

Is Hacking the Brain the Future of Gaming?

An interview with Karen Palmer

Among the four keynote speakers at DiGRA2015 was digital artist and film maker Karen Palmer. On May 16, in her talk “Is Hacking the Brain the Future of Gaming?”, she presented the neurogame SYNCSELF 2 in which the player’s thoughts are read and transferred onto an avatar. In a short interview, she explains what the “diversity of play” means to her and talks about the aesthetic potential of combining film and games.

Question: You have developed, and are about to develop, new and innovative formats that combine film with performance, parkour running, and games. Your performance/game SYNCSELF 2 is an interactive movie that can be performed or navigated by electric signals retrieved from the brain of the player or “interactor”. Whenever the interactor focuses and is not distracted by the visuals of the film, the audience, or by his or her diverting thoughts, the characters of the film succeed in their attempt to overcome parkour hurdles. When the interactor loses focus, the characters of the film fail. Is this a film you directed or is it a game you designed?

74 Karen Palmer: It is both: interactive film and a game. You watch the film and you play the game.

Q: It seems fair to say that it is not only the content of your projects, but also the media you embed your pieces within, are highly diverse. The title of DiGRA2015 was "Diversity of Play: Games – Cultures – Identities". What does "diversity of play" actually mean for you?

KP: Diversity of play means playing in many different formats and genres to create an innovative audience journey through a gaming experience.

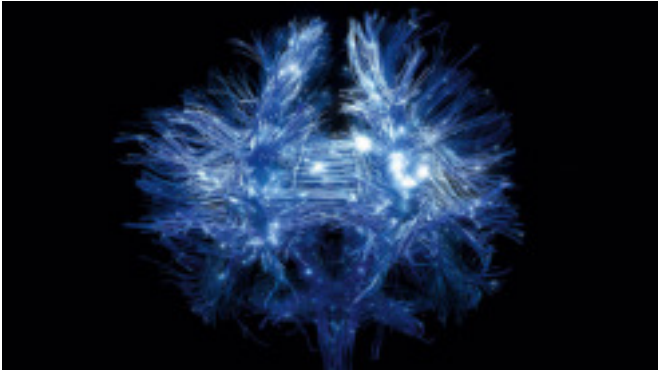
Q: How did your personal journey arrive at the crossroads of parkour and interactive film?

KP: In 2009 I became a committed forerunner and, inspired by my passion for parkour, I was encouraged to "move through fear", not just while training but within my life. I left the security of a successful career as a creative director and music video director to pursue my passion to be a visual artist and develop my voice as a storyteller.

As a result, I have developed my own unique interactive transmedia experiences that innovatively fuse well-being with art, film, parkour and gaming experiences through tech and storytelling to create an experience where the user is the remote control and the action is completely dependent on the psychological state of the user. My objective is to inspire and empower the user through storytelling.

Q: Much of your work is located at the intersection of visual art, interactive film and gaming. How would you describe the (aesthetic) potentials of combining film and games?

KP: The aesthetic potentials of combining film and gaming offer an exciting opportunity to create a fully immersive cinematic experience.



Transforming film from a purely linear journey, of which the director is the sole author, into a journey with multiple potential story structures of which the audience is the controller of the experience. This approach creates a bespoke, personalised and highly satisfying journey for the viewer/ player.

Unlike animation, film is a more visual reality-based gaming experience so the type of immersion into this world possess a different set of dynamics and therefore has the potential to be a more powerful journey.

Q: *SYNCSELF 2*, to name one of your last projects, combines “neurogaming” with film. What exactly does the term mean and how do neurogaming techniques transform the gaming experience?

KP: Neurogaming is where your mind and body meet game play. It is about integrating one’s full nervous system into the gaming experience for the purposes of entertainment, health, education, wellness and more.

Neurogame developers are using the latest emotional, cognitive, sensory and behavioural technologies to create

radically compelling experiences to engage and entertain gamers worldwide.

Q: From your point of view, what are the risks and opportunities of the more and more blurred distinctions between games and non-games?

KP: I am not aware of any potential risks, however, I see a lot of potential opportunities. New forms of learning and self-development through an engaging format. The experience enables the user to develop self, and gain practical cognitive skills such as focus, enabling the user to become more productive through a training experience. Acquiring real world skills through this unique form of “entertainment-meets-gaming” will enable the user to understand their strengths and weakness better.

There are quite a few examples of pieces that build upon interactive gaming experiences. To mention just a few, recent developments include:

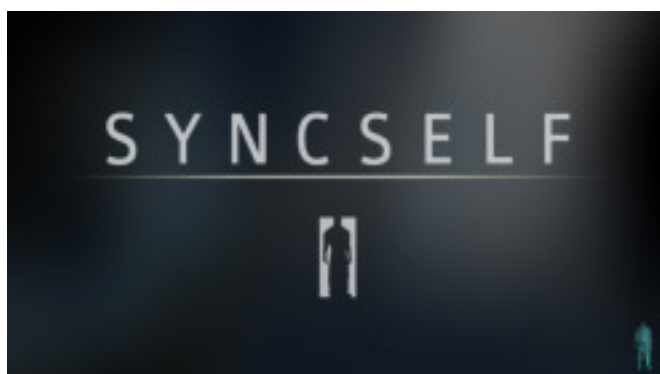
SYNCSELF 2 created an environment for the user where they are able to explore the concept of self. The user then became aware of process of focus. As a result they were then able to access it at will.

SuperBetter is another application that helps you achieve your health goals — or recover from an illness or injury — by increasing your personal resilience. Resilience means staying curious, optimistic and motivated even in the face of the toughest challenges.

