

1 Introduction

Although game scholars have tried to build many theories and theoretical frameworks to resolve the relationship between narrative and gameplay (Jenkins,2004; Hunicke et al.,2004; Aarseth,2012; Dena, 2017; Cardona-Rivera,2020), the two components remain siloed and incompatible. Dena argues the reason of this siloing does not come from incompatibility of narrative and game elements, but instead are born from conflicting ways of thinking about narrative and games. And in the myth of narratology versus ludology, scholars mostly view games as finished cases to be studied epistemologically, but not study them from an ontological perspective, such as studying what is the constructing logic under the surface of games.

In this essay, I will re-establish the relationship between narrative and gameplay with a new schema of simulation, and explore how the new framework allow narrative and gameplay function collaboratively in a puzzle-adventure game.

2 Theoretical Framework

The great debate of narratology versus ludology has lost its appeal due to too much mutual interest and agreement (Murray, 2006), but the contradiction between narrative and gameplay remains unclear. Video games have been defined as stories (Murray, 2004) or narrative medium (Jenkins, 2001). On the other side, games are considered to be entertainment software (Aarseth, 2012) and computer simulations (Frasca, 2003). The conflict between those two ontological fields makes it difficult to discuss how narrative gameplay works together in games. In regard to that, however, in cultural studies games are seen as representations as much as narrative media, and the concept of simulation as a critical approach also provides a new insight when compared to simulation in computer science. Therefore, I adopt a Baudrillardian view

towards representation and simulation to examine the relationship of narrative and mechanics in games.

2.1 games as computer simulations

Frasca (2003) argued that video games are a particular way of structuring (computer) simulation, and narrative is a form of structuring representation. He defined simulation in games from computer simulation theory: “to model a (the source) system through a different system which maintains (for somebody) some of the behaviours of the original system.”

In this sense, Aarseth (2012) also noted, games are complex software systems that can emulate any medium, including film, text/novel, graphic novel, and even simulate board games and sports.

The ability of games to simulate has been recognized by many scholars in game studies. Juul (2005) suggests games can simplify and stylize real world, and simulates specific *ideas or concepts* in the world, such as soccer (FIFA) and driving cars (GTA). But simulation in games can have varying degrees of fidelity to behaviours that are simulated. Thus, game creates fictional worlds by substituting one difficult task into another, such as keyboard input and joystick movement.

To push the argument further, a game world might simulate a system that doesn't exist in real world. (Giddings, 2007) Frasca (2001) also believes that there is no need for real referent in simulation, just as the word *unicorn* is a sign without real referent.

Following this opinion, Järvinen (2003) analyses *Tetris*, arguing the tetrominoes in Tetris do not represent anything but themselves as tokens of the game's rules.

Now one issue emerges: game as computer simulation, when they are referencing real-world systems, they inevitably employ media that represents real world to make

sense of themselves, and consequently are able to form narratives. But when they simulate a system that has no referent – “it claims the possibility of being original”. (Giddings, 2007)

Coincidentally, the equivalence towards reality is at the core of discussion of Baudrillardian simulation. In the next part, we are going to discuss how computer simulations in games created representations of narrative that consequently fall in line with Baudrillardian simulacra.

2.2 games as Baudrillardian simulation

The meaningful relationship between real world and signs, when opposed to simulation in cultural studies, is considered a resemblance (Deleuze, 1983) or an equivalence of the sign and the real (Baudrillard, 1981).

For Jean Baudrillard, simulation is the generation by models of a real without origin or reality. And simulacra are sign systems that never exchange for the real, but exchange for itself, circulating without reference.

Game studies never take the critical approach. As Giddings argues, game simulations “are seen as more accurately or completely resemble their source”, and it is because of the dissembling of the simulacrum that games not only present itself as a good copy of a dynamic world, but becoming the original.

In this essay, games are decomposed as a kind of Baudrillardian simulation, and the elements that comprised games forms successive stages from loyal representation of real world to simulacra that only circulate signs within itself.

2.2 the Simulation-Representation scatter plot

In Baudrillard’s definition, he distinguished four successive phases of image: representation of the sacramental order, that reflects a profound reality; order of the

maleficence, that masks and denatures a profound reality; order of the sorcery, that masks the absence of a profound reality; order of simulation, that has no relation to any reality.

