by being lucky; e.g., dice play, lottery, or the roulette.

*Ilinx* is playing with vertigo; e.g., bungee jumping, parachuting, or the roller coaster.

*Mimicry* is role-playing; e.g., costume parties, playing doctor, and the theatre.

*Agôn* and *alea* are both mostly games, while *ilinx* and *mimicry* are mostly styles of play. Any of these game genres may be mixed and combined with each other. Most computer games depend on *agôn*, but often we find chance and role-playing elements in games, too. *Ilinx* is quite uncommon, but we find it to some degree in simulation games. Still this kind of vertigo does not normally appear directly in the game. Computer game genres like strategy, simulators, and arcade/action tend to be based primarily on contest of skill. But adventure games tend to be primarily based on role-playing – and





narrative genres. While arcade/action, strategy and simulators use literary genres only as a setting, an adventure game profits from literary genres by using narrative structures. In classic adventure games the goal is to solve the puzzles in the story. The only chance the player has to do this is by knowing the genre and thereby knowing what to expect. This is how genres also work in general: they help us to understand the new by providing us with references to the old, and in that respect all genres are referential. Keep in mind that all genres may mix, but its easier to get a grip of what is going on if they are not mixed all together.

### Soul Calibur referentiality

It is possible to play *Soul Calibur* with out knowing its references to others works. In this sense it is a work of art. However it does refer to other works. First of all it refers to *Soul Blade* (Namco, 1997), a fighting game with ten characters. Nine of these characters appear in *Soul Calibur*, too. *Soul Calibur* is an enhanced version of *Soul Blade* and a sequel to the chronicle of the blade Soul Edge. Second, it refers to the *Tekken* computer games from Namco. The Ninja Master Yoshimitsu appears as a rogue in *Soul Calibur*. But his first appearance was in *Tekken 1* (Namco, 1994) in which he fights for The King of the Iron Fist title. In the newest version *Tekken 4* Namco, 2001) Yoshimitsu is presented as follows: *As the leader of the Manji Party, Yoshimitsu dedicated himself to providing food, medical assistance, and shelter to the ever-increasing number of political refugees around the world. Unfortunately, with a constant lack of necessary funding and manpower, Yoshimitsu was unsure about the future of his organization.*<sup>2</sup> The difference between the *Soul Calibur* Yoshimitsu and the *Tekken 4* Yoshimitsu is that the *Tekken 4* Yoshimitsu has become a wraith. In *Soul Calibur* we are told an action-adventure tale that explains why: *However a spark from the demon sword struck Yoshimitsu's blade and it began to shed a strange aura. "Has my sword been possessed by evil? NEVER! IN MY NAME I WILL CONTOL THIS EVIL!"*<sup>3</sup>

In style both *Tekken* games, *Soul Blade*, and *Soul Calibur* is based on a combination of manga (japanese animation) and fantasy art (originating from the artist Frank Frazetta). But apart from this, we find that *Tekken* games *Soul Blade* and *Soul Calibur* follow the same line of computer games. They are of the same genre namely action/arcade fighting games, and what is more, there are fighting games going back to *Kung Fu Master* (Irem, 1984), *Double Dragon* (Technos – Mapefer, 1986), and *Mortal Kombat* (Acclaim, 1993) [6]. These games are all based on contests of skilled virtual fights and puppet master role-playing of dueling characters. It is no coincidence that we find many Japanese references in these games. In Japan we find a long tradition of philosophy and fighting techniques going hand-in-hand. Earlier we had the same tradition in Europe with knights representing honor and righteousness [7]. This of course opens up possibilities for further analysis of fighting styles, choreography and philosophies of martial arts and weapon mastery.



## LAYER 7: SOCIO-CULTURE

Finally we have the social layer in which we analyse the culture around computer games, thereby mostly observing the playground. We analyse the interaction not just between computer game and player but the interrelationship between all participants of the game. This means also addressing the relationship between the playground and the outside world. Focusing on the players, we observe the computer game target groups in terms of gender, age, and social status. These relations may again be analysed in comparison with the activities in the virtual world of the game. Lots of computer game studies have been done on socio-cultural matters from violence and marketing studies to gender and pedagogical studies. The problem is that they rarely actually research the games as cultural artefacts with aesthetic qualities. Still, the best of these studies may show how computer games are actually used in real life. To properly do so, it is important to understand the basic nature of game, play and culture. According to Johan Huizinga's theory, play and game are the origins of culture. Playing and games are culture in themselves, and culture will expand and prosper by freely exploring them [8].

