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Understanding Digital Playability

Sébastien Genvo

In his book *Pourquoi la fiction?*¹, Jean-Marie Schaeffer notes that the modalities of circulation of digital fictions are much more flexible than the fictions known as “traditional”, because of the quasi-instantaneity of the transmission as well as the infinite reproducibility of the transmitted signals. This has as a consequence an extraordinary multiplication of the fictional worlds in circulation in a transcultural context. In this perspective, video games are established as a representative case of the potential of the new media to connect various cultures at an international level. This applies for on-line games as well as for off-line games, since the video game industry is a globalized one. This reflection encourages one to question the modalities of expression that the video games offer. Indeed, authors such as Johan Huizinga, Roger Caillois, or Jacques Henriot have raised the fact that the various forms of play and the representations related to this activity can vary according to places and times. Consequently, video games raise the question of communication processes set up on an international scale, particularly within the field of game design. Indeed, it is through the design of a video game’s world that players from different cultures will be encouraged to adopt a ludic attitude, in order to get them involved in its fictional universe. Therefore, game design concerns what I call ludic mediation, that is, the process of transmitting the will-to-play to someone. To understand this process, I will show at first that when someone plays, he adopts a particular posture of immersion, that is a “ludic attitude” (we will see that this attitude rests on a willingness to operate by certain rules and restrictions in a metaphorical way). But in order to be able to adopt this attitude, the structure upon which the actions are performed must be appropriate to the activity of play: it must contain a certain amount of “playability”. This is true of the structures of both traditional, physically-based games as well as digital ones. Nevertheless, we will see that digital media imply particular modalities of mediation, which do not exist within traditional games. These different elements raise questions as to which theoretical tools can be mobilized to describe the structural conditions of ludic mediation set up by a given video game, in order to understand the way it presents a specific playability. To achieve this analysis successfully, it will be necessary to link a ludologic approach to some useful elements of narrative semiotics in order to formulate what I call a descriptive approach of playability. The purpose of this link is to take fully into account specificities of the meaning production process in the case of digital play. The last part of this essay is an example of analysis of *Tetris*, a game which may not appear to have any narrative aspects, yet which is perfectly suited to the descriptive approach as I define it.

Defining the Ludic Attitude

As we will see, the process of game design can be summarized in a very simple question: How can I give the will-to-play to the player of the game? In order to find an answer, it is first necessary to define what exactly is meant by “play”. First and foremost, playing is a question of attitude. Indeed, according to Bernard Suits, “the attitude of the game-player must be an element in game playing because there has to be an explanation of that curious state of affairs wherein one adopts rules which require one to employ worse rather than better means for reaching an end.”² If this definition seems to be well known, this state of mind rests also on other characteristics that need to be taken into account if one wants to understand the whole process of ludic mediation. As Jacques Henriot states, when someone plays, he adopts a state of mind that implies a “metaphorical process”³. The term “metaphorical” is used because playing is about transposing things of the world to a new order. For example, in

order to play the game, a chess player must *act as if* the board and the pawns are more than what they really are: pieces of wood or plastic. Chess is not just a question of “pushing wood”, as the chess enthusiasts say about players who do not understand anything about the rules of this game. The player leaves “ordinary reality” aside. According to D.W. Winnicott⁴, the world in which we play is an “intermediate space”, between internal and external reality. Although the player’s thoughts occur in this intermediate space, his actions in the world are as real as any other activity. The player is present where he plays, but also elsewhere, enlivened by a goal which carries his acts beyond the present instant and the immediacy of his actions: “He is this hero, this conqueror, this seducer; at the same time, it is not him, since he is only himself and that he plays”.⁵ This mental state also characterizes any other kind of fictional immersion, a behavior which Jean-Marie Schaeffer has termed a “bi-planar” behavior: the player is engrossed in his game although he knows that after all it is only a game. In the preceding sentence, one can replace the term “game” with “movie” or “fictional story”, and the term “player” with “spectator” or “reader”. The player must act as if he was confronted to another reality. Nevertheless, if fictional immersion is a part of play activity, it is necessary to note that it is not equivalent to it because playing is also *a particular form of process*. For D.W. Winnicott, playing is a process in the sense that “playing is doing” and that doing is proceeding. This means that any activity which requires a form of play usually implies a goal. While there are forms of play without a definitive goal, there is almost always some kind of objective in the actions undertaken during play. Likewise, there are forms of play without a final sanction which would put an end to the activity, from which a result would be drawn (a loser/a winner, the realization of a performance in a given time, etc.). For Jacques Henriot, as a *metaphorical* process, every form of play has a purpose. This purpose includes the system of rules that the player follows: “The global purposes include the goal itself and the obligatory conditions of its achievement. One could imagine the same goal (crossing the garden) and different conditions (running on four legs, etc.): one would be dealing with different activities of play. The system of rules is therefore itself the object of an arbitrary choice, since the player invents them (or accepts them) and decide to submit to them while nothing compels him. Playing always consists in doing something in a particular way.”⁶ Therefore, the purpose that the player follows is *arbitrary* because he chooses it by his own free will (he can leave his state of play when he wants because playing is a free activity). The purpose cannot be imposed on the player, it is up to the player to *actualize it voluntarily*. According to Henriot, to do so, the player uses a *set of actions consciously perceived as aleatory*.