If the argument above is solid, then we can move away from the ludology vs narratology schema and use a categorization of simulacra orders (Figure 1) to measure how much a game tries to mimic the real world. And the less they employ traditional representational media, the deeper they fall into the logic of simulacra.

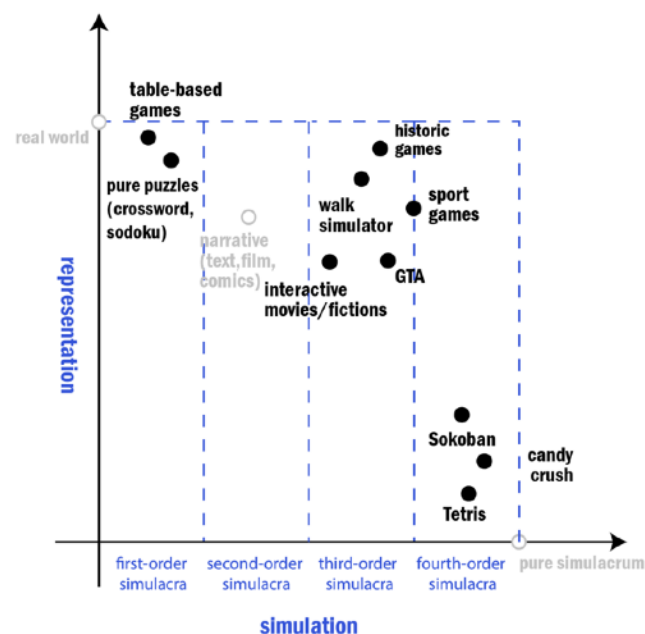


figure 1. scatter plot of how games fall into a continuous range of simulacra.

In the graph, representation represents how much a game adhere to the real world. But the graph does not compare the degree games represent themselves as copies of worlds, but only distinguish how they use representational media (narrative) to generate meaningful relationship with the real world.

As we argued above, video games that mimic a real-world process falls into the third order simulacra. Absorbing all kinds of traditional media makes their representation

exacerbate from the second-order simulacra of narratives (novels, film, comics) into a third-order. For example, the way **GTA** simulates driving masks the fact that people could not drive as they did in the game without being punished. And **interactive movies and fiction games** offer players the agency they do not possess – which is to choose the fate and replay a life. The way **walk simulator** games add up from interactive movies is that they offer simulacra of spatial exploration of fictional world. **Sports game** do occupy a special position in the scale. As Juul (2005) indicates, as most sport games are typically experienced on television, the way people perceive this simulation is largely shaped in a representational way. Sports are themselves rule systems performed by people physically in real world. When they are broadcasted by mass media, they turn into second-order simulacra that denatures the reality. When they are renatured as video games, the original rules and representation format are kept but new rules of simulation come in. Because they are rule-based systems with equivalence in real world, they stay in the third-order simulacra.

Games that rely more on rules other than representational media (such as **Tetris** and **Candy Crush**) tend to fall in the fourth order of simulation. When these games are played, they produce massive representations as possible states. Those representations produce meaning only according to each other and the rules that allow them to exist, instead of real world.

Simulacra can also address the complex situation between **table-based games** and **video games**. As table-based games exist as physical copies, and create real-world experience, they belong to first order simulacra – they loyally resemble the reality. But as video games are essentially what people see on screen, an already-denatured

copy that does not resembles reality, regardless of what media they are simulating, they would only go into further stages of simulacra.

Puzzles are categorized into first-order simulacra, too. Mora-Cantalops (2018) defines puzzle games as “where problem solving is the core and main mechanic and where the main source of satisfaction is solving these problems”. Simulation of solving the problem is the behaviour itself. And puzzles do not require certain representational media to function, as long as they do not become part of the mechanics of video games and are in the physical world. Think about crosswords or jigsaw or a logic puzzle of liar and truth-teller, their mechanics are settled when they are invented, although they may change form or the way they are narrated.

Therefore, when we chose puzzle-adventure game as the project of this research, we combined some puzzles that require paper-based thinking and narratives that are simulated by process, together with fourth order simulacra mini games.