Konzack:  
Computer  
Game  
Criticism

### Soul Calibur's Socio-Culture

To make an analysis on socio-cultural aspects of computer games demands a thorough focus on player's behaviours and the behaviour of other people involved. Another way is to present an analysis of socio-cultural behaviour based on personal experience. My personal experience with playing *Soul Calibur* is that it provides hours of entertainment among good friends. But more than that it is a game of power – more precisely, of symbolic power. Player's agony of losing to his or her friends and being taunted is indeed making the idea of symbolic power very concrete. But everyone knows this is only a game, so the player's failure only matters until his or her next victory and vice versa. What is even more important, the game can be played in lots of ways, and sometimes the player is up against the machine and all his or her friends are backing him or her up. In this way the game creates tension, but only to cope with tension – not to degrade, but to live through and experience the social structures associated with losing and winning.

## PERSPECTIVES ON COMPUTER GAME CRITICISM

By using this method of analysis to study computer games, we may get a better understanding of how they work – and hopefully this may even help making better computer game designs. It is important to emphasise the ludic nature of computer games, because there have been many misguided computer game analyses based on narrative criticism. On the other hand there is computer game criticism, which has only focused on functionality thereby giving no clue to what is going on in general. Instead of pointing



at narrativity as something that does not exist in computer games, or only focusing on functionality or ludology, we have tried to put these aspects into perspective by analysing them as different layers of the game. The reason for making a method of analysis or having computer games as the main subject of critical consideration, is that every aesthetic expression needs to be taken at its own premises, and not as be sub-categorised under another aesthetic discipline [9]. To comprehend computer games we must have an understanding of what game and play are, and to do so, we turn towards ludology. But more than that we turn towards a whole comprehension of the different layers from which computers game emanate. Each of these layers may be analysed individually, and we might only analyse one or a few of these layers. However, the other layers still exist and influence the true nature of the computer game.

### Soul Calibur perspectives on criticism

In between the Dreamcast machine, the *Soul Calibur* program code, and the socio-cultural use of the game we have found different layers of aesthetic quality from functionality and gameplay to meaning and referentiality. We found a game of competition and puppet master style role-playing, a game of 16th century fantasy fighters in arenas all over the world. The game has an intrinsic gameplay based on martial arts and weapon mastery where players control the game through their actions. *Soul Calibur* functions as a game in itself, but also as a game pointing towards other games and the culture of martial philosophies.

### Acknowledgments

I thank Espen J. Aarseth and Ian Dahl who have provided helpful comments on previous versions of this paper.

### NOTES

- 1 <http://soulcalibur.com/>
- 2 [http://www.namcoarcade.com/tekken4/profile\\_yoshi.asp](http://www.namcoarcade.com/tekken4/profile_yoshi.asp)
- 3 <http://www.soulcalibur.com/talessls/yose.html>

### REFERENCES

1. Konzack, L. "Leg og lær med computerspil", in *Danskbogen: Danskfaget i de pædagogiske uddannelser*. (Petersen (ed.). Forlaget Klim, Aarhus, 2001), 25-48
2. Aarseth, E. J. *Cybertext: Perspectives on Ergodic Literature*. John Hopkins University Press, London, 1997.
3. Konzack, L. *Softwaregenrer*, Aarhus University Press, Aarhus, 1999.
4. Juul, J. "Games telling stories: a brief note on game and narratives", in *Game Studies 1*, (July 2001), <http://www.gamestudies.org/0101/juul-gts/>



5. Caillois, R. *Man, Play, and Games*, Free Press of Glencoe, New York, 1961.
6. Egenfeldt-Nielsen, S. & Smith, J. H. *Den digitale leg: om børn og computerspil*, Hans Reitzels Forlag, Copenhagen, 2000.
7. de Charny, G. *The Book of Chivalry*, University of Pennsylvania Press, Pennsylvania, 1996 (origin. 1352).
8. Huizinga, J. *Homo Ludens: A Study of the Play-Element in Culture*, Beacon Press, Boston, 1986.
9. Lewis, C. S. *An Experiment in Criticism*, Cambridge University Press, Cambridge, 1961.

Konzack:  
Computer  
Game  
Criticism