Q: Karen, could you please give one more example here?

KP: *Nevermind* is a biofeedback-enhanced adventure horror game that takes you into the dark and twisted world of the subconscious.

As you explore surreal labyrinths and solve the puzzles of the mind, a biofeedback sensor will monitor how scared or



stressed you become moment-to-moment. If you let your fears get the best of you, the game will become harder. If you're able to calm yourself in the face of terror, the game will be more forgiving.

Nevermind strives to create a haunting gameplay experience that also teaches you how to be more aware of your internal responses to stressful situations. If you can learn to control your anxiety within the disturbing realm of *Nevermind*, just imagine what you can do when it comes to those inevitable stressful moments in the real world ...

Q: In science fiction, plugging into the brain has often quite evil connotations. I can see from your artwork that the actors/runners/players look quite happy with what you do with them, but could you imagine ethical problems with neurogaming?

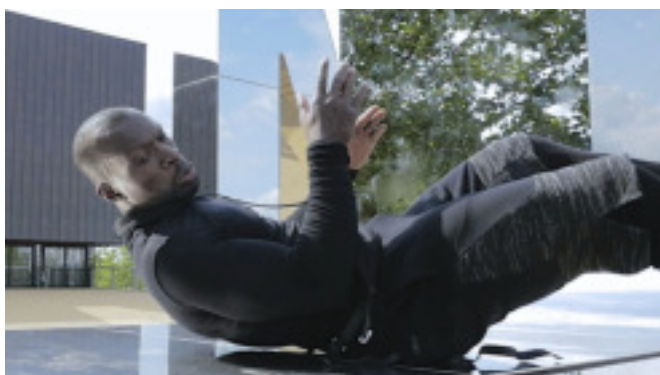
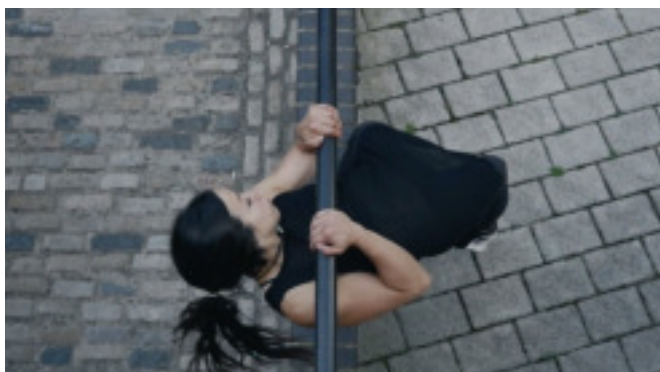
KP: Neurogaming is where the mind and body meet game play. It's where your full nervous system is integrated into the gaming experience by using new sensor technologies, output systems, and game design techniques.

I do not envisage any ethical issues at this time, as it is merely another form of evaluating data, which is becoming all the more pervasive in society.

Q: Can you give us a description of your forthcoming piece *FUTURESELF*?

KP: *FUTURESELF* will build upon the success of *SYNCELF 2* and has the potential to create an even more significant impact culturally through a more precise user experience. *FUTURESELF* will build upon this functionality to measure the vibrational frequency that we as humans transmit.

Q: Karen, what is "vibrational frequency"? Can you please explain in a few sentences?



KP: *FUTURESELF* will monitor the vibrational, emotional, and mental frequency that the user is operating at and, through the immersive storytelling experience, be guided to raise their vibrational level. The process of interacting with the installation will improve the user's sense of awareness and increase their sense of mindfulness enabling them to become their "future self" through the experience. The functionality will be both a solo and multi-player experience, where two players are able to compete to become their "future self".

Q: *Thank you very much for the interview.*

Navigating Uncertainty: Ludic Epistemology in an Age of New Essentialisms

Markus Rautzenberg

Like for Freud, psychoanalysis for Lacan was always more than just a catalogue of curing methods for illnesses of the mind but also about human existence as a whole. In his famous talk at the Catholic University of Louvain, that was in part published in the TV documentary *Jacques Lacan parle* (1972), one of his claims is as simple as it is radical: he suggests that there is no such thing as certainty, not even in death.

But what does this really mean? Isn't death (and taxes one might add) the only entity in life that is unavoidable? Isn't it absurd to propose that we can't be sure of death? What he means, of course, is that it is certain that we will die but that we live *as if* that was not the case. Not because we decide to do so, or because of some narcissistic hubris, but because the certainty of death is, in itself, a belief and a system of faith because our psychological system cannot empirically experience its own annihilation. Sure, we see people (fictional and real) die almost every day in the media and, depending on our profession or as soon as we reach a certain age, it also becomes part of our personal life.

- 84 However, in our subconscious “heart of hearts”, we don’t know death, or to be more precise, we don’t know *our own death*.

Death is a barrier for our psyche that we cannot overcome. In an abstract way we know that we must die of course, but we don’t know it in an actual way in the same sense that we know what it is like to be hungry or how it feels to be tired for example. Our own death is something that is, in an existential sense, not knowable, because it is a mode of existence, that – obviously – cannot be experienced as such.

Lacan proposes that instead of experiencing death there is simply a belief that death exists and that we don’t live for all eternity. The function of this belief, it’s structuring mechanism, is as paradoxical as it may sound: hope and consolation. Hope in the finitude of suffering, of futility or absurdity. Consolation in the fact that one day whatever is currently happening to us as an individual or as a species will come to an end.