One must be careful with this last point because it is needed to understand why – from Jacques Henriot’s point of view – playing is also a particular form of process. The unpredictable characteristic of play was frequently questioned, for instance by Roger Caillois: “A sequence known beforehand, without possibility of error or surprise, driving apparently to an ineluctable result, is incompatible with the nature of play. . . . the course cannot be determined, nor the result attained beforehand, and some latitude for innovations must be left to the player’s initiative”⁷. But it is not enough to qualify this activity as uncertain. Many activities, often considered the opposite of play (like Work), also comprise a character of uncertainty. But whereas the worker will tend to reduce the field of possibilities to increase the productive efficiency of his actions, the player, even if he would have calculated the various probabilities which follow every possible choice, knows that the result of his actions cannot be given in advance (as Bernard Suits says, the player employs worse rather than better means for reaching an end). If the activity only consists of a succession of interactions with only one possible response (apart from leaving the game), then the player does not have any real choices to make, and the outcome of the game does not depend on how he plays (in the most extreme case, the player shall feel like he is watching a movie, pulling triggers from

time to time in order to watch what is coming next). This is by example the case at the beginning of *The Nomad Soul* (Quantic Dream, 1999), during the introduction sequence, which is a cinematic. During a moment, the cinematic stops and the player is asked by a game character if he wants to join him to save his world. The only choice available for the player is to say “yes”. The outcome of this decision will be of course the same for every players: the introduction sequence continues. For this reason, this sequence is not very playable, the player has just one solution. Then, since playing is doing, it is essential to add that to play is to make a decision in order to *exercise the possible* (the player knows that his own decision will make a difference in the game).

As I said earlier, players must adopt a ludic attitude, which means that the player operates *a metaphorical process that voluntarily actualizes a purpose by the way of a set of actions consciously perceived as aleatory in order to exercise the possible*. But it is important to note that this attitude cannot be adopted in every situation; some situations do not allow the people involved in them to play. The impossibility of performing an action that has a significant repercussion in the sequence of events to be followed is an example of one of these aspects (as the person will not be able to experience the possible). “No one will say that an epidemic, a flood constitute in themselves a game. One does not say this out of fear of fear of contradicting public opinion, or to avoid injuring others’ sensibilities, but primarily because the situations that create such events leaves virtually no room for the initiative of those who are trapped in it. They have no choice.”⁸ While some situations do not allow one to adopt a ludic attitude, others clearly have an evident potential for play. For children, it is usually more difficult to play during classtime (because they are not allowed to), whereas breaks are playful moments. The structure (the system of constrains and rules) of both situations are different. It doesn’t mean that it is impossible to play during the class (of course not...). But one situation is more playable than the other. All in all, it means that there are “playable structures”. Numerous playable structures are qualified by the term “game” in English (whereas in French we do not make the distinction between the attitude and the structure by indistinctly using the word “jeu”, the same term applies to both aspects). But it is often by convention that some playable situations are qualified as games and others are not, as the perception of what is ludic depends on the socio-cultural positioning of the player. It is thus important to stress that no playable structure is ludic in itself and by itself (it is just more or less playable). Software such as *Microsoft Word* can be used as a game while *Doom* (id Software, 1993) can be used as military training. What makes a situation a game is when someone adopts a ludic attitude toward the situation in which he finds himself. The relevance of the structure will depend on a series of associations which remains linked to the biographical situation of the actor, his cultural environment and his social conditions. In this way, designed playable structures draw their “type elements” in the culture to which they belong in order to be recognized as a game and to promote the adoption of a ludic attitude. A simulation program such as *Flight Simulator X* (Microsoft Game Studios, 2006) could be flight training for a pilot while at the same time it could be entertainment for the person using it during his or her free time. However, from a ludic point of view, what differentiates *Microsoft Word* from *Tetris* (Alexey Pajitnov, 1985) is that the structure of the latter – the set of rules which govern its use – will have a greater potential of adaptation to ludic activity. Certain characteristics will favor this attitude during their metaphorical actualization, while others will discourage the player in his play, bringing him back to “ordinary reality”.

