Quixotean Play in the Age of Computation

Introduction

We play with computers. From videogames to gamification, one of the dominant modes of interaction with computers is playing. But why?

Let's start with computers. For all their might and power, for all their importance in articulating our post-industrial lives, computers have been historically machines for play as much as machines for progress.

Modern computers[1] where initially designed to be operated via the insertion of punch cards that contained the instructions the machine needed to follow to calculate problems specified by the programmers. Interfaces with the machine soon moved to terminals in which programmers issued commands to the computer typing commands. These commands are often based on English words or abbreviators, and immediately lead to the creation of interesting puns, both in the purposed combination of two commands and in the source code of operating systems.[2]

Linguistic playfulness was slowly substituted by a more visual and tactile type of playfulness based on the user interface design and animations (Myers, 1998; Udsen & Jørgensen, 2005; Jørgensen, 2008). From ill-fated experiments such as Microsoft's "clippy" (Rintel, 2011; Wittkower, 2012) to the animation-rich interactions of Apple's OSX and iOS, the interfaces of personal computers have evolved from snarky conversationalists to a parade of tactile toys in constant motion. The personal computer looks like a sleek playground, always in motion.

It is also possible to trace a historical narrative of Artificial Intelligence as playful discoveries. If ELIZA showed in the 1960s that therapists might be as trustworthy as computers (Weizenbaum, 1967, 1976), the ironic and often snarky Siri, the personality that envelops Apple's iOS voice command interface, often tries to show more personality than what we would ascribe to a collection of algorithms and text files (Sicart, 2014). Even when we create replicas of intelligence with and for machines, we cannot avoid the temptation of making them playful.

Of course, if we look at games the affinity between play and computers becomes much more obvious. Evolutions in computer technology have always found videogames as early adopters.[3] For example, as soon as computers were powerful enough to be able to simulate physics in real time while

[1] The following history of computers is partial to modern machines: the digital Von Neumann-Turing machine. This history is also based on texts that situate the computer within a specific cultural moment, rather than a history of the development of specific technologies. (Flamm, 1988; Yates, 1989; Edwards, 1996)

[2] A good collection of examples can be found here: http://wiki.c2.com/?ProgrammingPuns

[3] There is no comprehensive history of computer games. Most of the following is based on Egenfeldt-Nielsen, Heide Smith and Tosca (2012).

displaying graphics on a monitor, programmers designed a (competitive) game: *SpaceWar!* Textual interfaces and computer networks first gave programmers the capacity to create large, coherent worlds (*Colossal Cave Adventure*), which were then implemented as networked persistent worlds, the so-called Multi-User Dungeons. When increasing processing power, new programming techniques, and new storage devices made real-time graphics programming easier, visual game worlds like *Myst* came to exist. *Doom* soon after popularized dynamic 3D environments. Distributed networked connectivity and increased bandwidth opened for massive multiplayer possibilities in persistent gameworlds, and thus came *Ultima Online* to *World of Warcraft*.

Soon computers became the dominant interfaces to our social lives. Social networking has become in itself a source of innovation and progress in computation, particularly since the mid 00s. But the evolution of computer-driven social networks led also to new forms of computerized play, from *Farmville* (Juul, 2009) to playful Twitter bots (Sicart, 2014). This drive towards more socially driven interactions mediated by computers finally led to a new development in computer-mediated play: the emergence of live-streaming performances of computer game play.

This casual history of computing[4] and play leads to my first bold claim: most advances in computational machinery lead to, or are driven by, play-related applications of these technologies. From the Mechanical Turk to Alexa, users will find ways of *playing* with these new technologies.

In this article I explore this close relation between play and computation by formulating a comprehensive argument about the ontological similarities between play and computation. This article should serve as the first step towards a rhetoric of computational play (Sutton-Smith, 1997) informed by play theory, design research, and philosophy of technology. My purpose is to analyze the particular relation between play and computation, so that we can trace the historical relations between them, as well as the potential cultural and moral risks of playing with computers. This analysis will allow a critical reflection and engagement with the aesthetic, social and cultural products that result from the combination of play and computation.

The question of the relation between play and computation is nowadays crucial. Not only are we seeing radical societal impact in the use of computers as labor monitoring and surveillance machines, but also as the privileged medium of entertainment and communication. Furthermore, play as a conceptual approach is slowly becoming a valuable paradigm in digital design (Gaver, 2009). Computers can be understood as instruments for playful production and consumption. User interfaces, feedback

[4] Throughout this paper I will be using computation in a very liberal way. Most of the time I will be using it to describe the particular processes that a particular type of machines, computers, perform. It is not my intention, nor my expertise, to define what computation is. My superficial and limited understanding of computation in this paper is derived from Denning and Martell (2015), who understand computing as a science [technology?] that "emphasizes the transformation of information" (p. 15) and that uses structures that "are not just descriptive, they are generative" (*ibid)*.

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systems, and entertainment forms based on play are taking over the computing machine to envelop its powers in a friendly, playful discourse. Understanding computers from the perspective of play provides us with an original insight on computational culture.

More than ever we are delegating tasks to computers, and the interfaces to those machines are becoming more and more interactively and aesthetically playful - but what are the risks of this playful turn? What type of play do computers afford, and what kinds of alternative, empowering relations with playful computation can we establish.