To sum it up: according to Lacan our relationship to death is actually the opposite of what we normally believe. One of our most intimate and crushing states of existential fear (when, for example, we wake up at night with the thought “I am going to die” appearing suddenly out of nowhere), is not intimate or personal at all. It is a structuring system of faith, a concept, coming from the outside, whose purpose is not to frighten us, but on the contrary, to make life bearable. *The problem is not that there is death but that deep down we assume that we are immortal.* And this delusion is what is really destructive. Without it, nobody would smoke or take drugs (or wage wars for that matter). But without it, we probably wouldn’t be human. Consequently, it is not the fear of death that is specific to us as a species, it is our delusion of immortality.

It is easy to see that these two notions – the delusion of immortality on the one hand and, on the other, death as a belief system to keep the latter in check – are in conflict. So what is the purpose of explaining all this? The point is that *uncertainty*

is absolute, as paradoxical as that may be; that the one thing in the world we think we can take for granted is, at least for our psychological reality, not certain at all. Death (and life for that matter) are concepts that structure the psyche from the outside, that we assume and internalise like other famous Lacanian categories such as the imaginary and the symbolic, because death belongs to the realm of the real; it is the outer limit of our existence.

So we don't know death, we just know *of* it. That means that even death isn't certain, because what do we really know? Don't we all get much older nowadays? In the so-called "first-world" countries, life expectancies are constantly rising and who knows what will be in 30 or 50 years. As we all know, just a little over one hundred years ago, you could die from the flu. You could have to work so hard you could die of exhaustion before the age of 30. Today, to conceive of death, we must think of it as being caused by rare or extreme events, like cancer or fatal accidents. Meanwhile trans-humanism is hard at work to bring us some form of immortality.

This kind of relentless uncertainty that doesn't exclude death seems to be the condition of contemporary western societies. Structuralism and especially post-structuralism were philosophies that embraced this notion and pushed its theoretical implications to their limits, to a point where countermeasures were eventually inevitable: countermeasures that emerged from within post-structuralism itself. The apocalyptic cultural pessimism of Jean Baudrillard or Paul Virillo for example, who claimed that we live in an age of total simulation in which everything real has dissolved into media technologies, is a logical albeit conservative answer to a world without transcendental signifiers. The modification in their theoretical approach was subtle but important: they accepted the status quo of absolute uncertainty as a given but undermined the radicalism of the notion with the implication that a world of meaning and representations of the real has been *lost*. But having lost something is still better than the idea there was never

86 anything to lose in the first place. And it is not hard to see why these countermeasures have emerged: how else can we live under conditions of permanent uncertainty?

In this context, new essentialisms have come to the fore with full force (and I am not even talking about Islamism or other kinds of religious or political fundamentalisms). The all-encompassing postmodern uncertainty I just sketched out is demonised as a kind of corrosion or corruption of the spirit, mind and morality. Just take a look at religious fundamentalisms' counterpart: the popular "new atheist" movement and its protagonists, such as Richard Dawkins or the late Christopher Hitchens. Books like *The God Delusion* (Dawkins 2006), or *God is Not Great: How Religion Poisons Everything* by Hitchens (2007), can't hide the fact that in their radical narrow-mindedness they do exactly the same as their declared enemies. They just swap one belief system (in the Lacanian sense) for another, unable to deal with what frightens them most: uncertainty. And to be perfectly clear about it: even though I took Lacan as a starting point, psychoanalysis is, of course, one of the most powerful "belief systems" modernity has ever come up with. There are no privileged perspectives here, just points of departure.

There are aspects of neuroscience and genetics that have become a kind of belief system, not in the sense of an illusion (that is, of course, the punch-line of Lacan's argumentation: "belief systems" are as real and powerful as it gets), but as a *coping mechanism*, protecting us from the insolence of uncertainty. Everyone knows, especially neuroscientists, that colouring areas of brain scans doesn't bring us any closer to understanding the brain, that those pictures are not photographic in nature but algorithm-filtered visualisations, and that the idea of photographic truth is used as persuasive rhetoric to produce evidence where there is none.

In the firm belief that one day the right connections will eventually be made, data-driven research – the sciences' *dernière crie* – analyses the enormous amount of data digital-media are able

to provide and treats that data not as an assembly of random occurrences but as a kind of new “book of nature” that is thought to have the potential to someday reveal scientific truth. This is teleological, religious thinking and there is nothing inherently wrong with it as long as one doesn’t claim that it is the opposite.

In philosophy and the humanities, non-ontological, post-metaphysical ideas seem to be in a state of decline since the death of Jacques Derrida who, a few years before his death, was accused of “relativism” by none other than Cardinal Ratzinger (the later Pope Benedikt XVI). The accusation was that by claiming that there is no “transcendental signifier”, no stable core of truth at the centre of our sign-systems, Derrida and with him the whole of postmodernity, had devalued every religion, political theory and moral system there is, pushing humanity into an intellectually and morally devastating wasteland of “anything goes” that, according to Ratzinger at least, is the blight of modernity.

Today, neo-metaphysical movements in philosophy and the humanities (our obsessions with material culture, speculative realism or our new found love for big holistic theories that try to follow Hegel in their systematic aspirations), may very well be understood someday as expressions of the desire to overcome the constructivisms of the twentieth century and to re-establish a connection with the “real”.

And isn’t there some truth to this? For example, isn’t global capitalism – governed by a fear of uncertainty in the guise of mathematical game theory – showing what it is like when there is nothing certain but uncertainty itself? At its core, economic game theory tries to cope with the old provocation of uncertainty, mathematically this time, exactly like our other “belief systems” let us cope with death. Trying to predict how economic actors behave in relation to other actors is what the algorithms of the global economy are designed for. Since John von Neumann’s first paper on the subject this “belief system” has been called *game*

88 theory because it is about *taming uncertainty*, which is what a theory of strategic decision-making is all about.