The Ludic Mediation

These elements of definition encourage one to qualify the work of game design, which refers to the design of a playable structure. First of all, we can suggest that a playable

structure is a system of rules that is formalized for someone. But every system of rules is not meant to encourage the adoption of a ludic attitude. It is necessary to add that this system is designed in order to achieve a ludic mediation, where the notion of mediation has to be defined as “a phenomenon which allows one to understand the broadcasting of linguistic or symbolic forms, in space and time, to produce a meaning shared within a community”,⁹ this “meaning” being play activity, in the case of game design. For this purpose, a system of rules, to be playable, must proceed from a certain configuration of signs to be coherent with its object, the ludic attitude. To describe the way in which playable structures are designed, is thus to analyze the way in which the components of a system of rules are designed to make sense with regard to the ludic attitude.

Indeed, one method often used to analyze these components involves the categories formulated by Roger Caillois about the “fundamental” characteristics that a structure can feature to engage someone in a ludic attitude. Let me recall these very well-known categories: *agôn*, or competition; *alea*, or chance; *mimicry*, which rests on the fact that someone plays to make believe or to be made to believe that he is other than himself (this category generally describes the mimetic activity); and *ilinx*, which is characterized by a kind of giddiness, spasm, fright, or dizziness which destroys or disrupts reality. I suggest that these four categories are found systematically as soon as the player plays a formalized system of rules. Indeed, when someone plays a “game”, the player must experience the possible (*alea*), while trying to accomplish a purpose (*agôn*) by the way of a metaphorical process, which implies that one *acts as if* the present moment was different (*mimicry*) through the disruption of ordinary reality (*ilinx*). In this point of view, the ludic aspect of *ilinx* rests in this feeling of being apart from ordinary reality (dizziness without this feeling can be the opposite of play, if it is a symptom of disease, for example). It is also necessary to underline that competition (*agôn*) takes place as soon as the player aims at a result (even if it is not an “endgame” result), because of the intrinsic uncertainty which governs each process of decision-making within a ludic framework. Thus, there will be competition to reach a result projected beforehand, even if it is only between the player and the system. Of course, certain activities of play do not have an agonistic aspect, when the action proceeds without aiming at achieving a result, but then they fit into the category of “informal play”, which is when one plays without playing to an explicitly formalized system of rules. For instance, when a little girl plays with her doll, she does not necessarily make a game with her doll. Even if she unconsciously follows a system of rules which govern her actions (with given goals), she does not aim at the realization of a result whose success (or failure) she would evaluate according to previously formalized parameters. Within the framework of formal play, when a player actualizes an explicit playable structure, the four categories described by Caillois appear.

This does not mean that any playable structure comprises these four fundamental characteristics, nor even that only one of these categories would be sufficient to confer a ludic dimension to a system of rules, because a playable structure becomes truly ludic only when someone has decided to play with it (the same structure, even if it is playable for one person, may not be ludic for someone else). As Henriot notes: “Chance is a type of structure. Is it enough to induce objectively given forms of play? That there are games of chance does not prove that chance is ludic in essence. In a hazardous situation, play appears only from the moment when somebody decides to engage, assumes a risk, bets on an event whose complete production he does not control. In itself, chance could not make play.”¹⁰ Such a remark argues in favor of the four categories. But it is only when they fall into these fundamental categories that elements in a system of rules will be able to appear adapted to the ludic attitude and will encourage its adoption. A playable structure can only rely on one of these categories, or use game mechanisms of different nature (for example, betting on dice is based

on *alea*, while chess tends to be based mainly on *agôn*). These categories can be made more complex if the conditions of production of the meaning of play are described with more detail. *To understand the playability of a structure, is to analyze the way in which this structure is designed to create meaning with respect to the ludic attitude.*

For Gonzalo Frasca, this type of approach would mark a break with the methods used to analyze “traditional” mass media, because for him video games imply “an enormous paradigm shift for our culture because they represent the first complex simulational media for the masses.”¹¹ According to this author, this analytical perspective would thus concern a particular discipline, called ludology, devoted to the comprehension of “structure and elements [of a game] – particularly its rules – as well as creating typologies and models for explaining the mechanics of games”¹². And because of the ontological nature of video games, the narrative paradigm would be the opposite of the ludologic perspective:

So far, the traditional – and most popular – research approach from both the industry and the academy has been to consider video games as extensions of drama and narrative. While this notion has been contested (especially by Espen Aarseth) and generated a sometimes passionate debate, the narrative paradigm still prevails. My goal in this essay is to contribute to the discussion by offering more reasons as to why the storytelling model is not only an inaccurate one but also how it limits our understanding of the medium and our ability to create even more compelling games. The central argument I will explore is that, unlike traditional media, video games are not just based on representation but on an alternative semiotical structure known as simulation (*Narrative*, 221-222).