In this section, I adopt terminology of representation, simulation and simulacra to establish a specific theoretical framework. The framework will then be applied to two examples – one is to be analysed as a case study from a traditional representational view, another is my own practice, to be analysed in a decomposed way.

3 Methodology

We have built a **theoretical model** that substitutes the dichotomy of gameplay and narrative. By applying the terminology to one **case study**, we take a close observation of how the new theory address what ludonarrative dissonance in games. In making our game project, *Last Wish*, we employ **prototyping** and **coding** to build in multiple game mechanics adapting various representational media. The project will be decomposed and analysed according to our theoretical model.

The analysis of practice would be conducted in autoethnography. McArthur (2019) defines it as a form of self-reflection in which the researcher's own personal experiences are documented and reflected upon in order to connect the researcher's own thoughts and ideas to the wider cultural understandings of a given phenomenon. By documenting the process of creating our project, I would be able to examine the validity of the theoretical framework with the hope that it offers some advantages to narrative in games.

Case Study: Safecracker (2006) – a representational view

In this game, the player needs to solve all the puzzles in the house to find a will of a billionaire. On solving these puzzles, player gain information about characters who are possible heirs. And when they solved the final puzzle, they will be given the power to assign the heir. In this game, narrative is an affiliated element. In this house, the only way players learn any information is through some letters, only narrated by the main character. (See Figure 2) The representational media, namely voice recording and images (that responds the movement of mouse position), are brought in directly to form a background story. They barely function as a story, but rather offer a background to justify and reinforce why the player have to solve all the puzzles. As soon as the puzzles are all solved, the game ends.



Figure 2. the narrative in Safecracker



Figure 3. A puzzle in Safecracker

As the game simulates many interesting puzzle systems (keypads lock, wire operator, magnet maze, light spectrum lock, see Figure 3), 37 locks in total, its only difference from pure puzzle game that has 37 levels is these second-order simulacra that function as narrative. In this sense, all the letters, dairy pages found in the house, together with the talks of main character is a simulation of narrative. The When the player plays the game through, a representation that appears to be narrative is instantiated. And from the perspective of players, they experienced a story about a safecracker opening locks to find a will.

4 Project Description

Our project is a puzzle-adventure game that is developed with Maya and Unity. It takes the form of a first-person 3D walk simulator. The player acts as a girl who was assigned an unfinished mission by her ancestor.

As a puzzle-adventure game, it contains some logic puzzles that leads to clues in boxes, and exploration plays a large part of storytelling. The player can investigate objects in the environment to get information (through monologue of the main character and dialogue with ghosts).

I work as the programmer in the group. In the beginning phase of production, the group members discussed and decided the main storyline and designed the game space together.

storyline & game logic:

The girl's ancestor was an astronomer two thousand years ago. In his time, he saw evilness prevail and people suffer. Therefore, at the end of his life, he carried out a powerful magic with the energy of a supernova to supress the evils in the world. But he knew, when the supernova casts its light on the earth, the magic would lose its

strength. To prevent the return of dark era, he also put a spell on his own blood, so when the time comes, his descendant would take the responsibility to re-assign his magic onto another star.

the players must search in the game environment for useful information that can help her to understand the situation and guide her behaviour. There are 4 puzzles in the scene, and each of them contains either an object or a useful piece of information.

After obtaining information in the environment and solving all the puzzles, she would be able to combine the clues at hand and solve the final puzzle that is embedded in the environment. Then, as the gate of mansion opens, the evil is awake, she has to use a seal at a certain place to disempower the evil while avoiding being killed by the evil.

Puzzle 1: Narrative Puzzle with password lock box

The clue for correct password is a book that lost its page of 4 and 12. After giving the right password, the player will find a **map** of the house in the vault.

Puzzle 2: narrative puzzle with keycode lock

The clue of this puzzle scattered in several places. First, player should talk to a ghost in the room, who will tell the player to pay attention to the blue things in the room.

Then, player would see a blue arrow on the wall outside of the window. Finally, she would find 4 blue books lining up on the shelf in the room, and the initial letter of the 4 books would be the key pass. From this player would be given two documents that suggests the way to open the gate and how to disempower the evil.

Puzzle 3: mechanical block slide puzzle

Player must put all blocks into their right place, and the **reorganized picture** is going to be used in the final puzzle.

