Half-Minute Hero and the genre-dependent construction of spatiality in videogames[1]

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Introduction

The single-player mode of *Half-Minute Hero* (Marvellous Entertainment, 2009) features four different game genres: in the role-playing *Hero 30 Mode*[2], the Boss enemy is casting a spell of destruction that will end the world in 30 seconds and the Hero must level up to defeat the Boss before the spell is cast; in the real-time strategy *Evil Lord 30 Mode*, the Evil Lord must beat enemy forces in 30 seconds by summoning three types of creatures; in the shoot 'em up *Princess 30 Mode*, the Princess, equipped with a rapid-fire crossbow, has 30 seconds to go outside the castle and get items to help her sick father; in the Hack-and-slash videogame *Knight 30 Mode* the Knight must protect a Sage while she is casting a spell of destruction (yes, that needs 30 seconds to be completed). Since it is our thesis that the physical spatiality of a videogame, i.e. nearness/farness and extension, depends on the genre or combination of genres it belongs to, *Half-Minute Hero* gives us the opportunity to outline what "space" means in each one of those genres all at once. To justify our thesis we shall firstly propose to understand the videogame, because of its interactivity, as a kind of virtual world, taking as such a net of objects characterised by their function or rules of use, whose generic outlines would be precisely the genres of the videogames. Secondly we would argue that the physical space is constructed upon the rules of this logical space: since the logical space is established in the form of diverse genres, the physical space, which is dependent on the logical space, will be also established dependent on genres.

Videogame as virtual world

We call the gamer´s experience of feeling her/his actions belonging to an autonomous artistic world or to a virtual *nature* with its own laws "immersion", not in the sense of intense absorption but in that of incorporation (Calleja 2007: 134). We could consider *immersion* the characteristic of the virtual world as opposed to *identification* in traditional art, because its requisites are different. The traditional work *is there*, is something given, a ready-made world that can only be *received*. We cannot partake in the action of a film, in the structure of a painting, in the development of a symphony, we can only *identify ourselves* with a particular inner moment and attend to its movements in relation to other moments within the piece. The videogame, however, does require an action by the gamer so that it can be constructed. In other words, if we (wrongly) understand the videogame as a kind of interactive film then, because of that interactivity, *it cannot offer us the narrative plot as a mere internal display, but it must previously model the world where that plot can be developed.* Therefore, a videogame does not simulate *things*, but the *laws* that rule the behaviour of things (Frasca 2003:2-4). If we call the simulation or implementation of a set of rules for the behaviour of

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[1] Translation: Ana Isabel Pascual-González
[2] Two other modes that respond to this genre are *Hero 300* and *Hero 3*, wherein the time limitations are 300 seconds and 3 seconds respectively.

objects "virtual world", then a *videogame is a kind of virtual world*. For gamers the videogame *is there*, but only as a particular kind of openness[3]. A piece of music, a play, a film are not virtual worlds in this sense because they do not allow us to get involved in the piece of music, play or film in terms of performativity. A videogame is not however just any kind of virtual world. In symbolic interactive systems, such as the desktop of an operating system, the interface of a cash dispenser or a social network service, both the goal and the result of the actions may be external to the virtual world; whereas in the virtual worlds that strictly speaking videogames are, the goals are immanently set and the consequences of the actions performed remain within that virtual world. Thus we want to take money out of a cash dispenser for reasons that are external to it, and this action affects our real money (that is, to all the possibilities in our daily life); or we add someone as a friend in *Facebook* according to the rules of friendship of that virtual world, but with the goal of arising the interest of the other person and/or meeting in the real world. Contrary to this, killing a gangster in say *Hitman: Blood Money,* only makes sense as a goal, and it only has consequences, within the virtual world of this videogame: newspapers containing the headline from the last mission will be scattered around throughout all levels, making it more or less difficult to be detected in subsequent missions; our country's criminal laws would not be applicable though, and therefore we could not be accused of nor tried for murder. That is, in virtual worlds goals are set *with* objects of that world, but are not necessarily set *from* objects of that world, whereas in videogames goals are set *with* and *from* objects of its world[4].

Virtual world as logical space of conditions

In accordance with our interpretation a videogame would be a certain kind of virtual world, understanding as such the implementation of a set of rules for the behaviour of objects. What is, then, an object within a virtual world? We could in a wide sense characterise it as everything that works as *condition for* something else. For instance, the virtual world of *Facebook* is the coherent set of rules that links the objects "person", "comment", "photo", "like" (a picture is something that can be liked, commented, shared, tagged or sent to somebody; comments are something that can in turn be commented; a person can be added as a friend or messaged, etc). More specifically, in *Dwarf Fortress,* a virtual world that is a videogame, the layered stone *dolomite* is defined[5] as a particular instance of a certain set of variables: value of the material, fusion point, boiling point, density, etc. For such a definition of dolomite not to be mere *rhetoric*, in *Dwarf Fortress* we will have tools and an oven to bring the dolomite to fusion point (which would imply the need of an energy source for the oven or the need to make the tools); there will be a certain kind of financial exchange whereby the market value of the material will be realised (for this condition, in turn, to be realisable we will need the object "market"*,* which in turn will require certain materials to be made, which in turn,…); the density will affect the weight of an object made from that material (and weight means how much damage blunt force weapons do, of which density is a large factor, which requires yet another series of conditions for other objects). Each object is a condition for another, so that the conditions interlock in a coherent system. The chain of conditions, from beginning to end, is the videogame. These conditions are not abstract, but specific to each videogame (Siabra-Fraile 2008). In this sense, even in its *specific absence*, an

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[3] A discussion about Eco´s *openness* and *performance* in (De Marinis 1993: 169-171)

[4] According to this, when the goals in a videogame are heteronomous (as in some MMGOs competitions, where the videogame is a means to something else) one could belief that it is being used as a mere virtual world.