I will start by analyzing the shared characteristics of play and computation. The theory in which I ground this analysis of play and computation is the Philosophy of Information, supplemented with different concepts of play theory, from Goffman (1961) to Sutton-Smith (1997).

The second section uses the character of Toby Shandy in Sterne's *The Life and Opinions of Gentleman Tristram Shandy* (2011[1767]), to inspire an analysis of the risks of derived from ignoring what play and computation do to the world, and to each other. More specifically, I will focus on how some trends in playful design and gamification can be dangerous seductions that could deprive users of agency, creativity, or critical engagement.

Finally, the third section reads *Don Quixote* (2004[1615]) as a source of inspiration for the way in which play can allow for a more nuanced engagement with the entanglement of play and computation. Don Quixote's reflective madness is a productive lens for understanding the creativities of computational play, and its submissive pleasures. My position shall not be read as neutral: I think that we need a form of "Quixotean" play to engage with the challenges of the Information Age, and this article will provide the basis for this position. This work should facilitate new perspectives in the study of computational media and computational culture, looking at them *sub specie ludi*.

Play and the Making of Worlds

One of the most interesting observations in Sutton-Smith's classical work on the rhetorics of play, and perhaps the most unexplored understanding of play in that otherwise comprehensive volume, is that play is akin to language. For Sutton-Smith, play can be considered to have the same reality-building, semantizing capacities as human languages (Sutton-Smith, 1997).

When we play, we build a world, we create, together with others and often with the aids of props such as games or toys, a world that happens within a larger world, within the social context (Goffman, 1961). Playing can be understood as an articulate language that has the capacity to make worlds come into being within larger worlds, and give them meaning. To play is to give being and meaning to an encounter, to a context, to things. Play does not create culture in the Huizingan sense, it creates worlds

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Moved down [1]: We want our computers to be playful, and we want to play with and through machines - but what is at stake? How do we play with computers and with technology? What is the role of play in the age of computing machinery?

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In fact, my reading of *Ulysses* is simple, and a Joyce scholar will likely sneer at my naivité. However, this reading is crucial for my argument: my reading of *Ulysses* allows us to better understand a critical cultural role assigned to computers, which makes them *ludic machines.*¶
Joyce's *Ulysses* is a modernist novel published first as a serial between 1918 and 1920, and afterwards as a book in 1922. A polemic text, accused of obscenity and of being impossibley obscure, *Ulysses* narrates what happens on the 16th of June of 1904 in the life of Leopold Bloom, an ordinary man who wanders the streets of Dublin, meeting different characters and facing mundane problems, such as the suspicions on suspecting his wife's wife of infidelity.¶
One of the reasons that makes *Ulysses* a landmark of modernism is how it *tenses* language to make it itself the... [1]

within cultures - ephemeral, negotiated, assembled worlds, but worlds nevertheless. Play has ontologizing powers, and that is why games are so interesting cultural devices, since they structure and formalize the ontologizing processes of play.

What Huizinga called the magic circle, the sacred space in which play takes place and has meaning, is nothing but a materialization of the ontologizing power of play. A football stadium is not only a physical space, it is also the world in which the activity of play makes sense, and creates meaning. Similarly, the virtual worlds of videogames are not just backdrops for telling stories or structuring competitions: they are the contexts that result of the activity of play. They are worlds collectively created and upheld by humans and machines intertwined in the collective action of play. All games create temporary, ephemeral worlds, with their own laws, citizens, and histories. Play theorists from Huizinga to Henricks (2015) have made this argument before, and I shall only build upon their ideas.

In this particular ontological perspective of play we can see the parallels between play and computation. Computers have the potential of re-ontologizing the world, of revealing its being as an informational environment. Re-ontologization is a concept coined by philosopher Luciano Floridi (2013), who proposes to define Information and Communication Technologies like smartphones and computers as re-ontologizing technologies. His argument is deceptively simple: Computational technologies transform the nature of the infosphere itself because they are information machines: "the ontology of the information technologies available (…) is the same as (and hence fully compatible with) the ontology of their objects, the raw data being manipulated" (*ibid*, p. 7). Floridi argues that re-ontologization is the "source of some of the most profound transformations and challenging problems that we will experience in the close future, as far as technology is concerned" (*ibid*, pp. 6-7). Because we can argue that being is informational, and because computation and its machines help us reveal and constitute reality as informational in nature, computers create informational realities, or worlds.

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This statement of course requires framing some of our arguments in the tradition of Philosophy of Information, a philosophical theory that argues that we should define being as informational, and that the whole of reality can be understood as collections of informational structures that constitute personal relations, environments, and societies, to name a few. To be is to be informational, existing in infospheres (Floridi, 2014).

The importance of computation is how it re-shapes the world to reveal its informational nature. Philosophers of technology like Wiener (1954, 1965), who has the intuition of information at the root of being, always kept a biology-oriented perspective, writing about human beings in cybernetic loops. However, the Philosophy of Information is a more radical attempt to look at philosophical problems with an understanding of being as informational. This understanding places computing machines, which are inherently information processing machines, at the center of this revolutionary perspective.