Nevertheless, in the context of a ludological framework, we will see that some elements of narrative semiotics are useful to fully understand some specificities of the ludic mediation when it occurs in a context of digital play. The main point is to understand that these elements are not about “storytelling” but about modeling a goal-oriented action.

The Experience of Digital Play

In order to play a traditional game, the player must first peruse the rules which will govern its action. This way, he can have in advance an idea of the ludic potential of the structure according to its own representations of play. Then, he will actualize this system with a ludic attitude if it answers to his ideal types of the activity. On the other hand, in the case of a digital game, the player does not need necessarily to peruse beforehand the rules which will govern his actions. He can uncover them gradually during his progression. For example, even if a player does not know how to play chess, he can still use a chess program, which will simply not allow any illegal moves. As Patricia Greenfield states, the most interesting aspect concerning video games considered as a complex system lies in the fact that it is possible to discover the rules by observation, “tests and errors” and by a method of hypothesis testing.¹³ Within this framework, the player can never be completely sure that he has uncovered all the rules that structure his actions, this even in the games which may appear the most “basic”. For example, a website¹⁴ dedicated to *Pac-man* describes the traits of character of each ghost and the rules which model their behaviors. For instance, the red ghost (named Blinky) increases his speed when there are just twenty dots left, which is a trait that is not explained in advance and that takes a lot of practice to be discovered. In my opinion, this observation about digital media regarding the dynamic discovery of the rules greatly changes the modalities of the ludic mediation. Indeed, during the actualization of the playable structure

(the playing of the game), the player will discover the rules which govern his action and will at the same time judge the adaptation of this system to his ludic usage (that is to say, the player will determine if he likes playing the game or not). This characteristic refers to the concept of gameplay, which is usually employed to qualify what makes the quality of video game independently of its only technical features. When the player actualizes a video game, he will at the same time peruse the way the game system works, through its mechanisms, and will test its play potential, which is what the term “gameplay” refers to, by gathering these two aspects in the same concept. Attention is drawn as much to the structure as to the action itself, requiring a constant balance between engagement and detachment so that the action can be maintained and evaluated. The player discovers and transforms jointly the system by his actions. It is this dynamic which constitutes the gameplay of a given video game and which will cause the pleasure or displeasure of the player.

Within this framework, if it is indeed necessary to use a “traditional” ludologic approach to describe the nature of the various elements composing a game according to a paradigmatic axis (*mimicry* or *agôn*, typologies of rules, etc.), the importance of the concept of gameplay in video games encourages one to take into account the diachronic aspect of playable structure (its syntagmatic axis), which is what the player has to do, so that the system’s mechanisms are delivered in the action and “come into play”. As we will see, the addition of particular elements of narrative semiotics makes it possible to answer this need, by the way of the Canonical Narrative Schema (CNS). This schema was mainly formalized by Joseph Courtés according to the research of the French semiotician Algirdas Julien Greimas, who developed a formal method of analyzing semiotic productions.¹⁵ What interests me in this research is that by “using the canonical narrative schema, we can describe the logical, temporal, and semantic arrangement of the elements of an action.”¹⁶ By gathering elements of this schema into a ludological framework, the semiotic model that I propose allows one to study at the same time the paradigmatic axis and the syntagmatic axis of a digital playable structure. The purpose of this approach is to make visible the conditions of production of the meaning implemented by a system of rules in order to appear to be playable, that is why I call it a descriptive approach.

The Descriptive Approach of Digital Playability

According to Greimas, a narrative is the realization of a project, where a *subject* goes through a conflict because he desires something. This “something” is called an *object* by Greimas and could be a concrete (money) or an abstract one (political power). The narrative also involves a process of communication, because the *object* has to be transmitted from a *sender* to a *receiver*. These different roles are called “actants” of the narrative (and not actors) because one role can apply to several characters or entities, and a same character can assume one or more functions. A very simple schema can summarize the preceding assertions (Figure 1):