[5] In one of the configuration files: inorganic_stone_layer.txt

object establishes a series of restrictions of freedom because it is defined with regard to the *whole* of the remaining objects: it is an object insofar as it is connected by use with the other objects (Wittgenstein 1953: §462). Briefly, due to the fact that in order to determine the function of an object we need to determine the function of the objects that it determines, in a videogame there never is an isolated object (there must be at least *two*[6]). There is no object but in a *pragmatic net* of objects, and specifying objects in a world is in fact specifying the world in which they are inserted as signs of those conditions. We can establish then that *a virtual world in as much as implementation of a set of rules for the behaviour of objects, requires a logical space of conditions of dependency between objects*[7]. So *rules and objects are differing points of view on the same space of conditions*[8]. On the one hand, what objects appearing in the videogame are depends on their use, and they only appear in the videogame *insofar as* they are of use (Wittgenstein 1953: §31) (there cannot be objects with no reference to the actions in which they might be involved). On the other hand, only objects allow actions to be achieved. For example, what is a wooden box? It depends on how it relates to other objects. A *wooden box* in *Resident Evil 4* hides ammunition (and it can be destroyed); in *Psychonauts* it allows us to reach a higher place by jumping from it; in an episode of *Grand Thief Auto San Andreas* it is an obstacle to avoid while driving (and it may or may not be destroyed); in *Rule of Rose*, it prevents us from going through a door and it cannot be destroyed, but it acts as a signal that a scenario has been completed and going back to it is not permitted. If an object *is* the function it plays in the videogame, then the problem is to *determine* that function or use (Wittgenstein 1953: §85). I know what is to be done when I find out the function of an object, or I find out the function of an object when I know what is to be done[9]. In the videogame *understanding* and *acting* are the same. My belief about the function of an object is in fact a belief about the *regularity* of the system. So a virtual world

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[6] Let's think of the simplest videogame with only one object: a single sprite in the middle of the screen that the user can control. The moment it responds to the controls, we can consider it a virtual world. It is not a videogame though. In relation to what can we establish an internal goal? It would be imperative to establish an additional condition to do that. However, according to our proposal it would be necessary to introduce a new object for that, such as something that we need to catch (=to place the sprite that we control over it), or from which we have to run (=to prevent the other sprite from touching the one under our control). Furthermore, let's suppose that in the game *Snake* there is no food, the screen is empty but for our snake, which grows automatically every so often and moves automatically too (we can only control the direction it moves). Well, even here it is possible to distinguish the snake's head from its tail. We can control the head, it moves automatically and can be destroyed by colliding with anything else. The tail remains static and invulnerable. Given that the head can be destroyed by colliding with the tail, for functional purposes we have to consider tail and head as two different objects. The tail is that anything else that the head can collide with. How could the goal of "not colliding with anything" be set otherwise?

[7] The logic space is a set of rules at *compile time*, the virtual world is this set of rules at *runtime*.

[8] What differentiates virtual worlds from the "real" world? The fact that the construction of a virtual world involves establishing a pragmatic net of relations that is *to exclude anything else*, so that the Being as inter-relation (as *inter-esse* or interest, that is, as in-mersion) coincides with the in-hesion (as *in-esse* or implication, that is, as de-duction), for the set of possible relations form *one* structural net of meanings ultimately supported by a Turing machine. In other words: *if "real" life can be called so it is because in it every object keeps a resistance to succumb to just one language game, to be enclosed by a single interpretation* (hence its objectivity, its moment of autonomy), whereas, on the opposite end, *in the videogame each object coincides with the place that has been designated for it within the system,* it is implicit within the whole under the form of *function*. It is possible to extract certain (bio)political consequences from here in relation to the production processes of subjectivity. Indeed: if the configuration of the space in videogames makes conditions out of the objects, and a net weaved with conditions out of the world, the body gesture, simplified to just a few movements, *is itself virtualised* insofar as its *meaning* is in accordance with that net of relations: (Siabra-Fraile 2012:147).

[9] For example, in *Day of the Tentacle* it is only when one notices the relation between the fence, the cat that rubs its back against it and the paint, that the *sense* of the three objects is understood: a cat stained with paint that looks like a skunk, which in turn is used to scare another character.

presents a collection of objects defined by what can be done with them. The relations between them limit or allow certain actions that, in turn, change the state of things in that virtual world. The interrelation of the objects of the virtual world (that is, of the audiovisual *signs* of *functions*), fits the interrelation of the possibility of actions in the virtual world. If we understand the logical space as a set of possible interdependencies of the objects of the virtual world (so those objects appear in it as restrictions[10] on the action), then the logical space is the *form* of everything that can *occur* within the virtual world. The virtual world would be the resulting *event* of the inner relation between the objects.