In this article, I will only use some of the critical concepts of the Philosophy of Information, instrumentalizing them for the study of the play element in computational culture. I appropriate several of its key concepts to frame my argument within the methodology of the Philosophy of Information (Floridi, 2013, chapter 3). In this article I accept the claim that being is informational, and that computation and its machines are crucial devices in the creation of information-driven societies, cultures, and beings. More specifically, I adopt the concept of re-ontologization to explain how computation works within an informational ontology, and how that connects it to the activity of play. My goal is to convincingly argue that some activities and technologies have re-ontologizing capacities: they are capable of constructing worlds and meanings by changing the nature of the world in which they are instantiated.

To better understand the ontological capacities of computers, and how they relate to the capacity of play to be ontological too, we need to understand better how computers work, which characteristics computer machines have that allow them to have re-ontologization properties.[8]

The characteristics that computer machines have that allow them to have re-ontologizing capacities are:

Calculation: once one first understands what computers can do at really high speeds, they seem the work of magic rather than just machines. However, computers are only seemingly complex. What they can do, and they can do that very well, is perform complex calculations very fast and accurately. Originally, computers were human: people, mostly women, dedicated to perform complex calculations for statistical or ballistics purposes (Grier, 2005). Calculating trajectories or projecting results of complex systems, was the role of computers, both human and mechanical. The technical development of computing machines is the history of the material embodiment of computation into machines with exponentially larger capacities for calculation at great speeds.

Storage and transmission: one of the most common sentences used to describe computer memory to laypeople concerns their capacity to store books, the former premium form of valuable data storage. A computer can hold in its memory millions of books, and any other type of data, in form of bits. The memory of a computer, while limited, is vast and tireless, and can easily be transmitted from machine to machine, from storage device to storage device. Computers can hold worlds of data, and send them to each other with relative ease.

Sensing: in the history of computing, this is a relatively new evolution. Computers have gained the ability to sense their environments through sensors that translate analog inputs into digital data. Computers are not anymore grey boxes unaware of their surroundings: even the cheapest machine on

[8] We understand that our explanation of computers is simplistic, but a deeper argument on computation is beyond the scope of this paper. Our understanding of computing machines is derived from (Petzold, 1999)

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the civilian market is now capable of context awareness, and of processing that context into data that can be calculated. Computers can sense the world, and translate it into computable data. They exist in the world, and can (be programmed to) perceive it.

Networking: computers are not solitary machines. They can be linked in networks of machines that connect to and extend each other. We live surrounded by computer networks, by webs of computers interconnected that transmit information to each other or perform calculations together. The networking capacities of computers makes them formidable machines that can become one and multiple at the same time, that can extend their calculation, storage and sensing reach beyond their enclosing into discrete units.

All of these characteristics of computers as computational machines can be used to understand their ontologizing capacities. Returning to the Philosophy of Information, its most relevant concept for this article is that of re-ontologization. A fundamental concept that nevertheless has gotten too little attention, re-ontologization refers to "a very radical form of re-engineering, one that not only design, constructs or structures a system (…) anew, but one that also fundamentally transforms its intrinsic nature, that is, its ontology or essence" (Floridi, 2013, p. 6). Computers are re-ontologization devices because they are affecting the nature of the informational environments in which we live by fostering "a transition from analogue to digital data" (*ibid*).

What makes computing machines catalyzers of this re-ontologization process is "the fundamental convergence between digital resources and digital tools. The ontology of the information technologies available (…) is now the same (and hence fully compatible with) the ontology of their objects (…) in the re-ontologized info sphere, there is no longer any substantial difference between the *processor* and the *processed*, so the digital deals effortlessly and seamlessly with the digital" (*ibid*). Computers turn the informational world into a digital environment, and they also afford particular interactions with that digitalized world, effectively re-shaping the nature of the world.

A way of understanding re-ontologization by computers is to go through the characteristics of computers and see how are these affecting the re-ontologization of the process. Computers can store and process data very quickly. For doing that, they need to be fed data, that is, they need to be given models that are logically consistent and formal enough so that computers can perform calculations with them. An important part of computer programming is precisely that: to design the formal ways of perceiving the world so a computer can store them as data and perform calculations on them. But, unlike old computers, modern machines can perceive the world around them. Computers have arrays of sensors that can directly translate the world surrounding them to data they can act upon, provided they have been given the adequate formal tools to process those data streams. And finally, by being

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networked, computers can be entry points to a vast network, effectively re-weaving the world into a mesh of infrastructures and routines that are interconnected (Galloway, 2004).

Computers are, therefore, machines that re-ontologize the world - in this sense, they are machines that are capable of creating a world, one that is appropriated and translated into computational principles of formalization and operation. And it is precisely therefore that computation and play are so close: play is also a way of re-ontologizing the world.

Play is a re-ontologizing activity because it has three characteristics that allow it to re-shape the essence of the world. First, play is appropriative: to play is to take over a situation, a context, a space and a time and make it the scene or the instrument of play. Unlike in the classic models of play where magic circles were presented and then stepped into (Consalvo, 2009), our rhetoric of play argues that play is the act of forcing on the world the activity of play: not gently stepping in, but actively taking over the world. This act of appropriation is always contextual and open to negotiation: we don't take over the whole of an object, or the whole of a situation, but only those aspects that we find interesting, relevant, or appropriate for our goals with the activity of playing.

For example, Molleindustria and Harry Josephine Giles' *Casual games for protesters*[9] are games especially designed to use the re-ontologizing capacities of play to create modes of political expression within organized protests. It seems that these games will be able to amplify the activity of protesters by using the scaffolding of games, the usage of rules to structure the activity of protesting. These are games that appropriate protesting not to negate it, but to augment it with the world-creation capacities of play.