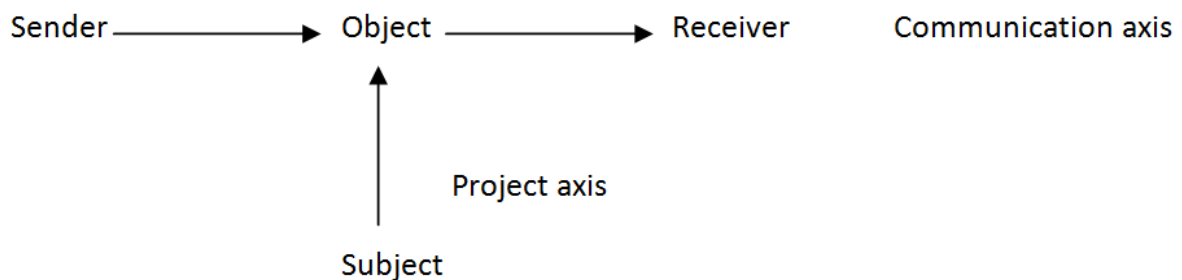


Figure 1: Greimas Actantial Model

Greimas and Courtés details the realization of this project into four stages¹⁷. In a first step, a contract is passed between a subject and a sender, where the sender delivers a quest in an attractive way (the sender transmits information about a goal to achieve). The subject has to be encouraged to act, this is why this stage is called a sequence of *manipulation*. The sender makes the subject do the project. In the second stage, the subject reaches a stage in which the necessary competencies to realize the objective have to be acquired (this is the stage of *competence*), and in the third, these competencies are used for the realization of a *performance*. This canonical narrative schema ends with a stage of sanction, the sender checks if the terms of the initial contract are respected and sanctions positively or negatively the subject. By example, in an usual fairy tales, a king (the sender) asks to a knight (the subject) to deliver her daughter from the dragon, and promises him the hand of the princess (the object) if he succeeds (the knight will have both the function of the subject and the receiver). The performance consists here in killing the dragon, which shall require to get some magic skills beforehand.

What interests me in this theory is that the CNS can usually be found in any video game if one considers this theory as a theory of action in its diachronic sense. Each goal of the game can be framed by using this four-stage sequence, depending on the level of complexity required by the analysis. The player passes through a sequence of manipulation, which means that the game requires to solve a problem or to achieve a goal. The game also checks how the player has done and provides either positive or negative sanctions. The receiver can be the player (if there is some sort of social recognition in stake) or maybe a fictional character of the game (in Tomb Raider (Core Design, 1996) by example, the player is the “subject-operator” of the action, but finally this is Lara Croft that has all the recognition, but here is the deal, “that’s just a game”...). It is, of course, possible to frame the main goal at a larger scale and to consider that some secondary objectives depend on the stage of competence of the main goal (for example, if the player must first find a weapon in order to defeat a boss). In fact, if in a game, the realization of the performance depends on the player (unlike a movie, where the realization of the action depends on the fictional character), we will see that the stage of competence allows one to describe the particular gameplay of each game, which structures the ludic attitude of the player.

Indeed, this schema stresses that the subject, in order to complete the performance, must have the necessary competencies beforehand, and must become qualified. During the competence sequence, it is necessary to acquire four types of “modalities of doing” in order to realize the performance. These modalities can be classified in pairs. First, there are the modalities of the potentialization which are the “having-to-do” and the “willing-to-do” (also translated in English as the “wanting-to-do”, the original term being “*vouloir-faire*”). These modalities are called this because they propose the performance that the subject must accomplish. The two other types of competences are the modalities of actualization, that is to say, the “being-able-to-do” and the “knowing-how-to-do”. They determine the competence of the subject in order to realize his performance. The following schema summarizes the different Greimas theory elements (figure 2):

Stage	Manipulation	Competence	Performance	Sanction
Modalities of doing	Making-to-do	Having-to-do Willing-to-do Knowing-how-to-do Wanting-to-do	Doing	
Actants involved	Sender - Subject	Subject	Subject	Sender - Subject - Receiver

Figure 2: Canonical narrative schema

In video games, the “having-to-do” depends on the structure, which offers objectives and proposes the performance that the player must accomplish (for example, in adventure games, where the game has the role of a sender), or encourages the player to formulate his own objectives based on the mechanisms composing the system (the game designer has decided to let the player be the sender and the subject). By example, in *The Sims* (Maxis Software, 2000), the designers let the player choose the goals he wishes to accomplish, which is an important factor in the way the game encourages the player to adopt a ludic attitude. It is of course possible that a purpose established by the designers is not followed or not immediately discovered, but this aspect concerns, above all, the analysis of the practices. The actual approach is useful to describe the way in which a structure was designed to present a given “playability”. Another particularity of play, is that the “willing-to-do” only relies on the player and not on a fictional character (whereas in a film, the spectator has to follow the will and the decisions of the hero). Indeed, the activity of play is freely adopted by the player, and cannot be imposed by the playable structure. Whereas in ordinary reality, tasks can be imposed on a subject by force or by constraint, play does not allow this option. The “will-to-do” is the obligatory condition of any playable situation because it is only when the player decides to immerse himself in a game that it begins to be a play activity (when the “willing-to-do” is no longer there, the activity becomes boring and loses its ludic state). And as we can see, the game design process can be briefly summarized by this question: how can the player be given the “will-to-play”? If the “willing-to-do” depends on the ludic attitude of the player, the “being-able-to-do” relies on the structure. This is according to the rules of the game that make an action possible or not. Video games are strewn with “modal objects” concerned with this modality of doing: for example, if at the beginning of *Doom* (Id Software, 1993) the space marine has just a small gun, his progression through the mazes will very quickly be conditioned by the need for increasingly powerful weapons, which will give him new abilities.