Logical space of conditions and goals in a videogame

Since in videogames goals and consequences are immanent to the virtual world, our action actually has no other purpose than *to realise* the mutual interrelation of these objects: when in *Silent Hill 2* to combine a child's hair with a bent needle is required in order to obtain a key that is stuck in a drain (the key is in turn necessary to enter a lift), what is demanded is for that mutual relation between the *objects* "hair", "needle", "key" to be made clear. This articulation is the reason for what can and cannot be done in Silent Hill City (it is a virtual world) but also for the determination of goals (it is a videogame). But the consequence is to gain access to a lift, which in turn will allow to… and so on. The chain of conditions does not end, as in the cash dispenser, in an action external to the virtual world, but in the achievement of the goals the videogame proposes. To complete the videogame is to exhaust the repertoire of its goals and of the possible actions within[11]. Objects appear in the videogame, therefore, as signs of a particular function, and the articulation of those objects-signs (of a certain state of things in which we find ourselves) is what gives *meaning*, that is, it is what *signals* to us what has to be done. Since those objects-signs categorically determine the logical space of actions that are possible with them, the *possibility of such objects-signs* is the *possibility of meaning*. That meaning is what will make it possible to complete the videogame (Wittgenstein 1961: 3.1431, 3.251, 3.3). In this way the specific actions executed in the videogame are accidental insofar as they be not arranged according to the codetermination of the objects (i.e. finding the broomstick, the string and the paper clip in one sequential order or other is indifferent to the fact that *they must be combined together, them and no others*. This is what is essential to their meaning) (Wittgenstein 1961: 4.022, 4.461, 4.464). Also, an action that is considered completed without conditions is not possible, because an action without conditions is, in a virtual world, an action that does not take into account any object – an action, therefore, that simply cannot be. Such would be a videogame where it would be said, from the beginning, "Mission accomplished" (but this is not a videogame, because it is not interactive). In the same way, an action that is considered completed with non-satisfiable conditions is not possible in virtual worlds. For instance, if in *Silent Hill 2* the key in the drain were required to enter the lift, but a possibility to obtain it were not offered at the same time because the hair, the bent needle or any object with an equivalent function did not exist, there would no longer

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[10] This concept of *object* is that of Wittgenstein in (Wittgenstein 1961: 2, 2.01, 2.011, 2.0123, 2.0124, 2.013, 2.014, 2.0141, 2.02), but also in (Wittgenstein 1953: §50) or in (Wittgenstein 1953: §6): "'I set the brake up by connecting up rod and lever.'—Yes, given the whole of the rest of the mechanism. Only in conjunction with that is it a brake-lever, and separated from its support it is not even a lever; it may be anything, or nothing". It goes beyond the aim of this article to defend that this concept of object remains, beyond the pictorial theory, in the later Wittgenstein. See (Ishiguro 1969: 21). Notice, by the by, that 2.013 refers to the logical space, not the physical one..

[11] Pure sandbox games like *Minecraft* are not *only* virtual worlds, because goals and consequences are immanent (they are set *with* objects of that world), but they are not *pure* videogames either, because goals are not set internally (goals are not set *from* objects of that world). They might be called, *video-toys*.

be a virtual world because nothing could be done (Wittgenstein 1961: 4.4611). Then *possibility* in videogames is the same as *inmanent action coherently determined and oriented to a goal*. In a videogame the Kantian principle "if I must, I can" is fulfilled. The meaning shows itself when while playing I say: "this hair is here *for something*". Only by accepting the net of logical conditions established by (and between) the objects as a whole, that is, only immersed in the virtual world does the expectation of a specific goal make sense. The specific goal the gamer wants to achieve is not prior to the net of possibilities, just as the net of possibilities is not prior to the goals: *they mutually constitute one another as the game goes on*. Because the meaning of the objects gives the degrees of freedom of action (by means of their connections with the other objects, or the use of the objects regarding one another), achieving a goal is indeed achieving the virtual world, it is making *its inner constitution explicit*. We do not mean that the videogame is only this collection of functional relations between objects: the videogame is a much more complex unit. However we do consider this logical space as the fundamental strata on which other levels develop (such as the purely narrative one). A story, such as the one told in *Ico*, is unfeasible without the space of doors, chains, cornices and stairways that constitute the castle; in the same way that castle is only interesting insofar as it allows the story to unfold.

Genericity of logical spaces

First of all we have characterised the videogame as a kind of virtual world, that is, as the implementation of a set of rules for the behaviour of objects. Secondly we have concluded that the possibility of such set of rules requires a logical space of dependency between objects to be established. However, it is possible to identify a series of general types or outlines of logical spaces that, historically, have been used to create films, novels or videogames. These generic outlines constitute certain types of virtual worlds, which is what we call "genre of the videogame". When it is said of a videogame that it is of some genre, the gamer is being told *what kind of world is going to find* or, in terms of immersion-incorporation, *what kind of things s/he will be able to do*. A bottle will not perform the same function in an adventure game *(Lost in Blue)* as it would in an action game *(Manhunt),* and vice versa *Lost in Blue* is an adventure game insofar as in it a bottle is useful to hold water in (which is the equivalent, here, to being able to *explore the island further and for longer* without having to go back to the cave), and not as a weapon that could cut one's throat (Siabra-Fraile 2012:114). This way, virtual world and genre-structured action are correlative, because it is *only through the genre-dependent action that this virtual world can manifest itself*, and *only by being restricted with regard to the genre can the action have meaning*. What has to be done in a videogame is determined by the constitution of objects-signs found in it: so the possibilities in an *adventure game* (such as *Phoenix Right Ace Attorney* or *Fahrenheit*) and in an *arcade* game (*Ninja Gaiden II, Gears of War*) are different, because the objects-signs, always understood as shapers of a logical space around them, are connected in different ways. In the *adventure game* a book can be transported, given to someone, read; in an *arcade* game it can be destroyed or used as a projectile, etc. A building in *Resident Evil 2* is made up of several rooms interconnected in various manners by means of closed or locked doors, whereas a building in *Starcraft* is part of a particular technological tree of production. The analysis of the logical space of a videogame is thus a genre-dependent problem: what objects and what actions are possible in this genre? What kind of world is being constructed and how is its intelligibility built? Those genres are not, by the by, something immutable or deducible in the manner of Kantian categories. They are historical conventions consolidated by usage and they can be used as ideal types, for although they do not occur in reality save in a mix, they help

the intelligibility of the world we are immersed in. It is not just that there are hybrid RPG/FPS such as *Deus Ex*, FPS/Tower defence such as *Sanctum 2*, RPG/Strategy such as *Starcraft 2* or *Final Fantasy Tactics*, platform/puzzles as in *Trine*, and so on, but one genre can actually be understood in different ways, like in *Donkey Kong* and *Prince of Persia.*