Similarly, the worlds created in the games documented by Linda Hughes (2006) in her study of playground games show how children's games are always creating temporary worlds structured by rules that are constantly in flux, adapting to the needs of the community of players and the shared goals of the activity. When playing their games, children create a world with its own fluctuating stability, worlds that take a starting point in the re-ontologization process afforded by rules, but then modified by the interpretation of that process by a community of players.

This leads to the second characteristic of play: play is autotelic, it has its own (negotiated) purpose. The purpose of the activity of appropriating the world is always negotiated, expressed, and applied to the situation or object play takes over. When that purpose is fulfilled, the activity ends, and the appropriation process ends. To play is to play for a purpose, which sometimes is fun, but sometimes is not. Play has a purpose of its own, a purpose that is explicit, argued for, and that is not rigidly determined.

[9] *http://www.protestgames.org*

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For instance, pickup games of basketball in public courts are not only a matter of playing the game of basketball, but also of decoding the purpose of playing a game in a particular space. Some courts are open for casual play, some others are only for larger than life (but smaller than pro) matches. And playing in any court also implies negotiating the purpose of playing, of joining that particular court and its crews. It is, in this way, about negotiating the purpose of the game and what "fun" means in that particular space.

Play is expressive, the third and last element in our rhetoric of play. To play is not consume or perform actions in particular orders for particular goals: to play is to produce, or to perform actions in particular order with a personal touch, for a personal reason, a reason that becomes expression. To play is to make a world in which that being is both possible, meaningful, and creative (Sicart, 2014).

Play is a re-ontologizing activity. Play redefines the nature of the world and radically changes it. Play re-ontologizes the world in more temporary, negotiated, and impermanent ways than computers, but still in ways that are creatively, ethically and politically relevant. To play is to appropriate the world to create *a* world in which we can play, and in which the activity we are engaged with is meaningful, and we can express ourselves. These are impermanent worlds that have impact but not permanence beyond the activity of play.

Here we have the way in which play and computation are connected; both play and computers have the capacity of re-ontologizing, of creating worlds of meaning and presence. Computers and play create worlds. That's why computers are used to play and we play with computers, because the essential ontological move is the same: the creation of realities to live in. But how does this relation affect our culture? If Huizinga's intuition was right, and play creates forms of culture, then the widespread deployment of computers, these ludic machines must have had effects in our world that we may not totally understand.

The Seductions of Computational Play

One of the main characters in *The Life and Opinions of Gentleman Tristram Shandy* is Toby Shandy, Tristram's uncle, war veteran, and naive fool. Toby's character is defined by a very particular monomania. Toby Shandy was a soldier wounded in his leg in the battle of Namur. Even though the injuries were not life threatening, Toby Shandy never quite recovered from them, and his condition evolved into an obsession for healing his injured leg.

Toby Shandy decided then to cure his leg by reproducing the battle of Namur in the most exact mode he could, by building a replica of it. In his mind, if he was able to perfectly replicate the circumstances that led to his injuries, and by doing so control the emergence of those circumstances, his injuries would be healed forever. Toby Shandy is a pathetic character, whose ideas are so obviously

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naive that Sterne cannot but make him a memorable personality. However, these ideas, foolish when they come to Toby Shandy, should sound familiar to anybody interested in the relation between computing and play.

These ontological capacities of play and computing to create new worlds within this world that articulate experience can be very seductive. Computers and play create sense and order, and this order can seduce us to shaping our culture following those orders. However, these seductions have their risks - I am not claiming that computers and play are dangerous, but that naively engaging with them without critical, reflective insights, might have disastrous consequences. If we uncritically accept the ontologizing possibilities of play and computers, we might risk becoming Toby Shandy.

In this chapter I propose the idea that intersection of computing and play offers three particular seductions that I argue are both logically consistent, and culturally dangerous. These seductions will explain why we are playing more and more with computers, and the roots of some of the design and cultural roles that we are giving to computers in our lives. However, like all seductions these approaches to play and computing also leave a blank spot, gaps that suggest particular approaches to play that might be contradictory to the very nature of play.

I claim that there is a particular seduction in the idea of computing embodied in computer machines. That will be the first seduction. The second seduction is the seduction of play as the creation of epistemically invulnerable order, that leads to the creation of stable worlds of rules and actions with specific meanings. The third seduction would be that of a material incarnation of computational play in particular designs that derive from a combined effect of seductions one and two. This temptation is playing computationally to achieve an ideal of order and progress. While this third seduction had developed interesting cultural and technical results, it also leads to a dominant rhetoric of computational play that I will argue tends to ignore some of the most interesting ontological and epistemic consequences of playing *with* computing machines.

The first seduction starts with the assumption that the world as *computable*[10], and that computational technologies that act on that computable world are simply acting on that computational nature. This seduction argues that computers are neutral technologies that only act on the already computational nature of the world. If the world is computational, and computational technologies are neutral in their engagement with that world, then computational solutions to problems are not only the obvious solution, but also one free from biases. This is the main idea behind Silicon Valley's

[10] "For my purposes, *computation* relates to the analysis and synthesis of especially complicated things. These analytic and synthetic practices are best understood as nothing less grand or more specific than an inquiry into physical realization as such. This fact can be lost beneath ideologies and institutions that define computation in some other way, whether in terms of Turing machines, mathematical abstraction, intentionality, symbolic reasoning, or formal logic. Nonetheless, what truly founds computational work is the practitioner's evolving sense of what can be built, and what cannot" (Agre, 1997, p. 11).