But it is important to remember that if the “ability to do” concerns the structure, the realization of the action will be controlled by the player. And to be able to do an action, it is first necessary to know how to do it. The “knowing-how-to-do” concerns the player, who must know how to control the software interface in order to act in the fictional world. Today many games begin with a didactic sequence (such as a training level) in order to make sure that the player has acquired the basic procedural knowledge to handle the software. But this knowledge is not only limited to the control of the software interface but also applies to the procedures found by the player to reach the goals suggested by the structure. This “knowing-how-to-do” depends a lot on the type of game and on the mechanisms which make up the system. Moreover, because the realization of the performance rests on the player, the

structure must ensure a certain degree of randomness. However, all players do not have the same level of procedural knowledge needed for the type of game they play. A lack of experience or skill may lead the player to repeated failures. And if one cannot have an “experience of the possible” (the sense that it is possible to lose as well as to win), one will not be able to adopt a ludic attitude, calling into question the player’s immersion. Consequently, how can a game designer ensure a certain degree of uncertainty for each player? The answer to this question depends on the nature of each software program. Some games like *Supreme Commander* (Gas Powered Games, 2006) or *Enemy Territory: Quake Wars* (Splash Damage, 2007) are intended in priority for an audience that already has important procedural knowledge (which will be put to the test during the game), while others are addressed to a larger audience and need to deliver the necessary knowledge during gameplay (numerous Nintendo games proceed like this, the latest being *Super Mario Galaxy* (2007) and *The Legend of Zelda : Phantom Hourglass* (2007)). All in all, one analyzes here which kind of “model player” the structure postulates to be playable (in the same way that, according to Umberto Eco, a text postulates a “model reader”¹⁸). For example, if video games have different levels of difficulty, it is precisely to regulate the degree of uncertainty in the action. Lastly, it should be noted that in video games, it is always possible to start again in order to acquire the necessary knowledge for the performance (even in MMORPGs, which themselves cannot be restarted, the player can still begin again). However, if this training is too long, it is possible that the player’s “will-to-do” disappears, as the repeated succession of failures gives the player the impression that success is impossible.

I propose to summarize these ideas within a model which takes into account the conditions of meaning production set during gameplay (Figure 3):

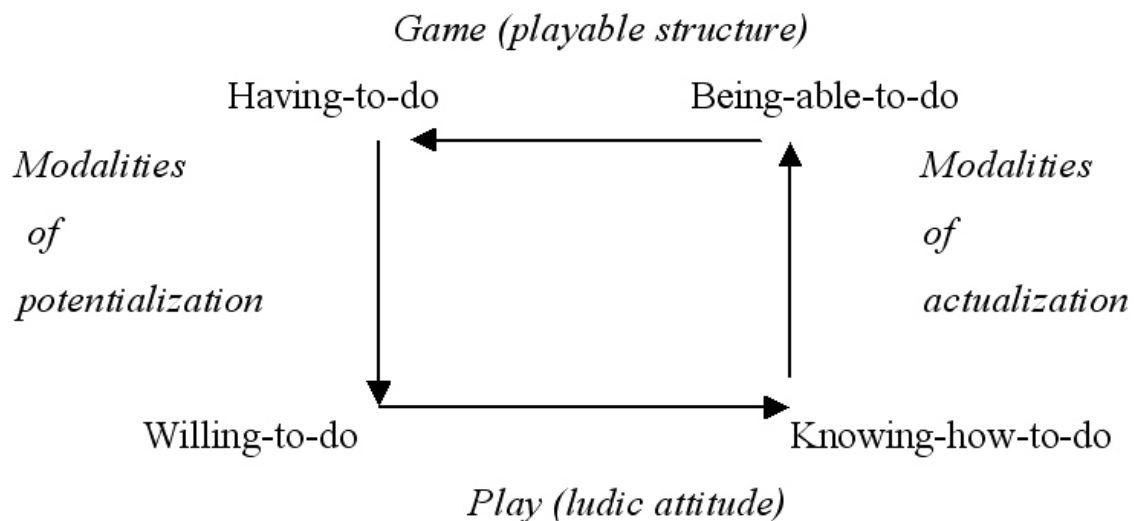


Figure 3: Semiotic model of gameplay

As this model suggests, it is necessary to analyze the “having-to-do” and the “being-able-to-do” in the four-stage sequence described earlier, in order to describe the way in which the structure encourages the player to adopt a ludic attitude (“willing-to-do”) while taking care of the knowledge required to realize the performance. The ludologic approach provides tools adapted to describe the type of ludic mechanisms set up through the first two poles, so that the structure presents a given playability. I will illustrate this methodology with an analysis of *Tetris* (1988), which is often considered to be a game without much narrative

content. Nevertheless, as we will see, the preceding elements of the canonical narrative schema are well adapted to analyze the playability of a game, as long as they are used as a theory of action. The following case study is not exhaustive, but illustrates the way in which the theoretical ideas presented in this essay can be applied to a specific game.