Puzzle 4: Narrative Puzzle with password lock box

Another environment-dependant narrative puzzle. The player would find 2 memos saying HIDDEN and IHDDNE. Aligning them and connect the same letters would show up a pattern of XIIX, the number it represents would be the passcode for the lock. In it there is a magical **seal** used to defeat the evil.

Puzzle 5: environmental puzzle

From the first puzzle and the third puzzle, the player will obtain two sheets. The picture obtained in puzzle 3 actually resembles the tiles in the living room. When the player **places the star map onto the picture**, they will match each other and show a specific spot that is on the floor of living room. The player must step onto the particular spot in the living room after having obtaining the seal. And then the gate will be open.

Final goal

In puzzle 2, the player would know, that she must put the seal onto an altar in the yard in order to trigger the magic again. But as the evil is awake, it would kill her with a touch. She would have to reach the altar to eliminate the monster and finish the mission.

As a very story-centric game, the puzzles actually function as obstacles on the way of finishing this game. Only if the player solves all the puzzles could she make some changes happen in the game, mechanically and narratively.

5 Critical Analysis

Notably, the five puzzles of our project are not based on one same mechanism. Some of them (puzzle 1, 2, 4) emulates narrative events and stories, and absorb them as part of mechanism; some of them (puzzle 3, 5) are built based purely on computer-defined rules but because of the representation, they reconnect with the narrative in the game.

In this section, we decompose the game project in order to explore in what way the representation and simulation form meaningful relationships and how these relationships make their coordinate shift on graph.

5.1 Environmental storytelling

Environmental storytelling is understood as a way to provide narrative context, as well as creating player identity. (Fernandez-Vara, 2011) In our game, most of narratives are scattered in the environment and appear only when players interact with certain objects. Essentially, when narratives are in their pure text form, they are second-order simulacra. But when players click on certain objects in the scene, they show up as part of the gameplay by means of a subtitle. “An arbitrary relationship between the operation of the game/simulation and the representational operations of both its presentation and its interpretation” (Giddings, 2005) is formed.

This arbitrary relationship is enabled by computer simulation that create rules that function without exchange meanings with reality. In my code, I make a ray be casted from the centre of fps camera and when the ray hits colliders attached to interactive objects, the Trigger Event scripts on the objects are called and stream a particular snippet of words in a spreadsheet. This mechanic connects objects in the scene and their corresponding narratives only based on programmer’s intention. (Figure 4, 5, 6)

This computer simulation process, as fourth-order simulacra, powerfully ignores physical rules of reality and justifies its own existence with the mask of narrative.



figure 4. Narrative in playing

id	event	speaker	text	nextEvent	ghostControl	LastEventInSequence	imageAsset	audioAsset
0	Heng		(Hear a deep and remote voice) Hey! My dear kid! It's about time to do THAT. Just because of this will can I exist as a s					
1	Player		Goel That dream again? Who's that one in my dream?	2	0	N		
2	Player		Where am I? ...It looks familiar. I've been here before.	3	0	Y		
3	Ghost A		Feel confused?	4	0	N		
4	Player		Who are you? Am I still dreaming? I remember I was sleeping at home...	5	0	N		
5	Ghost A		I'm part of somebody's will from AD. 139. Both of us were brought here for a purpose.	6	0	N		
6	Player		What purpose?	7	0	N		
7	Ghost A		"Find secrets through the veil of history. I'm here waiting for you for thousands of years, finally you come."	8				
8	Player		Why me? I	9	0	N		
9	Ghost A		It's your destiny.	10	1	Y		
10	Heng		"This was my best invention to predict the future. I still remember that day, flames lit up the sky, Yu destroyed it by fire. I					
11	Heng		The final day came. I knew it must be my last chance to beat Yu. Thanks to the seal that saved my life. That was really a ch					
12	Player		Yikes! These files and books totally cluttered the table. Maybe there are some useful information.	13	0			
13	Player		"It's so weird! The name of the book is "Guidance", but there's no word in this book! Wait! It seems several pages wer					
14	Player		"Wow! It's a poem praises Heng's life and his achievement! I remember my grandpa told me his story. He's my ancestor,					
15	Player		"Heng may use this book to learn new knowledge about stars. He must be a master of astrology. So, where's the best sp					
16	Ghost B		"Hoh! Use your imagination, dear kid!"	17	0	N		
17	Player		Goel! (Why does this thing suddenly come out of nowhere?)	18	0	N		
18	Ghost B		"Remember, everything's connected with each other, just try to weave the story. It's..."	19	0	N		
19	Player		"(Interrupt) Yeah, I know it's my fate, right?"	20	0	N		
20	Ghost B		Smart kid! Pay attention to blue.	21	0	N		
21	Player		What?	22	0	N		
22	Ghost B		I never repeat. See ya.	23	2	Y		