From logical space to physical space

Up to this point we have been talking of logical space. However, this logical space, or net of conditions between objects, is not the same as physical space as an extension between objects. *Whereas logical space is a kind of ontology, physical space defines extensions.* A traditional work of art, for the same reason that it is constitutively given as a closed *physis*, so regarding physical space it is only capable of representing it. On its part the videogame, for the same reason that it is interactive, not only represents the physical space, but it constructs the logical space that regulates that representation. Sure enough, the videogame, being a virtual world, is a set of rules of dependency between objects. Therefore the representation of these objects is itself subject to the conditions of the objects. That is, the representation is virtualised, which means that *in a videogame the physical space depends on the logical space upon which the virtual world is constructed.* The question we are faced with then is: How does this dependency between logical space and physical space come to be? Or put in a simpler way: What relation is there between *logical condition* and *physical extension*?

Leibniz[12] gave an answer to this question. Against Newton's theory of absolute space (Suisky 2009: 45), Leibniz describes a space that exists only as a relation between objects, and which has no existence apart from the existence of those objects: "As for my own opinion, I have said more than once, that I hold space to be something merely relative, as time is, that I hold it to be an order of coexistences, as time is an order of successions" (Clarke-Leibniz 1717: Leibniz´s Third Paper, §4). This is usually called a *relational theory* of space and time.

> "I will here show, how Men come to form to themselves the Notion of Space. They consider that many things exist at once, and they observe in them a certain Order of Co-Existence, according to which the relation of one thing to another is more or less simple. This Order is their Situation or Distance. When it happens that one of those Co-existent Things changes its Relation to a Multitude of others, which do not change their Relation among themselves; and that another thing, newly come, acquires the same Relation to the others, as the former had; we then say, it is come into the Place of the former; […] And That which comprehends all those Places, is called Space. Which shows, that in order to have an Idea of Place, and consequently of Space, it is sufficient to consider these Relations, and the Rules of their Changes, without needing to fancy any absolute Reality out of the Things whose Situation we consider.[…] And this is what we here call Place and Space. But this can only be an Ideal Thing; containing a certain Order, wherein the Mind conceives the Application of Relations" [13].

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[12] On the Leibnizan relation between the *monad* and the Witgensteinian *object*: (Glouberman 1979: 46-49)

[13] He gives the following example: "In like manner, as the Mind can fancy to it self an Order made up of Genealogical Lines, whose Bigness would consist only in the Number of Generations, wherein every Person would have his Place: And if to this one should add the Fiction of a Metempsychosis, and bring in the same Human Souls again; the Persons in those Lines might change Place; he who was a Father, or a Grand-Father, might become a Son, or a Grand-Son, &c. And yet those Genealogical Places, Lines, and Spaces though they should express real Truths, would only be Ideal Thing". (Clarke-Leibniz 1717: Leibniz´s Fith Paper, §47). That is, "unlike the relationship between, say, a mighty oak and its leaves, a genealogical tree is not something which exists as a thing independently of, and prior to, its members, but is itself rather something like an abstract system of relations holding between brothers, sisters, parents, children, aunts, uncles, etc. Analogously for Leibniz, space and time are not to be thought of as containers in which bodies are literally located and through which they move, but rather as an abstract structure of relations in which actual (and even possible) bodies might be embedded" (McDonough, 2008).

Notice that the Leibnizian concept of Distance or Situation is the same as that of function: if in a net of objects linked with each other we change one of them for another one that has the same relations with the rest of the objects, then, the situation has not changed[14]. As we can see Leibniz makes a distinction between Space and Place. A place is a specific order of co-existence of objects, a certain current state of things, whereas space is the set of possible places or, so to speak, the repertoire of modes of co-existence. But none of these is yet Extension, but its condition of possibility. The physical space would be, Leibniz says, the only way that we finite beings can perceive those ideal relations; it is therefore a true illusion (phenomenon) insofar as it expresses real differences between objects, but a false one (delusion) if space is taken as a thing in itself, or spatial relations are taken to be exterior to objects (Burnham 2005). If the logical space is but the way in which the objects relate to one another ("an Ideal Thing"), the physical space is the phenomenon of that logical space.