Case Study: *Tetris*

It should first be mentioned that the “having-to-do” of the structure of *Tetris* at first seems very restricted, since it is only a question of making horizontal lines of ten squares out of seven geometrical figures made up of four squares each (the famous tetraminos), which descend relentlessly. The “being-able-to-do” is also restricted, as the player can act only on the speed of the descent of the tetraminos, their horizontal displacement, and their rotation. This implies reciprocally a very minimal acquisition of “knowing-how-to-do” to initially handle the system’s mechanisms. In the 1988 arcade version used for this analysis, if the player chooses the beginner level of difficulty, these various elements are initially introduced during a short non-interactive didactic sequence (this is the sequence of manipulation, delivering the “having-to-do”). Nevertheless, the “having-to-do” becomes more and more complex from the moment the player starts to play. Indeed, the player must not only make horizontal lines, he must make a given number of them to be able to pass to the following “round”, where the number of figures to complete is increasingly more difficult (one passes from a four-stage sequence to another at each round, the end of the round having a value of positive sanction). Moreover, in the arcade version, two players can play simultaneously, with the game indicating which player is leading the game. If the game involves a simultaneous confrontation between two people, a scoring system also sets up another objective, including a “having-to-do” founded on an asynchronous competition (sanctioned by the inscription of initials on the high-score screen). This way, the *agôn* rests on the competition against the system (it is a matter of erasing lines to prevent the tetraminos from filling the play area) but also against other human players, which multiplies the objectives of play and complicates the “knowing-how-to-do” (defeating the computer and defeating human opponents are, of course, different things).

The aleatory dimension of the game rests primarily on what the player cannot do. Indeed, each tetramino is “randomly” chosen by the program: Although the next few tetraminos are indicated to the player, the player is not able to choose the next piece to come (the structure would have been very different if the player had been able to choose the next piece). This absence of “being-able-to-do” implies the development of a competence in which the player knows how to pertinently place each given piece in a limited time. But as I pointed out earlier during the defining of the ludic attitude, playing is not only an activity with a characteristic of uncertainty. It is necessary for the player to “experience the possible”. The structure must avoid letting the player succeed too easily. In *Tetris*, if the movement of the tetraminos during the first rounds is relatively slow, giving the player time to place the piece in progress judiciously (and plan for the one to come), each new round increases the speed of the pieces’ descent. This reduces the time for decision-making, which eventually does not allow the player enough time to for a complete optimization of his actions (the player can no longer play with complete certainty).¹⁹ The player will be able to reduce the field of possible events, but without being ensured of the future success of his movements. Then, if the “knowing-how-to-do” is quickly acquired at the beginning of the game, it becomes more and more complex since the initial objective is reached (to complete a row) and that other objectives are delivered (round by round, or by choosing other modes of play). In certain modes, *Tetris* does not have an end game. To use Gonzalo Frasca’s terminology, there are no rules of *ludus* allowing the final victory of the player (there is an infinite succession of four-

stage sequences, the end of a round playing the function of a positive sanction). *Tetris*, then, is well-adapted to the beginner as well as to the experienced player (who has already acquired a great procedural knowledge of the game). Indeed, whereas the beginner understands what is possible while playing the first level (it is not difficult to see that it is possible to succeed), advanced rounds always guarantee an increasing level of difficulty for the more qualified (skillful) players, who are still able to experience the possibility of failure or success (their practical knowledge does not guarantee an automatic success). Moreover, since the expert can appear overqualified for the first rounds, the 1988 arcade version of *Tetris* has various levels of difficulty so that all players can play at their level immediately without having to complete rounds that are too easy. The highest level of difficulty also includes another mechanism, founded on the *alea*, which is the sporadic appearance of a block in the play area.