Figure 5. Narrative in spreadsheet

In short, the simulation rule of clicking and get information of object, functioning as a fourth-order simulacrum, absorbs and modifies narrative, a second-order simulacrum, and thus forms a third order simulacra of the game mechanism. A mediation happens in this process and forms the seemingly meaningful relationship between gameplay and narrative.

```

if (Physics.Raycast(fpsCam.transform.position, fpsCam.transform.forward.normalized, out hit, range, layerMask))
{
    // half screen dialogue on
    if (triggerReceiver != null)
    {
        triggerReceiver.CallStory();
    }

    //full screen UI panel on
    if (UIReceiver != null)
    {
        UIReceiver.TurnOnPanel();
        backButton.gameObject.SetActive(true);
        aim.gameObject.SetActive(false);
    }
}

7 个引用
public void CallStory()
{
    gameController.StartEvent(this.initialEventID);
}

6 个引用
public void StartEvent(int eventID)
{
    //pauses gameplay
    Pause();

    //this bool is used to control whether update should read and use clicks (see Update function above)
    isInEvent = true;

    //Retrieves the correct "narrative event" (as a DialogueLine) using the eventid received from whoever called this function
    //(usually the trigger)
    currentEvent = dialogueSys.GetEvent(eventID);

    //passes the DialogueLine object to the ui so it can display the content (text, image, audio)
    ui.DisplayEvent(currentEvent);
}

```

Under this framework, ludonarrative dissonance can be seen as a result of the failure of the mediation, when the cognitive gap between two orders of simulacra is too large, and players are not convinced enough to form that falsely meaningful relationship.

5.2 password lock puzzle

Locks that require a password to open have had a long history in puzzle games. In *Safecracker*, sometimes the password note is hidden in another mechanical puzzle. In our project, the passwords are all inferred in the environment. Players must draw clue from what the character says as they explore the environment.

The three password devices in the scene function as much as they do in reality. Two are password pads that accept input of 0-9; one is an input field that allows any input from keyboard. Before those devices are brought into video games, they are first-order simulacra. But here, they are copies without originals – second-order simulacra. Now, how do they make connections with the storytelling? By the solution of the puzzle. The infinite number/letter input is specified when the passwords are made to be relevant to the narrative.