But this kind of thinking is well-known; it is the rationale of wartime. Trying to domesticate uncertainty at all costs means assuming that we live in a state of constant threat. As we all know, that is the state we live in within a globalised society – a state of *fear*. Fear of the next terrorist attack, fear of losing your job, fear of not being attractive, intelligent or emotionally resilient enough etc. There are many books on the intricacies of the “culture of fear”.

It is only a small step from fear to paranoia, and at this point we enter the realm of insanity. It sets in when, in navigating uncertainty, we are tipped off balance, when our belief systems don't work anymore and no longer provide us with the delusion of immortality. Lacan's story about his patient and her *rêve pascalien* exemplifies this. The dream, where existence is infinitely regenerated out of itself (“*l'existence régénèrera toujours d'elle même*”), is pure wish fulfilment, piggybacking on the delusion of immortality mentioned before, unleashed from the shackles of the concept of death. What at first glance may seem like an innocent dream appears as a nightmare, leaving the dreamer “half mad” in the process.

What Lacan could only anticipate, however, is that in computer games his Pascalian dream, the insanity of the delusion of immortality, has become an everyday practice made possible by digital media: I am of course referring to the savepoint or, to formulate it closer to Lacan's presentation, the idea of respawning.

The concept behind respawning is one of the most important and defining features of digital media and all the more for computer games in which this kind of time-axis manipulation, as Friedrich Kittler would have called it, is something that no computer game can exist without. The only way to remove this feature would be to design a game that destroys itself after use, deleting its

boot directory, or a game that is so short that it doesn't need the feature, like some puzzle games. The Pascalian dream of infinite regeneration has been implemented in many ways and recently quite cleverly in a coming-of-age adventure with the very appropriate title, *Life is Strange* (2015). Here, the hero is an adolescent girl in her first week at a new school. As if this wasn't scary enough, she (and the player) discover they can manipulate time, and not just through the medium of photography – a topic that is regularly reflected upon during the game – but in the diegetic world of the game. Within the game, it opens possibilities teenagers could only dream of. The genius of the game lies in its reflection on the mediality of computer games through two lenses that are also intertwined in the game world: photography and the trials and tribulations of puberty.

Being able to say exactly the right thing at the right time would certainly be a massive boost to a teenagers' fragile self-confidence but this is, of course, still borne out of fear; the fear of uncertainty. Computer games work so well because they provide relief from uncertainty while at the same time work in the very medium of uncertainty itself: games and play (I will elaborate on this shortly). This paradoxical coincidence leads us back to the realm of insanity. From *Planescape Torment* (1999) to *The Suffering* (2004), from *Manhunt* (2003) to *Eternal Darkness*, from *Sanitarium* (1998) to *Silent Hill* (1999) and *Heavy Rain* (2010), from *Psychonauts* (2005) to *Papa y Yo* (2012), since the very beginning of the medium there has been no end of tales of madness and insanity in computer games. And even in cases where insanity isn't an explicit, central theme of the story, the dystopian worlds and hellish, apocalyptic environments in a game like *World of Warcraft* (2004) can't just point to a juvenile lust for blood and gore.

In computer games we come to somehow *enjoy* insanity. Take, for example, a game like *Bloodborne* (2015), the latest in the infamous series of hardcore roleplaying games the Japanese developer *From Soft* has released since *Demons Souls* (2009). These games are a nightmare in every sense of the word. Not only is the overall

90 atmosphere of these games meticulously crafted to be as bleak and oppressive as possible, with environments that feel like a Victorian version of a Hieronymus Bosch painting, but the game mechanics are downright punishing. As a game, *Bloodborne* and its brethren are a kind of antithesis to the trend of casual games. Yet at the same time these games are immensely successful. Why? Because in these games, computer games almost come in to their own or “to themselves”; because these games celebrate uncertainty and insanity at the same time, and result in a kind of “gaming bliss” only very few commercial games achieve. At the same time we all know that in a game like this there is no place for real uncertainty, because the design of such a game has to be very tight and every component must fit together, otherwise the result would be so frustrating, that the player wouldn’t want to continue. Games like *Bloodborne* are *staging* uncertainty; they revel in it without being able to provide real randomness and entropy, which would be a pre-requisite of true uncertainty.¹

But, again, in exactly what way are insanity, uncertainty and gaming connected such that the combination makes a hellish nightmare like this so enjoyable? Let’s take a hint from Alice because, like always, when in doubt, ask Lewis Carroll!

After venturing through the looking glass, Alice enters a land of paradoxes and permanent metamorphosis. What may look ordinary and normal on first glance always turns into something different, into something unexpected, thus mirroring the experience of a child trying to make sense of the adult world, which, to the child, doesn’t make sense at all. It was Gilles Deleuze who famously put together a comprehensive list of these

1 Uncertainty as a key component for computer games has recently been re-examined by Greg Costikyan (2013) from the perspective of a game designer, providing many examples of how modes of uncertainty are and can be applied in computer game designs. Early stages of my own, more philosophical approach to the notion of uncertainty in computer games have first been published in: *Spiegelwelt. Elemente einer Aisthetik des Bildschirmspiels* (Rautzenberg 2002).

paradoxes that haunt not only Alice but the reader as well by implementing them into a theory of meaning (1998). And there is a certain paradox that is the leitmotif of all of Alice's adventures: a certain concurrence of "reality" and "fiction", of actuality and virtuality. This simultaneousness is, of course, embodied by the mirror-twins *Tweedledee* and *Tweedledum* who at one point in *Through the Looking Glass* (Carroll 1912) want to teach Alice about the dreams of the Red King, who is peacefully snoring away under a tree:

'He's dreaming now' said Tweedledee: 'and what do you think he is dreaming about?'