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"solutionism": computers will save the world because they reflect more clearly the nature of the world. In the rhetorics of Silicon Valley (Morozov, 2013), not only the world is computable, but only understanding it that way we can progress beyond ethical, social, political and cultural frictions. What this seduction ignores is that the world *is not* computable, but that it is re-ontologized by computational technologies in order to create *computable worlds*. And that process of re-ontologization is not neutral.

It is true that the notion of re-ontologization points in the direction of a reduction of the ontological friction between processed and processor: in a world of digitally embodied information, the friction is close to zero because we use computing technology to process digital information: "The ontology of the information technologies available (e.g. Software, algorithms, databases, communication channels, and protocols, etc.) is now the same as (and hence fully compatible with) the ontology of their objects, the raw data being manipulated (…) in the re-ontologized infosphere, populated by ontologically equal entities and agents, where there is no ontological difference between *processors* and *processed*, interactions become equally digital" (Floridi, 2013, p. 7).

However, the process of re-ontologization is far from being always neutral. Re-ontologization does have ethical, political and social consequences, since the logical and physical limits imposed by computing machinery are forced into the world. All we have to work with are algorithmic approximations to the complexity of the world. And like all approximations, what they leave out is equivalent to what they include.

Think about step-counters in mobile phones. By using a combination of hardware (accelerometers, gyroscopes) and custom-written software, phones are able to translate the human step into computable data, that can be used in different health applications, for example. Of course, the human step is still a human step. But if we access it only as computable data, like insurance companies are considering doing with FitBit data, then the physical step vanishes, and it is only the step-as-processed that exists. The human step becomes the computed human step.

The solution to this dilemma provided by the Philosophy of Information is based on the use of a particular method both to understand the analysis of the informational nature of the world, and of the ways in which re-ontologization via computer machines takes place. The Philosophy of Information provides a method of abstraction, that allows us to claim that any re-ontologization through computing machinery happens on a particular level of abstraction (Floridi, 2013, chapter 3), and that what is left outside, while relevant, is irrelevant within that ontology. Then it holds true that within particular levels of abstraction, the world is ontologically computable - in fact, we could claim that the technical limitations of current computer machines already provide a level of abstraction towards the computability of the world: the world is only as computable as what a modern computer can compute.

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This is possible because we can interpret the world by turning it into computable data. When we perform that operation, we effectively re-ontologize the world to be a part of an informational environment in which everything is computable. The argument is not that the world *is* computable, but that we can *interpret* the world as computable, as long as it is situated in an informational environment. A byproduct of this seduction is the claim that the world is computable by nature, that the being of the world is computable. This is, of course, false. While we can *understand* or explain the ontology of the world as informational, that is only an strategy, a particular epistemology. The world, whatever the world is, is not ontologically computable - but we can make it so, for the benefit of computing machines.¶
This claim of the world being computable has, in the modern rhetorics of computer technology development, an interesting continuation. …

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Summarizing, the first temptation is to think that the world *is* computable, rather than claiming that the world *can be* computed, and that the process of re-ontologizing the world through computer machines does not have any kind of social, cultural, political or ethical problems. That is, that the reduction of ontological friction between processor and processed is inherently coupled with a reduction of cultural, social, ethical and political friction. While this is a problematic approach, it is also true that the Philosophy of Information provides a solid way of arguing for the process of re-ontologization in the form of the method of abstraction, that allows us to specify in which levels of abstraction the re-ontologization process takes place, therefore giving us a more nuanced approach to what can be computed and how, and what the implications of that computing are.

The second temptation is the play equivalent of the first temptation. If the first temptation is to consider that the world *is* computable, and that the re-ontologization process is devoid of any kinds of social and cultural implications, the second temptation is to understand play in a similar matter: as the creation of a world detached from other worlds, isolated and yet pleasurable to inhabit.

I am not here willing to engage with the different formulations of the concept of magic circle (Consalvo, 2009), but at the core of the second temptation is the general idea that play creates worlds in which we get immersed and engaged. This is, of course, partially true. To play is to create worlds which we inhabit for the purpose of playing, with their own goals and structures and meaning. We can see these worlds as either a function of the social situation of playing together, or as an essential element in the nature of play.

From the perspective I am advocating in this article, the capacity of play to create new worlds is the consequence of the re-ontologization capacity of play. To play is to create a world in the world that already is, overlapping but different from the already existing world. This is not to say that this is a magic circle, but more a world created in the constant equilibrium, in the constant tension between ontologizing a new world, and the temptation of letting it collapse (Goffman, 1961). Playing creates and upholds worlds, and this is a process immersed in complex negotiations with other actors and the technologies that may support this re-ontologization.

However, if we look at this from a different angle, we might argue that play can re-ontologize the world by identifying in it concrete patterns that can be reproduced and engaged with. At the core of Huizinga's idea is the pattern of conflict, a rhetoric of play based on agonistic competition that needs losers, winners, scores and other social apparatuses. All of these are repeatable patterns that help structure activities and formalize the world.