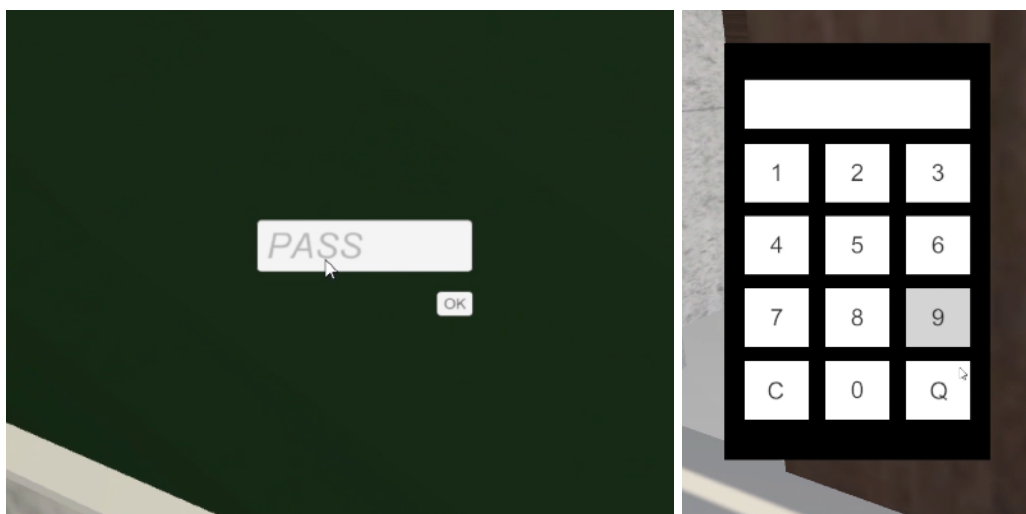


Figure 7. input password puzzle and keypad puzzle

In our game, the only relevance of puzzle and clue is the spatial proximity. Every puzzle is solved by the clues found in the same room. But ideally, there should also be some visual/textual clues such as similar texture patterns (which is used in the final puzzle of maps) or matching wording. Still, these ways to form semantical relationship are not according to the logic of resemblance in sign and meaning, but arbitrary relationships enabled by mechanics of gameplay.

In our code, the input is predetermined, and are not influenced by whether players checked the clues or not. Players are the ones to figure out how narrative lead to a certain line of numbers or letters. There is no guarantee the players would come out with the same interpretation as the designers intended. They are forced by the game rules to engage with the making of exchanging meaning between the second-order simulacra of narrative and the fourth-order simulacra of computer simulation. The specific rule that allows this exchange (see Figure 8), is only one line of equation in the code. But behind it lies a chain of methods and references that powerfully creates the illusion of “when putting in the right password, the treasure box is going to open and an object is attained.” As a result, the narrative, and a simulation device both function as a disguise for the unreasonable connection between narrative clues and user input.

```
if (input == curPassword)
{
    if(!isOpen){
        if (this.gameObject.name == "keycode")
        {
            backPackSwitch.object3.SetActive(true);
            objectToEnable.SetActive(true);
            isOpen = true;
        }
    }
}
```

Figure 8. code that asks as an arbitrary condition to be met for solving the puzzle

A similar thing happens on the block slide puzzle in our game. The puzzle jigsaw is assigned with an image that carries information about how to proceed the game.

Although there is a simulation that generates second-order simulacra (see Figure 9), the further game mechanism (see figure 10) that is triggered by the puzzle simulation belongs to fourth order. And the same process of mediation would be completed by players automatically, thus make the game itself a third-order simulacrum.

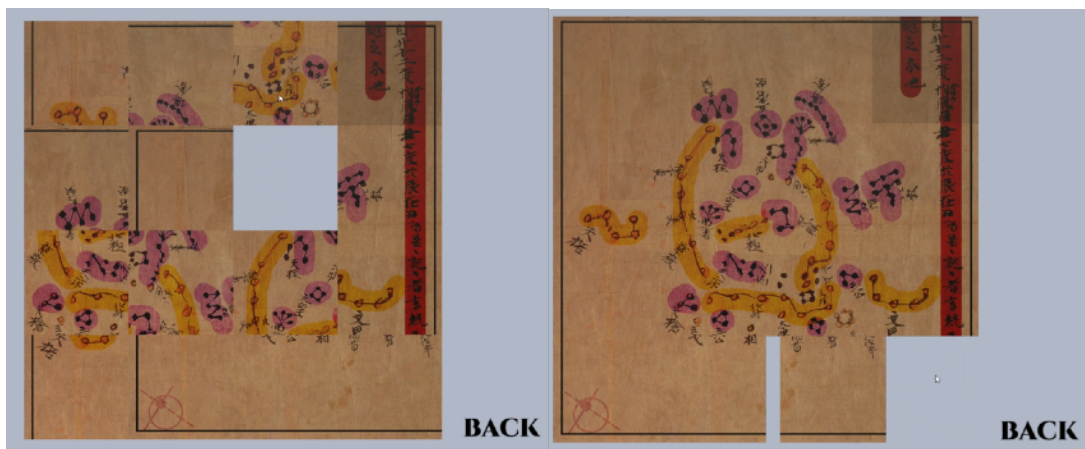


Figure 9. block slide puzzle before and after



Figure 10. puzzle 5 that utilizes the image of the slide puzzle

6 Discussion

As we examined two puzzle-adventure games and explored how game mechanics and narratives are agglutinate in video games, it becomes clear that narrative and game mechanism function both as semiotic systems, but narrative function at the level

where they exchange meaning with the real world, while gameplay creates rules that function only within the system of games. And by weaving narrative representations into simulacra, a mediated simulacrum of the third-order is created, which can neither be interpreted as a false copy of reality, nor a hyperreality that self-contains.