Alice said, 'Nobody can guess that.'

'Why about *you*!' Tweedledee exclaimed, clapping his hands triumphantly. 'And if he left off dreaming about you, where do you suppose you'd be?'

'Where I am now of course' said Alice.

'Not you!' Tweedledee retorted contemptuously. 'You'd be nowhere. Why, you're only a sort of thing in his dream!'

'If that there king was to wake' added Tweedledum, 'you'd go out – bang! – just like a candle!'

'I shouldn't!' Alice exclaimed indignantly. 'Besides, if I'm only a sort of thing in his dream, what are you, I should like to know?'

'Ditto' said Tweedledum.

'Ditto, Ditto' cried Tweedledee.

He shouted this so loud that Alice couldn't help saying,

'Hush! You'll be waking him, I'm afraid, if you make so much noise.'²

Alice's hesitation is the result of an ontological and epistemological uncertainty. On the one hand she is denying the possibility of her being a non-real "sort of thing" that could vanish like the flame of a candle – "bang!" – if the Red King awakens. On the other hand, however, she would rather not take the risk of waking him, because, in the end, better safe than sorry, right?

At one point during the course of *Metal Gear Solid* – a game that the Japanese developer Konami released first on Sony's *Playstation* platform in 1998 – the player in the guise of the avatar and protagonist of the game, *Solid Snake*,³ encounters a villain named Psycho Mantis who – according to the in-game mythology – has "telepathic powers". This encounter leads to a boss fight that "proves" the telepathic capabilities of Psycho Mantis in a sophisticated way. If the player has played another game from Konami, for example *Castlevania* (1986), that has left traces in the form of "save games" on the memory-unit of the console, the game software of *Metal Gear Solid* is programmed to detect those save games discretely.

The result of this within the game is a baffling display of Mantis's "telepathic powers", because it enables the virtual antagonist to refer directly to behavioral patterns and certain biases of the real player sitting in front of the monitor: "So, you like *Castlevania*? Ah, you have saved often. You are a prudent person". But Mantis has even more tricks up his sleeve to further substantiate his claims of telepathy: the longer the fight lasts, the more he keeps talking to the *player* and not to his diegetic opponent. At one point he

2 From *Alice's Adventures in Wonderland & Through the Looking Glass* (Carroll 2012, 158).

3 The narrative of the game revolves around a global conspiracy that the hero of the game has to stop by infiltrating the headquarters of a secret paramilitary organisation. The villains and protagonists of this virtual play all have codenames that link them to their shared past as parts of a secret governmental task-force called Fox Hound.

demands of the player to lay down his controller, the dual shock pad, on the floor so that Mantis can “take control” of the device. The controller then actually moves on the floor seemingly on its own. A simple trick, because the dual shock pad has two small motors that can cause vibrations inside the device. The trick is simple but effective, because the events “inside” the game seem to reach out into the real world.

The connection between Alice and the user playing the boss fight in *Metal Gear Solid* is obvious: it is the simultaneousness of epistemic, logical and ontological layers that normally cannot coexist on the same plane of existence. Alice’s uncertainty regarding her own ontological status is similar to the one that occurs during the encounter with Psycho Mantis in *Metal Gear Solid*. For a short moment the line between dream and reality, virtuality and actuality gets blurred. Most importantly, there is no implicit hierarchy between these different planes; it is unclear which precedes the other. This moment of hesitation and uncertainty, however brief, results for Alice in an irrational fear of being annihilated by the awakening of the King and it is responsible for the bewilderment of the player who observes how a virtual character in a computer game suddenly seems to have power over a real object outside the game, thus being able to reach outside the screen and “beyond the looking glass”.

These moments of uncertainty may be brief but their inner dynamics are of great importance. Unlike Alice, Psycho Mantis seems to know that he is part of a fictional, virtual world, therefore the normally impenetrable threshold between fiction and reality seems to crumble. As Psycho Mantis stretches out of the diegetic framing of the computer game as a kind of ludic *trompe l’oeil*, different modes of existence seem to be coexisting that would otherwise be logically, as well as ontologically and epistemically, incompatible. It is the game *as a medium* that makes this possible and it was Gregory Bateson who defined play and games accordingly.

94 For him one of the most fascinating aspects of game and play is rooted in the very structure that allows for moments of transgression of which the boss fight with Psycho Mantis is of course not the most complex but an effective example. Bateson analyses this aspect of game and play psychologically, utilising the analogy of primary and secondary processes of the psychic system,⁴ by developing a theory of game and play as media that are able to transcend these otherwise insurmountable barriers. These moments of transcending define the very mediality of game and play. While the mechanisms of the subconscious primary processes and the discursive secondary processes are normally incompatible with each other, game and play are able to transcend these barriers by mediating the ensuing paradoxes. "It therefore follows that the play frame as here used as an explanatory principle implies a special combination of primary and secondary processes" (Bateson 1972, 191). It is crucial that Bateson analyses game and play as media that are situated between different logical and epistemic layers, mediating between them, without ever synthesising them in a Hegelian-dialectical sense. The paradoxes are not *aufgehoben* but set in motion. *Ludic mediality is a dance of and with paradoxes.*