However, a videogame, we said, is a virtual world of a particular kind wherein every object refers to another one in a net (the logical space) that determines what is possible and what is impossible within that world. Well, we could say, in Leibnizian terms, that the physical space where we are immersed in when playing videogames is *the set of representations constructed from specific situations of objects, which situations are adjusted to a general model of conditions between objects.* Or, in computational terms: *the physical space is the specific audiovisual content calculated from a specific set of objects in memory, whose states and behaviours obey a space of conditions implemented in the form of rules of a computer program.* If our reasoning is correct, the physical space in a videogame is the set of audiovisual signs of the rules of the logical space upon which it rests. That is, it is a *space logically qualified* by that which can o cannot be done. For instance, in *Half-Minute Hero´s* Hero 30 Mode we can find certain scenery made of grass, trees, rocks, bridges, water, cities, castles or marshes (figure 1). But if this space is more than a mere film set is because every object affects in different ways the movements of the Hero: the rocks hinder the character's progress; the grass, the trees, the marsh or the bridge allows the character to proceed, but they are riddled with different kinds of enemies; the cities allow the character to proceed to a new space where he could obtain objects and side quests and the castle allows him to confront the enemy; the water, like the rocks, hinders his progress unless he gets on a ship (figure 2). Notice this: a rock in the water is something real in the proposed situation if there is the possibility of sailing on a ship (in that case it would hinder the character's progress), but it is nothing different from the water if there is nothing such as a ship because since the character would not be able to go over the water, the rock will not work as a restriction to his movements. In that case "rock" and "water" is the same thing, regardless of them being represented in different ways. We could not say that the rock is more or less close to the character either, because there is no possible relation to it. The ship, in this case, functions as a switcher of accessible space we would access through a harbour (which can in turn be understood as those objects similar to cities but that are near water and have a ship, etc.). In a similar way we could ask ourselves, looking at figure 1, how far the character is from the castle. If there is no pathway through the north or the south, we could say that the castle is not at any distance from our character. Simply such a concept is meaningless in regards to the castle in our virtual world. Let's imagine that there is no available pathway, but instead there is a certain potion that allows the character to walk over the water without the need for a ship

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[14] As a matter of fact, if the new object absolutely fulfilled all the infinite relations of an object to the rest of the objects in the universe, it would not actually be another object, but the first one: it is the Identity of the Indiscernibles principle.

or harbour[15], then we can pose the question about that distance: the castle is as far as the character needs to move in a straight line to the left of the screen, plus the distance the character has to go to obtain the potion; and so on: the potion is obtained on condition of paying a certain amount of money, which is obtained by doing this or that[16]. In the "real" world things do not happen like that: the castle would be at a certain distance whether we can get to it or not. But this distance is of no use to us in the virtual world. We can use a ruler on our PSP or PC screen to measure the distance, but the measurements thus obtained are not actually false in *Half-Minute Hero,* they simply would make no sense. A theory of the absolute space is not relevant to videogames because distances are set depending on the objects and the functions they fulfil, on every situation.

Figure 1. Representation of a physical space "P". Source: *Half-Minute Hero* (2009)
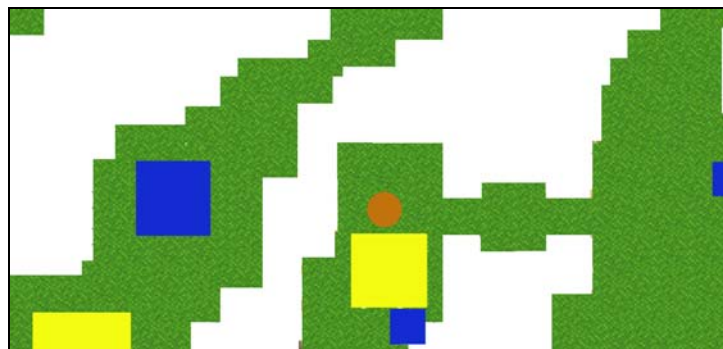

Figure 2. Qualified space A of P (simplified) if there is no object "ship". White: Inaccessible space. Green: accessible space riddled with low level enemies. Yellow: space riddled with high level enemies. Blue: links to cities or end boss. The brown circle is the character. Source: prepared by the author based on the figure 1.
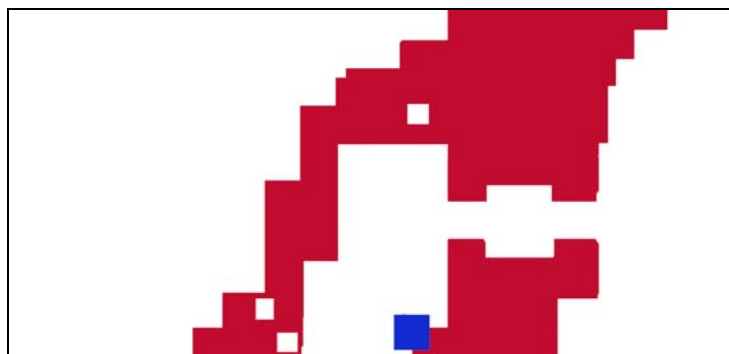

Figure 3. Qualified space B of P when we sail on a ship. White: inaccessible space. Blue: the harbour (switcher between A and B). Red: space we can move through. Source: prepared by the author based on the figure 1.

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[15] This is not an occurrence in *Half-Minute Hero*, just imagining.

[16] For a complete description of this type of spaces see (Siabra-Fraile, 2008).

Genericity of the physical space.

It seems, therefore, that Leibniz's interpretation of space (as a relation between objects, not as an absolute position) can be usefully applied to explain the construction of space in videogames understood as construction of possible worlds[17]. However if the logical space determines the physical space, given that logical spaces define themselves according to certain genres or combination of genres, we can conclude that *physical spaces will be generically determined*. Thus the physical space in a platform game (constructed on the phenomenon of gravity related to a body with the jump as a basic action), such as *Super Mario Bros,* where that which is near or that which is far depends on his jumping capacity, will be different from that of a shooter game (constructed around distant action), such as *Gears of War,* where "far" is equivalent to "my bullet will not get there". As we have seen "distance" depends on the things that I can do, and these possibilities are established as relations between objects generically marked. We are now going to see how the space is constructed in four different genres in the game *Half-Minute Hero (*Role-playing game, real-time strategy game, shoot 'em up game and hack-and-slash game)[18]. Given that this game always imposes a strong 30-second time restriction, the rules characteristic to each genre are simplified to the maximum, which allows us to obtain something like a schematism of each of them.