This theory suggests game mechanics and narrative are two different things by definition, and objects the dualistic opinions such as games are stories or games are simply not narrative medium, but allows games that contain them both to take a stance in between. And the way to let narrative and mechanics work collaboratively is to create meaningful semiotic relationship. The relationship is never really meaningful, but as people fail to recognize the logic of simulacra, it would not be hard to convince them to believe in the false relationship between one simulacrum and another.

7 Conclusion

In this essay, we tried to move away from the dichotomy between narratology and ludology and take a stance in the middle: games are computer simulations, they can simulate narratives, but not necessarily must do so. Narratives are representations, which can be instances of game simulations, but not necessarily must be. Studying game as a cultural phenomenon that is on the same level of narrative media helps to establish a continuous landscape of game studies as well as provide a critical approach that clarify how the illusory realism comes to effect in video games.

The theoretical framework we established is a very rough one. Based on the terminology we defined, it merely maps out the macro view by stages regarding to how much a game simulates real world, but is not able to analyse the details of how games can effectively make use of their emulation of real world and rule systems. In

future research, we intend to not rely on concepts borrowed from postmodernists, but tailor the theory specific for game studies.

References:

- Aarseth, E. (2012) 'A narrative theory of games', in *Foundations of Digital Games 2012, FDG 2012 - Conference Program*. New York, New York, USA: ACM Press, pp. 129–133. doi: 10.1145/2282338.2282365.
- Baudrillard, J. (1994) *Simulacra and simulation* / by Jean Baudrillard / translated by Sheila Faria Glaser. Ann Arbor: University of Michigan Press (Body, in theory).
- Cardona-Rivera, R. E., Zagal, J. P. and Debus, M. S. (2020) 'GFI: A Formal Approach to Narrative Design and Game Research', in *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*. Springer Science and Business Media Deutschland GmbH, pp. 133–148. doi: 10.1007/978-3-030-62516-0_13.
- Deleuze, G. and Krauss, R. (1983) 'Plato and the Simulacrum', *October*, 27, pp. 45–56.
- Dena, C. (2017) 'Finding a Way: Techniques to Avoid Schema Tension in Narrative Design', *Transactions of the Digital Games Research Association*, 3(1). doi: 10.26503/todigra.v3i1.63.
- FIFA. (1993) [Computer video game]. Vancouver: EA Sports.
- Fernandez-Vara, C. (2011) 'Game Spaces Speak Volumes: Indexical Storytelling', in *Proceedings of the 2011 DiGRA International Conference: Think Design Play*. Digital Games Research Association. Available at: <https://dspace.mit.edu/handle/1721.1/100274> (Accessed: 19 May 2021).
- Frasca, G. (2001) *SIMULATION 101: Simulation versus Representation*. Available at: <https://ludology.typepad.com/weblog/articles/sim1/simulation101.html> (Accessed: 5 April 2021).

- Frasca, G. (2003) *Ludologists love stories, too: notes from a debate that never took place*.
- Giddings, S. (2007) ‘Dionysiac Machines: Videogames and the Triumph of the Simulacra’, *Convergence (London, England)*, 13(4), pp. 417–431.
- Grand Theft Auto. (2001). New York: Rock Star Games.
- Hunicke, R., Leblanc, M. and Zubek, R. (2004) *MDA: A Formal Approach to Game Design and Game Research*, *aaai.org*. Available at: <https://www.aaai.org/Papers/Workshops/2004/WS-04-04/WS04-04-001.pdf> (Accessed: 6 April 2021).
- Järvinen, A. (2003) *Aki Järvinen: The Elements of Simulation in Digital Games*. Available at: <http://www.dichtung-digital.org/2003/issue/4/jaervinen/index.htm> (Accessed: 9 May 2021).
- Jenkins, H. (2004) ‘Game design as narrative architecture’, *Computer*, 44(3), pp. 118–130.
- Mcarthur, V. (2019) *Making Ourselves Visible: Mobilizing Micro-Autoethnography in the Study of Self-Representation and Interface Affordances, Loading... The Journal of the Canadian Game Studies Association*. Available at: <http://loading.gamestudies.ca> (Accessed: 18 May 2021).
- Mora-Cantallos, M. (2018) ‘Transhistorical perspective of the puzzle video game genre’. doi: 10.1145/3235765.3235768.
- Murray, Janet (2004): “From game-story to cyberdrama”, in Harrigan and Wardrip-Fruin: *First Person*. MIT Press.
- Murray, Janet. (2005). The Last Word on Ludology v Narratology in Game Studies. In *International DiGRA Conference*.
- Kheops Studio. (2006). *SafeCracker*. Microsoft Windows. The Adventure Company/