The dynamics of ludic mediality therefore create a logico-epistemic twilight zone similar to a lucid dream where the dreamer is *suddenly aware* that he or she is dreaming. This specific kind of dream normally occurs within the short liminal space between sleep and awakening. As long as the dreamer is dreaming without being aware of his own state, the dream works within its own operational framing. Not only can the threshold to secondary processes not be transgressed, it cannot even be perceived as such from within the dream. The moment of lucid dreaming, however, suddenly enables the dreamer to draw meta-conclusions, which, according to Bateson, make framings perceivable. This, of course, was the crucial point of entry for

4 Bateson uses Freudian terms here first developed in the *Traumdeutung*.

Erving Goffman's sociological theory of *Frame Analysis*, and from there Bateson's theory of framing helped to theorise second- and third-order observers, which in turn was extremely important for cybernetics, radical constructivism and finally system theory. Therefore, it would be fitting to speak of games as *framed uncertainties*. "Framed" in the sense that Bateson and Goffman suggest and "framed" as in "incriminate" or "entrap". On the one hand computer games are celebrations of uncertainty, on the other, this uncertainty is not real. It's just *pretend* uncertainty because computers have a problem with real randomness in so far as they can't generate randomness due to their very nature as von Neumann architecture and Turing machines. This is a key distinction that separates computer games from other games. There are many forms of framed uncertainties but there is a certain edge to the notion when it comes to computer games because of their digital ontology. It almost seems as if there is a kind of longing for uncertainty, randomness and entropy in digital media that is articulated in computer games for us to explore. This kind of "double-framing" works by *showing* what is otherwise hidden. Self-reference in computer games is almost inevitable because of the density of framing problems within the medium, that is "framing the framer" (Butler 2009, 5–15)⁵ in a double-bind.

The question "Is this a dream?" points to this kind of meta-conclusion derived from the liminal state of the lucid dreamer, who is both within and outside of the dream. "He or she cannot, unless

5 "The frame that seeks to contain, convey, and determine what is seen (and sometimes, for a stretch, succeeds in doing precisely that) depends upon the conditions of reproducibility in order to succeed. And yet, this very reproducibility entails a constant breaking from context, a constant delimitation of new context, which means that the 'frame' does not quite contain what it conveys, but breaks apart every time it seeks to give definitive organization to its content. In other words, the frame does not hold anything together in one place, but itself becomes a kind of perpetual breakage, subject to a temporal logic by which it moves from place to place. As the frame constantly breaks from its context, this self-breaking becomes part of the very definition." (Butler 2009, 10)

96 close to waking, dream a statement referring to [that is, framing] his dream" (Bateson 1972, 191). The dynamism of ludic mediality as a phenomenon of liminality has to be described as a mode of processuality in which *suddenness* is the key element in which game and play show their specific mediality. Suddenness as an expression and symbol of the non-identical and the discontinuous in aesthetic modernity has been discussed prominently by Karl-Heinz Bohrer (1994). It is no coincidence that there are many connections to the notion of ludic mediality discussed here, because game, play and chance have been very important concepts for aesthetic modernity from Stéphane Mallarmé to surrealism to Marcel Duchamp and beyond, right up until today. It is this "dangerous" element of game and play that defines its allure.

It is because of this that the mediation of paradoxes as the core element of ludic mediality only shows itself momentarily. Alice's uncertainty and hesitation are just as brief as those of the player fighting Psycho Mantis in *Metal Gear Solid*. Shortly after these moments, the epistemic and logical borderlines between reality and fiction, actuality and virtuality, become stable again. Likewise, the experience of lucid dreaming is just a matter of seconds between dreaming and awakening.

Bateson uses the analogy of the dream because it is his goal to describe game and play as a state of liminality that "mediates" between primary and secondary processes, realising their full transgressive potential in the process. At this point a connection between different categories is established that are, however, never fully compatible. "The message 'This is play' thus sets a frame of the sort which is likely to precipitate paradox: it is an attempt to discriminate between, or to draw a line between, categories of different logical types" (Bateson 1972, 195).

For Bateson the rule-regulated "game" is differentiated from the less restricted form of "play" by its higher level of complexity because in a game the problem of framing and the resulting paradoxes are reflected upon. In play the only rule results from

the performativity of the assertion “This is play”. In a game the logico-epistemic uncertainty is driven by the question “Is this a game?” that is at the same time reflected upon by playing the game. Bateson as well as Niklas Luhmann’s concept of medium and form are based on the assumption that “meaning”⁶ is an effect of the processing of paradoxes. The famous paradox of Epimenides is a blue print for the kinds of paradoxes in question here.

This paradox results in a double-bind, an epistemic structure Bateson was interested in as a component of a theory of schizophrenia (his path to a theory of game and play led through mental illness, or at least what society deems as such). For Bateson, not being able to deal with simultaneous and contrary claims that cannot be true at the same time (according to the law of contradiction) is the very definition of the state of schizophrenia. A schizophrenic therefore loses his or her grip on reality because he or she cannot decide what is “real” and what is not, and as a result, his or her mind is stuck in a loop of recurring (im)possibilities. In games, however, Bateson discovers a dynamic, a process that while not able to eliminate the double-bind, *deals* with it via *temporal transgression*. For Bateson, game and play had such a profound impact on the human mind that he was forced to conceptualise them as an evolutionary leap in the development of communication as a whole. The processing of paradoxes is fundamental for communication to go beyond the mere recognition of straight sensory signals.