Play, then, re-ontologizes the world by identifying repeatable patterns of behavior and interaction. What makes play different is the focus on ontologizing a world of *pleasurable* patterns. To play is to create worlds in which we *want* to stay, in which we find either "fun" or a compelling enough emotion

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Commented [HB29]: Given that you have quite a lot of disclaimer footnotes in the beginning, I'm missing here both a note about the problems of Huizinga's exclusive focus on conflict (as discussed already by Caillois), and one on the other rhetorics of play of Bateson. In general, talking this often about rhetorics of play without actually engaging with Bateson's categories begs the question of how you position your argument towards his. Is your rhetoric meant to supplement or replace his, completely or partially? And in how far have you been inspired by the specifics of his categories, or are building on them?

Commented [HB30]: 'Pleasurable' seems misleadingly positive to me. It hints at 'fun', which is obviously relative. I like 'compelling' in the next sentence much better, but you might want to go to even further extremes and call this subjective, emotional, affective or something similar, just to create a starker contrast with the (presumably, but really not) neutral patterns of computation.

to hold us true to the creation of that world, and together in the upholding of the experience. Play is then the creation of engaging worlds in which any action is either interesting to perform on its own, or conductive to a result we emotionally appreciate.

This is an essential characteristic of play, one that is instantiated in all the different rhetorics of play that Sutton-Smith identified. In fact, rhetorics of play are epistemological tools for understanding the different ontological constitutions of the worlds created at play. The perspective I am presenting here, then, is that of a primordial characteristic of play, a foundation for play rhetorics, rather than a rhetoric in and of itself. The temptations I am describing in this chapter are rhetorics of play that interpret the re-ontologization capacity of play for a particular purpose.

This leads to the core definition of the second temptation: to think that the way in which play makes worlds that are engaging can be translated to any kind of situation, theme or context; that is, to think that if we identify patterns that allow for a re-ontologization of the world similar to the one play operates with, then that new world created will inherit the kinds of engagement patterns that play guarantees. In other words, if we apply playful re-ontologization to the world, and we turn it into a scenario for play, then the world will be engaging.

Of course, this is nonsense. Play is re-ontologizing because it is appropriative, because it creates worlds by taking over a situation and actively constructing a world around it (Sicart, 2014). Play creates the possibility of an alternative order, but it does so through the assumed, and pleasurable risks of destruction and disorder (Henricks, 2009). Play does not reside in the patterns that we impose on the world to play, but in the act of *creating* these patterns, of keeping them alive in unstable balances of submission to the worlds we create, and resistance to those very worlds (De Koven, 2013). It is not enough to be tempted to create new worlds: through play we appropriate the world, and that appropriation requires submission to the new worlds created, and resistance to stabilizing that world in a unique instant. Playing is an active process of creation and destruction, a careful balance of submission and resistance.

This leads to the third seduction: if computers can re-ontologize the world by structuring it in computable patterns, and if play operates somehow in a similar way by adding a level of emotional attachment, then computational play should yield pleasurable and exciting new worlds.

When Toby Shandy simulated the Battle of Namur in order to better understand it, and by that process become healed of his wounds, he was surrendering to a similar temptation: reproducing the world and making the complexity of experience limited to a pattern of simulated actions. Toby struggles to reproduce the battle in as much detail as possible, because only by reproducing it he can be cured. But that re-ontologizing (via simulation) task is impossible, and he will never find the comfort he seeks in the re-creation of the world that harmed him.

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Commented [HB32]: But isn't a big part of his story that he strives for ever greater complexity and accuracy, even if only on an emotional level? If so, he wouldn't be a very good example for what you're trying to use him for.

This temptation is partially true: the history of computer games shows how computational re-ontologization can be used together with play re-ontologization to create worlds in which we engage with pleasure. However, there is a limit to this re-ontologization possibilities, a dark danger lurking in the processes of re-ontologization.

In order to accept the pleasures of computational play, the process of re-ontologization is seen as stable and not negotiable: worlds are created, and our engagement with them depend on our submission to the very process of re-ontologization. The computer creates worlds that exist, and play gives us a way to engage with them, but only if we respect an approved way of engaging with them. The temptation of computational play is that of equating the pleasures of engaging with this worlds with the re-ontologization process of computers rather than of play. We have to play by two sets of rules, the rules of computation and the rules of play, for those worlds to yield results.

Computers create worlds and sustain them based on rules that cannot be directly overturned[11]. Computers create worlds based on epistemically infallible rules. However, that epistemic infallibility cannot be imposed on play. The re-ontologization of play does not demand epistemic infallibility, but the capacity to negotiate the submission and resistance to the creation of a world.

Computational play explains the pleasures of submission to worlds re-ontologized by computers for playing. But this pleasure is possible only because play decides to engage *submissively* with the worlds created with computers. We accept the epistemic infallibility of the worlds created and upheld by the computer, and we trust that they will yield pleasurable experiences. But this is a voluntary re-ontologization step taken by play. It is creating a world through play by surrendering to that world - but that surrender is temporary, unstable, and guided by a sense of pleasure.

Games created with computers can be appropriated, re-ontologized by play. This process of re-ontologizing a world created in a computer can lead to accepting the structure of that world as epistemically infallible in order to experience a kind of pleasure to the submission to that world. However, that submission through play is conditional. When we try to coordinate the re-ontologizing capacities of computers and play we need to remember that play will not admit that the process is epistemically infallible, that the structures that form that new world are beyond discussion. The rules created by play to take over the world are in permanent flux, they are unstable and changing, accepted and denied at the same time.