Appendix

Modelling Assets:

Turbosquad:

(free asset)

3D model Classic Water Fountain by Marc Mons

<https://www.turbosquid.com/3d-models/3d-model-water-fountain-1387533>

3D Bonsai Red Maple model by EyeScope

<https://www.turbosquid.com/3d-models/3d-bonsai-red-maple-model-1427117>

3D Wood boxes model by nestofgames

<https://www.turbosquid.com/3d-models/3d-wood-boxes-model-1418297>

Keypad by Sgw32

<https://www.turbosquid.com/3d-models/free-max-mode-keypad/786122>

Taobao:

(Paid resources)

Textures: traditional Chinese embroidery fabric by Little crocodile material library

[https://item.taobao.com/item.htm?](https://item.taobao.com/item.htm?spm=a1z09.2.0.0.3fca2e8d32uV7s&id=570136013634&_u=j2rbusobdf58)

[spm=a1z09.2.0.0.3fca2e8d32uV7s&id=570136013634&_u=j2rbusobdf58](https://item.taobao.com/item.htm?spm=a1z09.2.0.0.3fca2e8d32uV7s&id=570136013634&_u=j2rbusobdf58)

Ancient Chinese articles model by Xinyang

[https://item.taobao.com/item.htm?](https://item.taobao.com/item.htm?spm=a1z09.2.0.0.3fca2e8d32uV7s&id=565032997243&_u=j2rbusob38f4)

[spm=a1z09.2.0.0.3fca2e8d32uV7s&id=565032997243&_u=j2rbusob38f4](https://item.taobao.com/item.htm?spm=a1z09.2.0.0.3fca2e8d32uV7s&id=565032997243&_u=j2rbusob38f4)

Textures: 4000 High-definition textures for wood, carpet, concrete... by

GuestintheCloud

[https://detail.tmall.com/item.htm?](https://detail.tmall.com/item.htm?id=617644223286&spm=a1z09.2.0.0.3fca2e8d32uV7s&_u=j2rbusobb54f)

[id=617644223286&spm=a1z09.2.0.0.3fca2e8d32uV7s&_u=j2rbusobb54f](https://detail.tmall.com/item.htm?id=617644223286&spm=a1z09.2.0.0.3fca2e8d32uV7s&_u=j2rbusobb54f)

Unity Asset Store

Fantastic Creature #1: <https://assetstore.unity.com/packages/3d/characters/creatures/fantastic-creature-1->

Stylized Treasure Chest: <https://assetstore.unity.com/packages/3d/props/stylized-treasure-chest-87463>

Script and Tutorials:

Direct script and asset use:

[\[Unity\] Programming Practice: Sliding Blocks 1/2](#)

[Unity : Simple keypad for a door or safe \(importing package\) - Part 2](#)

[SAVE & LOAD SYSTEM in Unity](#)

Modified script use:

[Unity C# Tutorial - Basics: "PlayerPrefs" - Save and Load Data between scenes](#)

[Unity 5 Tutorial Tuesdays: Doors, Drawers and Treasure Chests Part 1](#)

In-class script & assets use:

[Unity Masterclass Term 2 - Week 4 - Animation Controllers and Events - Navmesh AI pathfinding](#)

[Unity Masterclass Term 2 - Week 3 - Async Level Loading, Lighting, Post Processing DGD2021-Week4](#)

Music Assets:

The Great Unknown-Jason Shaw

Over time-Jason Shaw

From: <https://audionautix.com>