Genre-dependent construction of spatiality in *Half-Minute Hero*

Role-playing game: In *Hero 30 Mode,* the player, as the Hero, must grind to the Boss level in 30 seconds to defeat him before the spell is cast. Experience levels and money are gained by defeating monsters in random battles (automatically resolved) that are triggered while exploring a map. There are towns where a) time, equipment and health related items can be bought, b) people give us clues and c) we can find allies for battles.

Source: *Half-Minute Hero* (2009)

Our Hero is modelled as: 1) an experience level, 2) an experience gauge, 3) a health gauge, 4) an amount of money and 5) a set of objects. We start the game as novices, that is, the value of the Level is very low, the experience and health gauges are short, we have no money and the inventory is empty. When a monster hits us, some points are subtracted in the HP gauge, and if this gauge gets empty, we are sent to the last city we visited but the timer is not reset. When a monster is defeated, some points are added to the experience gauge, and when this fills up we level up. When fighting monsters, the relative difference between their levels and ours determines the effort (time and HP) needed to defeat them. This effort can be reduced with better weapons (less time is needed) and more resistant armour (less HP is needed). But

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[17] On why a videogame is not, strictly speaking, a monadology, (Siabra-Fraile 2013)
[18] A similar analysis of spatiality in platform games can be found in (Siabra-Fraile 2009)

obtaining objects requires spending money. In short: a) to defeat the Boss enemy we need to grind to its level in time; b) to grind to the Boss enemy level we need to defeat monsters; c) to defeat monsters in time we need to obtain better objects; d) to obtain better objects we need a certain amount of money; e) to obtain money we need to defeat monsters. c) to e) could seem like a vicious circle, but in fact it is a *spiral* because usually we fight monsters that are equal or superior to us by one level: enough to evolve, but not so much as to fail. When we level up, the experience and health gauges become larger: we have more HP, but the game is harder. We get better and better, but it gets harder to improve. This essential growth cycle of the characters in *Hero 30 Mode* is the core of any RPG: the experience of the character's biographical growth. Sure enough, the rules of RPG create an *experience system* that interprets each character as a set of basic attributes (strength, perception, resistance, charisma, intelligence, agility, luck and so on) in a way different from *Final Fantasy X, Dragon Age Origins* or *Resonance of Fate,* quantifying the general capabilities of a character, which usually increase his value as the character completes certain goals and thus building a sort of epic biography (in *Hero 30 mode* the character's attributes are simplified to one, the Level, and because of that so are the Boss enemies. Regardless the Boss' appearance, he is only a level to be reached). But the cycle of combats is a *mechanism*, and the biography is a *narration*. The dialectic intermediary is the idea of *quest,* whose function is to transform the growth mechanism (a cycle of combats) into our character´s biography (a set of quests that forges our reputation as heroes). A quest has two components 1) a set of actions to be completed (combating enemies, finding objects, training ourselves, rescuing somebody, etc), and 2) the Non-Player Character (NPC) that sets the quest. By means of 1) the quest establishes a goal *with* objects of the virtual world; by means of 2) the quests establishes a goal *from* the objects of the virtual world. In RPGs the narrative is as important as it is in classic adventure games (*Monkey Island, Grim Fandango*), which are also based on quests, although, unlike in RPG, the story does not depend on the phenomenon of the *character's going up a level*[19]. The main differences with adventure games are, firstly that the quest is pursued in order to acquire a *quantified* experience that will allow us to acquire certain skills which, again, will qualify us to undertake harder quests; and secondly that the quest usually requires some kind of combat to be satisfied, which involves health gauges and an ability to cause damage, like in action games, that are only active during a combat situation, which is different from a ordinary gaming situation. The physical space, as we have said earlier in relation to the qualification of the space, is constructed by way of linking quests, which forces us to explore the territory, which unblocks its areas as we solve them[20].

Real-time strategy game: In the real-time strategy game *Evil Lord 30 Mode*, the Evil Lord must defeat enemy forces in 30 seconds by summoning three types of creatures: strong Brutes, fast Nimbles and ranged magic Shooters. Human enemies have the same types as the summoned monsters, and the behaviour rules are a) Brutes kill Nimbles, b) Nimbles kill Shooters and c) Shooters kill Brutes. The Magic Power, symbolised by a mana ring around the Evil Lord character, is the resource needed to summon monsters. The overall strength of summoned creatures is based on the size of this ring. Summoning creatures and taking

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[19] On this matter the differences between the American role (*Fallout*, *Baldur´s Gate, Dragon Age Origins*) and the Japanese role (*Shin Megami Tensei: Persona 3*, o los *Final Fantasy*) will consist on the degree of openess of the quests rather than on the gamer's choice (broader in an American game, more reduced in a Japanese one), apart from the Japanese tendency to baroque regarding the experience trees (*The Witcher* presents *a* balance between both tendencies)

[20] By the way, although, as we said, the simplest videogame must have at least two objects, the simplest RPG needs at least three: the Hero, the Boss whose level we must grind to and the enemy that allows us to grind to the Boss' level (we suppose that the game is the quest; if not, a NPC is needed).

damage reduces the size of this ring (it recovers *automagically* after some time), so the faster monsters are summoned, the weaker they are. By paying in some especial places (wooden barrels) money gained from defeating enemies, the countdown timer can be reset.