There are pleasures in the submission, but the risk is to equate the re-ontologization capacities of play with those of computers. Toby Shandy believed that by constructing that world with epistemic solidity, his malaise would be healed. Similarly, we think that if we just engage with the worlds created

[11] I know what you are thinking: we can always ignore the rules. I will explore that possibility in the next section. What I am aiming here is at a description of a maximalist understanding of the seductions of computational play, which would require total submission to both sets of rules in order for the experience to be productive.

Commented [HB33]: This is a great point!

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Deleted: since our current implementations of computing machinery are not able to deal with the degrees of ambiguity and negotiation that we find in other re-ontologization processes, such as play…

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by computing through the activity of play, we will be experience the pleasures of play, even in contexts that are not necessarily conducive to the activity of play. In other words, we may be seduced to think that by turning interactions with a computational world into playable interactions, we will be able to experience all the positive aspects of play. That will only work if we understand play as submissive to the world created by rules. But play is not only submission, play is not only surrendering to this externalization of worlds and their rules. Play is not believing that the worlds created by computers with which we play are estimable and immutable. Play is appropriation and resistance as much as submission and compliance. We need, then, a better model for play in the age of computing machinery.

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The Era of Quixotean Play

Introducing Don Quixote is almost unnecessary. Cervantes' novel, the story of a nobleman gone mad because he read too many chivalry books, is widely known for its portrayal of the stark contrast between Don Quixote's idealism and imagination (and lunacy), and XVII Century Castilian dryness and mundanity. Don Quixote kick-starts the novel by voluntarily and foolishly inhabiting an imaginary world in permanent clash with the actual world.

However, a closer reading reveals that Don Quixote is far from being a fool. While in the first part of the novel (published in 1605) he is oftentimes presented as a mere lunatic, the second book presents a more nuanced version of Don Quixote. He is familiar with the fact that his story has been written into a novel; he knows that people make fun of him, and there are even hints at an element of self-awareness to his madness. In the sequel (published in 1615), Don Quixote is less optimistic and less prone to foolishness, and it's the world around him that is invested in driving him insane.

A defining moment in that second part comes when the protagonists find the lands of a couple of nobles who are aware of who Don Quixote is, and help actually build and enact his fantasy world. The Dukes play along with Don Quixote's fantasy, to the extent that for the first time, he feels like he is actually living his fantasy (Cervantes, 1615 [2004], p. 785). And this self-awareness is the key to understanding the beauty of Don Quixote: he may be a fool, but he is also aware of his insanity to a greater extent than we think he is, choosing it as a way to deal with the world in which he lives in.

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In the company of the Dukes, Don Quixote is living in a world of fantasy, yes, but it is not *his* world of fantasy, it is not his construction, his settings, his desires driving that world. He can be mad there, yes, but he also challenges that externally imposed madness. Most of the time, he plays along, and even tells Sancho that he is aware of how these make-believe worlds work (Cervantes, 1615 [2004], p. 865).

The world in which Don Quixote painfully thrives is a negotiated world between his deranged fantasy and the real world, between his creative engagement with the world (giants and not windmills)

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and the world which resisted that interpretation (windmills and not giants). And when his fantasy is finally fulfilled, when he finally finds a place where others have created the world that only existed in his mind, he hesitates, and ends up being bored and longing for a change.

The story of the Dukes can be applied to illustrate the fundamental tensions in computational play. It also can be used to think through some of the problems that classic play theory has with regards to thinking about the technical materiality of playthings. By facilitating a world that responds to his madness, the dukes did not cure nor help Don Quixote, because a part of the pleasure and pains of his madness are precisely constructive pleasures – the pleasures of appropriation. Don Quixote's madness thrives in the tension between the clash with reality and the imaginative recreation of it.

Similarly, if we try to understand play exclusively as an activity, disregarding its material context; or if we analyze it exclusively through the materials, disregarding the way those materials are appropriated in play, we will only have partial understandings of the playful and its role in structuring human experience. In the case of playing with computing machinery, it is fundamental to understand the role of materiality in the construction of experience, since we have two ontological processes merging with each other.

To do so, I would argue here that we need to understand what I define as Quixotean Play: play capable of engaging with and appropriating reality, while this reality to a certain extend resists that appropriation. To play is to re-ontologize the world, but the world offers some measure of resistance to that process. This tension requires negotiation, and so to play with computers is to establish a relation of submission and resistance:[12] submission to the ontologizing process enforced by computation (the world created and upheld by the computer), and resistance to it (by developing new rules, interpretations, and contextual appropriations of that very reality allowed by the computer). It is Quixotean play because Don Quixote created also a reality, but did so in a negotiation of resistance with the material world that rejected his appropriation. The most successful cases of Quixotean madness are those in which his reading of the world is still mad, but the resistance presented by the world still allows for Alonso Quijano to be Don Quixote. Many of the conversations with Sancho fall into this category.

Play as a productive way of being in the world in the age of computing machinery could be defined by Quixotean play, this dance between resistance and submission of one re-ontologization process to another. Quixotean play is my way of framing this particular rhetoric of play. Quixotean play is not necessarily a revolt *against* the pleasures of computational play. There are particular, clear pleasures in engaging with computational play and being submitted to it. The precision of computable rules, the

[12] All play is a tension between submission and resistance. However, the uniqueness of computationally mediated play is that there are two merging re-ontologization processes engaged in a mutual process of submission and resistance.