Only such “playful” communication is able to develop meta-communications that can process double-binds and turn them into meaning. It is not hard to see what he had in mind, because without being able to somehow mediate between paradoxes,

6 “Meaning” (*Sinn*) has to be understood in the sense that Luhmann gave the notion. In the perspective of his system theory “meaning” is in itself a medium that allows complex psychic and social systems to generate self reference and complexity. “Meaning” is therefore a prerequisite for complex systems as a whole. See Luhmann (1987, 92–148).

98 we would not be able to recognise, let alone process any kind of sign-usage, beyond strict denotation. Without understanding something to be true and false at the same time, we could not understand jokes, irony, metaphors or sarcasm. This is, of course, why the idea of an ideal language had to fail and it is of course no coincidence that Bateson was heavily influenced by Wittgenstein who began with a grandiose concept of an ideal language and arrived at a theory of games.

Bateson uses the metaphor of “map and territory” to illustrate this in psychological terms using an old semiotic figure of thought.⁷ Paradoxes result from a confrontation of primary and secondary processes. Games in the sense of the question “Is this a game?” transcend the boundary between these two primordial psychological forces: “In primary process, map and territory are equated; in secondary process, they can be discriminated. In play, they are both equated and discriminated” (Bateson 1972, 191). This *coincidentia oppositorum* is perceived in brief, fleeting epiphanies of the logico-epistemic uncertainties mentioned above. Within the boundaries of the game the different layers are not mediated in the sense of a potential synthesis but as temporal successions that allow for a processing of the double-bind *by means of time*.

As a side note, this idea of processing paradoxes is one of the integral parts of Niklas Luhmann’s theory, that was heavily influenced by the work of Bateson and Spencer-Brown. For Luhmann (as for Deleuze) paradoxes are not something that have to be eliminated in order to make something work but, on the contrary, are one of the most basic fundamentals of psychic and social systems. Luhmann borrows the notion of “re-entry” from the mathematician George Spencer-Brown. The term refers to an operation that enables a given system to reintegrate the basic differentiation that it, in itself, is based on, and to do so by

7 Those connotations to the notion of “map and territory” that connect it with the history of colonialism have to be put aside in the context of this essay, since this would be a topic of its own that can’t be tackled in passing.

means of self-observation. This establishes the famous “second-order” observer that, for Luhmann, is the epistemic hallmark of modernity.

This fluctuating dynamism is what ludic mediality is about, because the temporal processing is never linear but recursive. The ludic operations always tilt from one layer into the other, so that fixed moments “before” and “after” are established: paradoxes don’t get dissolved but stay in place while at the same time being processed without resulting in a stable synthesis. Ludic mediality always stays discrete, generating “meaning” as a result of the continuous processing of epistemic, logic and even ontological layers. Pathological modes of this dynamism (like schizophrenia) emerge at the exact moment when the psychic (or social) system is not able to walk this tightrope of ludic mediality anymore, when the paradoxes cannot be processed.

Before any categorisation into genres like *first-person shooters* or *adventure*, it can be said that one of the constitutive fundamentals of many computer games and their ludic mediality is a specific kind of self-reference, if not always as obvious as in *Metal Gear Solid*. It seems to be such a defining feature of many computer games that there is a clash or conflict between sophisticated techniques of immersion that try to establish “realistic”⁸ game worlds and inevitable moments of self-reference that point to the artificiality, the “non-reality”, of the game space. This struggle between conflicting aspects – which would be more precisely captured by the Heideggerian notion of *Streit* (strife), something I can’t get into here – is constitutive of a tension that is typical for computer games. On the one hand contemporary, big budget computer games still aim at hyper realistic graphics and immersive gameplay experiences that ideally make the player forget the artificiality of the game environment, on the other

8 “Realism” in this case doesn’t necessarily refer to a kind of photorealistic simulation of reality but more to the creation of believable, virtual objects. See for this distinction Esposito (1978, 270).

100 hand games mustn't be too realistic in order to function. The delicate balance of ludic mediality is always maintained, "total immersion", meaning a complete perceptual illusion, is nothing but a phantasm of design theory. There is always a simultaneous closeness and distance to the world of the game because a game can only work because of this distance, while at the same time it has to be immersive enough to be believable. Accordingly, Steven Poole (2000, 77) wrote in his famous book *Trigger Happy*:

Counter-intuitively, it seems for the moment that the perfect videogame 'feel' requires the ever-increasing imaginative and physical involvement of the Player to stop somewhere short of full bodily immersion. After all, a sense of pleasurable control implies some modicum of *separation*: you are apart from what you are controlling.

It is important to note that this simultaneousness of external observation and intrinsic participation reveals one of the most distinctive characteristics of computer games, a characteristic that gets overlooked as soon as one of the perspectives is privileged. It is because of this that Sybille Krämer insists upon the observation that this simultaneousness of perceptual and epistemic layers is a mode of perception unique to cyberspaces; a hypothesis aimed at a common rhetoric critical of media and the "dissolution of the real", which I briefly mentioned earlier, when I referred to Baudrillard and Virillo:

Against the dogmatisation of just one perspective it has to be stressed that simulations of virtual realities presuppose that there is a difference between the space that a real body occupies and the virtual space of interaction. Cyberspace depends upon the difference between virtual reality and corporality in the outside world (Krämer 1998, 36; translation by the author).