Source: *Half-Minute Hero* (2009)

As in similar videogames (*Dungeon Keeper, Starcraft, Homeworld…*), *Evil Lord 30 Mode* is articulated around a specific *hierarchised, but also circular group of agents* (or *pieces,* like in a board game). An agent A defeats an agent B, agent B defeats an agent C and agent C defeats agent A. Achieving the goals requires to manage our group according to operational research principles, thus minimising costs and maximising profits. Notice that hierarchy with no circularity means that an agent is almighty (s/he may destroy but not be destroyed), which would lead to *there not being a need* for operational calculations[21]. On the other hand, circularity with no hierarchy means all the agents are of the same type, and therefore *there could not be* operational calculations at all[22]. These agents or pieces are also subject to a quantitative restriction established upon some type of resource. If there is the possibility of generating agents during the game, it would be so on condition of paying a price by way of a certain amount of resource and, generally, the *hierarchised group of agents* will internally distinguish between agent producers and agents as such (*Starcraft, Age of Empires, RUSE*). So, on the one hand, the total amount of resource available determines the possible number of agents that are to fight the enemy (external loop); and on the other hand, it establishes a protection relation between produced agents and producers (internal loop). If there is no possibility of generating agents, the agents themselves are the limited resource (*Blitzkrieg, Valkyria Chronicles*). In *Evil Lord 30 Mode* the agent producer is the main character (Evil Lord) and the resource is the Magic Power, whereas the combat agents are the Shooters, Nimbles and Brutes, so that, despite the simplicity of the rules both the external and internal loop are established in the operational calculations. The physical space is then qualified by types of agents involved in each case, so that, *although in Evil Lord Mode the land is abstract and homogeneous, a portion of the land will be more or less costly depending on what kind of monster we have summoned and what kind of enemies are found in it* (distinguishing types of land that would affect each type of agent in a different way could have been easily done, but the 30-second curfew forces simplification). An enemy being near or far in the physical sense depends on the rest of the enemies and the monsters we generate.

Shoot 'em up game: In the shoot 'em up game *Princess 30 Mode*, the Princess has 30seconds to go outside the castle to get items that will help her sick father. She is equipped with a

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[21] In a similar way, in a game of chess the most important piece hierarchically is also the weakest.
[22] Let's think of how the board game *Go* solves this: all the pieces are identical, but when joined to others they form associations that are qualitatively different.

rapid-fire crossbow that has two firing modes available: spraying (for taking out a bunch of small enemies at once) and concentrated fire (for taking out high-HP enemies). The Princess can never be directly harmed, but when hit by an enemy her speed is reduced and the mission is failed if time is over. There are some red carpets which roll back the countdown timer when the Princess runs them. Each second gained is money lost though. There are also some items (the Fairies) that grant the ability to boost the crossbow's power and increase the Princess' running speed.

Source: *Half-Minute Hero* (2009)

This mode allows the player to take action at a distance using a ranged weapon, challenging the player to aim with accuracy. As in other videogames of this genre (*R-Type, DoDonPachi*) the basic manoeuvres are a) *evasion* from the enemies as well as their projectiles and b) destruction of the enemies at a distance. The modelling of the character is done in relation to these manoeuvres (the character representing a human being or a machine is a mere plot excuse, since to all intents and purposes it only appears as a receptor/cause of the damage), i.e., a) an attribute of health or energy that quantifies the damage sustained (here it is represented as a group of guards) and b) a variable fire capacity. In other words, everything that appears as an object (not as a mere set) in the virtual world modifies either the *health* attribute, or the *destruction capacity*. The spatiality of the virtual world is organised around the *enemies* that are to be avoided, the red carpets and the coins that are to be pursued, and by the relation between enemy *visibility* and *range-of-destruction* capacity.

Hack-and-slash game: In the *Knight 30 Mode* game the Knight must protect a Sage while she is casting a spell of destruction. Unlike the other two modes, in this one our mission is to manage to get the timer down to zero, so the failing condition is now the Sage taking too much damage and dying. There are two ways to protect her: a) by ramming enemies (but the health will be depleted) attacking them with weapons (which will break after using them), or throwing objects at them (which is difficult), or b) by moving the Sage to a safe location either carrying her or calling her from a distance. If a), the Sage can be surrounded and killed; if b), the Sage cannot continue the casting of the spell. If the Knight dies, we can guide his ghost to the Sage and be revived. There can be bells that distract the Sage and reset the spell's timer, forcing the Knight to destroy them. Spatiality is constructed upon three structures:

- The first one establishes the polarity Knight-Sage, according to which Sage marks a central point of the space in relation to which all the other actions will be arranged: monster will head radially to that point to capture the Sage, and consequently the knight will have to defend the circle thus established. This centre may be displaced either by carrying the Sage, or by calling her, which enables the Knight to control where the centre of the space is to be established. When in the new location, this new radial centre is activated.

- The second structure establishes the polarity Knight-Bells: when there are bells the timer stops, so the mission cannot be completed. Every bell causes a distortion in the circular field established by the Sage that must be eliminated.

- The third structure establishes the polarity Knight-Monsters. Ramming enemies and attacking them with weapons are contact actions, whereas firing projectiles is a distance action (each type of action depends on different objects and have different consequences for those objects).