Commented [HB37]: Okay, I know this is nit-picking, but to me, 'ludic' connotes ludus, not paidia, so I would use 'the playful' here. Again, just me.

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Commented [HB38]: Why aren't you sticking closer to your language of re-ontologization here? I think the argument would be much more compelling that way, stressing the complexity of the submission and/as appropriation you are describing.

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delegation on a machine as play-pal, … there is pleasure in surrendering to computational play. However, Quixotean play thrives in an active dialogue between appropriation and resistance, between submission to the dictates of the technology, and resistance to those very dictates.

Quixotean play allows us to carve expressive spaces in the contexts created and facilitated by computing machinery. These spaces are sometimes spaces of submission, sometimes spaces of resistance, and sometimes both. What they never do is grant epistemic invulnerability to the context created and monitored by the machine. Even if there is a computer running the rules and we don't have access to the source code, we can play *with* that computer, we can change the rules, we can appropriate (re-ontologize) the world given to use by the machine. Quixotean play is a way of understanding how to deal with the re-ontologizing capacities of play.

Classic play theory requires for the situation of play to be epistemically infallible: the rules dictate what is real and what is possible, and things outside the rules either don't exist, or are existential threats to the play activity. However, if we understand play not as a surrender to the epistemically unquestioned, but as a negotiation of surrender and resistance, as a playful back and forth between technology and expression, we can better understand the role of computing machinery in the expression of modern play.

An example of Quixotean play is the deer cam in *Grand Theft Auto V* (http://sanandreasanimalcams.com): a modder in the *GTA* community decided to substitute the main playable characters in the game for a deer, that would wander aimlessly in the vast world of *GTA*. This is a game created to tell a narrative and give players space to explore fantasies of machismo and violence in an ironic recreation of West Coast USA. However, this mod appropriates that world for a different playful experience, one that is absurd and contemplative, pataphysic and metaphysic. Quixotean play, after all, a submissive resistance to the world created and upheld by a computer machine.

Similarly, the proliferation of virtual assistants like Amazon Echo or Google Home has prompted some users to appropriate those technologies playfully. These assistants are supposed to be voice-controlled, intelligent interfaces with online services that have amicable personalities. What some users have started exploiting is their conversational capacities, making them chat to each other in another example of absurdist appropriation of the computational world[13]. Don Quixote would be proud of the nonsensical chat between machines designed to listen and respond, but not talk.

This is the era of computing machinery, a time in which computers are redefining the ontology of the world. But this is also the era of playful expression, a time in which play has become a cultural, social

[13] An example of these conversations can be seen here: https://www.youtube.com/watch?v=LEz9AU9c2qQ.

Commented [HB40]: What I haven't quite understood: Is Quixotean play an ideal, a specific predisposition or attitude, or aren't you rather advocating for this to be the ontological constant of play, especially with computational technologies?

Commented [HB41]: Weren't you claiming this as a general principle before? I mean, just like in the previous comment, I understood you previously to mean that re-ontologization is an inevitable part or base principle of play. As such, it should be the same in playing with computers and should always be latently present. Wouldn't your argument have to be that we get blinded (seduced) into forgetting to play 'properly', that we often aren't re-ontologizing, because we are subjugating ourselves to the machine, and thus only think we are playing, while the machine plays us?

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Commented [HB42]: So you would only see it in active, de-facto re-ontologization of the game through re-writing parts of its code?

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and economic centerpiece. Quixotean play can be a rhetoric for play in the age of computing machinery: an activity defined by the transitions between submission and resistance to the worlds created by computers.

To play is, then, to assemble a number of actors to re-create a world. If we take play as the dominant re-ontologizing power, then we become Don Quixote, capable of negotiating our madness, of submitting voluntarily to the pleasures of computational play because we know that at any moment we can rebel, resist, and claim our madness, and our play, as *ours*.

The Era of Quixotean Play

In this article I have explored the relations between computation and play, and argued that both share re-ontologization as a core characteristic of their expressive capacities.

Play and computation create worlds. These worlds can be seductive in different ways. These were exemplified with Toby Shandy, the character in Sterne's *The Life and Opinions of Gentleman Tristram Shandy*, who foolishly thought that by modelling the battle in which he was wounded, he would come to fully understand the nature of his injuries and therefore be healed.

The second paradigm, and the one this article is arguing for, is Quixotean play. In this paradigm, play's re-ontologizing capacities are primary to the similar capacities of computation, and therefore there is always a negotiation of the submission or resistance to the computational pleasures of play. We might enjoy, like Don Quixote, living in a world created by and for us, but always if we have the control, the capacity to take over and negotiate that ontology. In this negotiation, the expressive capacities of play take over the materiality of computation, and become Quixotean play: expressive, destructive, entertaining, dangerous.

In this era of computing machinery, where the world is interpreted, translated, served and created by computation, I believe we need to be like Don Quixote. We need to see that computational world as a world to play in; a world in which computing machines are props for the expressive creations of realities. This could be the era of Quixotean play – the era of controlled madness, when we get voluntarily lost in the worlds we create, knowing that we have created them, and how we have created them.

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