Although *alea* and *agôn* are the two principal fundamental categories that give form to the gameplay of *Tetris* (many of the system's mechanisms rest on these two aspects), *Tetris* also uses *ilinx* in its gameplay. As we saw, *ilinx* encourages the adoption of the bi-planar behavior necessary to any ludic attitude, through mechanisms causing the giddiness of the player. According to Andrew Rollings and Ernest Adams, in *Tetris*, at a certain speed, the need for more and more quicker decision-making encourages the best players to adopt a state of "Tetris trance", so that the player processes all the data contained in the play area in a pre-attentional way:

Players seems to lose all track of time and don't concentrate on the specifics of the gameboard. Instead, players defocus and appear to process the entire playing area as a whole, without considering the individual elements. . . . it appears that these players are tapping into their brain's subconscious pattern-recognition ability to improve their game.²⁰

This last element shows how an aleatory situation of competition is not necessarily synonymous with play and that the structure must also allow to adopt a bi-planar behaviour (play being a "metaphorical" process). It is this mental state which will make the difference between the simple user and the player. *The software loses the appearance of a program dedicated to the realization of a given task, and appears as an intermediate space of experiment, which must be known by the abstraction of ordinary reality. This divided mental state gives access to the space of play, which is a potential space because it is a place of exercise of the possible.* As we have seen, it is through choices offered by the game's design, falling under the categories of *agôn*, *alea*, and *ilinx*, that *Tetris* creates a very particular playability and encourages the user to become a player.

Taking into Account Context and Practices

To conclude, it is important to remember that these preceding thoughts constitute a general analysis framework for video games. For this reason, this framework encourages the exploration of the tracks which it outlines: it seems particularly important to underline again that a playable structure prescribes the way in which certain signs can be arranged by the player to make sense, not the way in which they will be interpreted. This being the case, it is necessary to supplement the internal analysis of the object with an analysis of players' practices in order to have an overall view of the process of mediation, so that it is possible to determine the way in which players mobilize their own representations of the play activity to confer a ludic meaning on a playable structure. But, conversely, one should not ignore the

structure into which the activity of the player goes, because that would amount to ignoring the context which makes play activity possible.

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¹ Jean-Marie Schaeffer, *Pourquoi la fiction ?* (Paris: Éd. du Seuil, 1999).

² Bernard Suits, *Grasshopper: Games, Lifes and Utopia* (Boston: David R. Godine, 1990), p. 38.

³ Jacques Henriot, *Sous couleur de jouer* (Paris: José Corti, 1989); hereafter cited in text as *Jouer*. All quotations are my translation from French.

⁴ Donald Woods Winnicott, *Jeu et réalité. L’espace potentiel* (Paris: Gallimard, 1971)

⁵ *Jouer*, p. 260.

⁶ *Ibid.*, p. 227.

⁷ Roger Caillois, *Des jeux et des hommes* (Paris: Gallimard, 1958), 39. Quotation is my translation from french.

⁸ *Jouer*, p. 218.

⁹ Jean Caune, “La médiation culturelle : une construction du lien social”, *Les enjeux de l’information et de la communication* (2000). Available at: <http://w3.u-grenoble3.fr/les_enjeux/2000/Caune/index.php>. Quotation is my translation from french.

¹⁰ *Jouer*, p. 110.

¹¹ Gonzalo Frasca, “Simulation versus narrative”, in *The Video Game Theory Reader*, eds. Mark J.P. Wolf, Bernard Perron (New York: Routledge, 2003), 224; hereafter cited in text as *Narrative*.

¹² *Ibid.*, p. 222.

¹³ Patricia Greenfield, “Les jeux vidéo comme instruments de socialisation cognitive”, *Réseaux*, 67 (September – October 1994), 33-56.

¹⁴ <<http://jongy.tripod.com/GhostPsychology.html>>.

¹⁵ Joseph Courtés, *La sémiotique narrative et discursive : méthodologie et application*, Pref. by A.J. Greimas (Paris : Hachette supérieur, 1993).

¹⁶ Louis Hébert, “The Canonical Narrative Schema”. In *Signo*, edited by Louis Hébert (2006). Available at:<http://www.signosemio.com/greimas/a_schemanarratif.asp>.

¹⁷ Joseph Courtés, *La sémiotique narrative et discursive : méthodologie et application*, Pref. by A.J. Greimas (Paris : Hachette supérieur, 1993).

¹⁸ Umberto Eco, *The Role of the Reader: Explorations in the Semiotics of Texts* (Bloomington : University of Indiana Press, 1979).

¹⁹ See Demaine, Erik D., Hohenberger, Susan, and Liben-Nowell, David. “Tetris is hard, even to approximate”. In *Proceedings of COCOON'2003* (2002). Available at: <<http://www.lcs.mit.edu/publications/pubs/pdf/MIT-LCS-TR-865.pdf>>.

²⁰ Andrew Rollings, Ernest Adams, *On Game Design* (Indianapolis: New Riders, 2003), 218.