Therefore, in *Knight 30 Mode* what is *far* and what is *near* is constructed at every moment by combining the three polarities. In Leibnizian terminology, although situations and places change constantly, the ideal space (the inherent logical space) is always the same: the imbrications of the three structures; in other similar games, such as *Gauntlet*, the space is constructed only upon a single structure; in others the space is presented in 2D as in *Odin Sphere* (which allows to include the jumping capacity, used to dodge enemies, and not like in platform games, where is used to gain altitude), or in 3D as in *Dead Rising*. What really seems characteristic of this genre though is the construction of spatial hounding situations.

Source: *Half-Minute Hero* (2009)

Hub mode. There is yet another mode in *Half-Minute Hero*. Before starting a mission and after finishing it in any of the four modes we gain access to a space of selection of missions. In *Hero 30 Mode* and *Evil Lord 30 Mode* we are shown a map where all the completed missions (and the associated information) as well as the new missions available in each case are marked. In *Princess 30 Mode* this space is shown as the room of a castle and each of the missions are now symbolised by using the characters involved in them. In *Knight 30 Mode*, the missions are shown in a 2D scrollable representation. What objects are there here? Only missions. What actions? Navigating through the set of available missions and save the game. Therefore it is not just that these four spaces make up a kind of characteristic genre: in fact, although it shows different representations, it is the *same*. Notice, in particular, that the selection of missions in *Princess 30 Mode* is done using an arrow. Well then, this *arrow* in the selection screen is a different object from the *arrow* in the actual game, because on the selection screen the arrow can move in any direction and the effect upon a character is to enter a mission, whereas in the actual game the effect of an arrow upon a character is to kill it (and its movement is spraying or concentrate, but we cannot control individual arrows). According to the central idea of this paper, the arrow in the former scenario and those in the second one

are different because the virtual world they are in (but also the one they establish) is different[23].
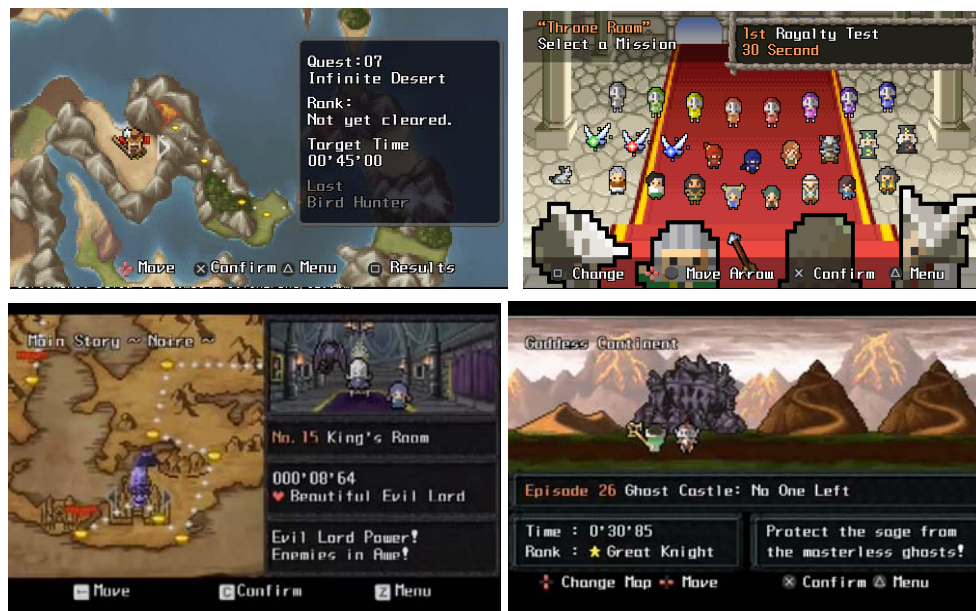
Source: *Half-Minute Hero* (2009)

Conclusion

First we have assumed the videogame, attending to is interactivity, as a kind of virtual world, understanding as such a net of objects or logical space of conditions characterised by its function or rules of use [A1]. If this is accepted we can find generic outlines of such nets of objects/rules of use or logical space of conditions that the genres of the videogames precisely are [A2].

Secondly we have argued that the physical space is constructed upon the rules of that logical space: because the logical space is established in the form of diverse genres, so the physical space, dependent on the logical space, will be established dependent on the genres [B].

Finally we have briefly characterised such nets of objects for the RPG, Shoot'em, RTS and Hack-and-slash games from the analysis of *Half-Minute Hero* [C].

A criticism to [A1] should explain how the interactivity without an autonomy of the rules (implementable by means of a Turing Machine) is possible. A criticism to [A2] should account for the different meanings of the objects in, for example, a platform game in relation to an RPG. A criticism to [B] should propose an alternative theoretical mechanism by which the physical distance in a videogame is independent from the set of goals (established *from* and *with* the existing objects in accordance with one or various genres). Finally, criticisms to the specific characterisations of each genre are possible without affecting [A1], [A2] or [B].

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[23] By the way, in the game's PC version the cartoon style *Half-Minute Hero Super Mega Neo Climax Ultimate Boy,* the modes Evil Lord 30, Princess 30 y Knight 30 have been turned into clones of the Hero 30 mode (although there is an option to play the original "old-school" Half-Minute Hero). We can see that although the representation of Hero 30 has been changed, this mode is exactly the same in *Half-Minute Hero* and in *Half-Minute Hero Super Mega Neo Climax Ultimate Boy*; but the logical space of dependencies of objects having been cloned, the physical space found in the other three modes of *Half-Minute Hero* can no longer be.

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