It is no wonder that this fundamental difference is emphasised in computer games in ubiquitous instances of self-reference. One example is the save-function that is, of course, a characteristic

of digital media as a whole. Through saving, the player is able to start where he or she left off without having to start all over again. In many instances this save-function is not only triggered by discrete keyboard commands but is represented inside the diegetic world of the game. The ways in which these “save-points” are represented in game are manifold and most of the time game designers try to integrate their appearances into the representational logic or design of the game in an attempt to preserve the immersion (which is unavoidable because using a save-point is in itself a meta-action that points beyond the diegetic world of the game). These save-points, which can take many forms – strange objects, books, typewriters or even sofas where the protagonist can sit down and relax – are conspicuous in the game world. They point to the artificiality of the game by not quite fitting “in the picture”. This is why such save-points have practically vanished. In the days of automatic, discrete saving or server client check-ups, save-points like those described are about to become a thing of the past.

A different and quite popular form of self-referential deixis can be found in the use of *MacGuffins*: virtual objects with the sole purpose of being semiotic “blank spaces” in a pan-semiotic world where normally everything is semantically connected to “make sense” for the player. In *Final Fantasy VII* (1997), the player can find certain objects that, when inspected closely, reveal themselves to be miniature versions of the characters the player is interacting with during the game. These little figurines are virtual objects “without meaning” because they are useless, that is, they are meaningless in regards to actual gameplay mechanics. They are just there, poking out of the virtual environment like a sore thumb. They can’t be used to fight, they are not part of any kind of puzzle or quest, they are just empty signifiers that point beyond themselves to a world outside of the game. Only the player can recognise their meaninglessness as such by aimlessly searching for the missing signified in a kind of parody of Derrida’s infinite semiosis.

102 It has to be noted though that these kinds of “useless objects” have been tamed somewhat in recent years due to what can be called a “re-labourisation” of gaming. Since the introduction of platform “achievement systems” by *Microsoft’s Xbox LIVE* environment, computer games are littered with collectibles or little tasks that are unconnected to the game but that reward the player with completion tokens like trophies, badges or medals and give the tasks with a shallow sense of meaning. These meta-systems emphasise how little computer games (or shall we say most gamers?) can tolerate empty signifiers, how even the last anarchic traces of uncertainty must be tamed in order to satisfy our desire for meaning.

In a rundown part of a futuristic city in the classic PC role playing game (RPG), *Anachronox* (2001), the player encounters a non-player character (NPC) whose sole purpose is to yell in the style of crazy apocalyptic visionaries and remind all passerby NPCs of their own digital artificiality. (“You are all not real! We exist within a computer game! Look, you are constantly uttering the same few sentences! You are all not real! We exist inside a computer game”.) Since those early days, references to onto-epistemic uncertainty are part of many computer games such as in the sophisticated narratives of the *Metal Gear Solid series*, *Planescape Torment* (1999), *Deus Ex* (2000) to name just a few examples, not to mention more recent games like *Portal* (2007) and *Braid* (2008) that put self-reference at the core of their design concepts.

In conclusion it can be established that games as a medium provide a certain kind of experience by allowing the simultaneous coexistence of otherwise incompatible layers, and this dynamic is amplified in computer games because of their medial foundations in digital media. Computer games, understood as a specific mode of the medium “game”, highlight this dynamic as the coexistence of closeness and distance, intrinsic actor and external observer. The resulting tension is the medium in which computer games are specific actualisations. In these actualisations, the paradoxical condition of their mediality is often shown in stagings

of self-reference that computer game designers tend to gravitate to, perhaps not without reason. But these paradoxical dynamics are only mirroring the human condition – the experience of being external observer and “embedded” participant, subject *and* object, at the same time, as phenomenology has told us from Husserl to Merleau-Ponty. This conflict can be experienced acutely in virtual environments and, of course, in computer games.

Computer games are the most widely distributed form of virtual reality and, as interactive media, allow an actual integration of the perspective of the participant into the perspective of the observer and because of this, both an internal and external perspective of the interacting subject. This subject therefore is at the same time distant observer and involved actor. This involvement however gets aesthetically sublimated because the dangers of being “involved” get suspended like in lucid dreams.

A few closing remarks.

When I started working in game studies at the beginning of this century, the notion of *gamification* wouldn't have been understood as it is today. At that time *gamification* would have meant the dissolution of the real in favour of a postmodern “anything goes” conception of reality (as described earlier), perhaps synonymous with a term like “aesthetisation”. Although computer games already became a very large industry during the early twenty-first century, nobody would have been able to foresee the extent of pervasive gaming today. In the age of big data, geo-tagging and self-optimisation through “achievements” and “rankings”, game studies needs to consider a broader notion of what game-related fields of research may be, and that is exactly what is being done at the moment. In the past we loved to pose ontological questions, and for a long time game studies was expected to deliver definitions and thereby answer the questions “What is a game and what is its nature?”, But, at least for me, the more interesting way to approach this is to observe what kind of

104 questions occur when we think about games? Because, obviously, thinking about the diversity of play is not just about different cultures and approaches to gaming but also about conceiving of ludic principles as a catalyst and prerequisite for thinking, feeling, understanding, creating understand worlds. The ubiquity of *gamification* (the application of game mechanics in non-game contexts), for example, allows us to differentiate at least three distinct layers that, in combination, constitute “games” as a specific mode of world apprehension.

1. Self-optimisation
2. Risk management
3. Mediation of paradoxes

All of these elements can be utilised to enhance the human condition ethically and aesthetically, as Kant, Schiller and Huizinga have argued, but at the same time they are used in the “games” of global capitalism where all of our lives are “at stake”. For Schiller, self-optimisation would have taken the form of a pedagogical system of playful education. In today’s work environments elements of gaming are often used as superficial gratification-systems that mimic playful competition in order to make us work or consume more efficiently. Risk management is the only aspect of games that is relevant to the *mathematical* theory of games, which in turn is the basis for the market-predicting algorithms that global markets are based on. Standard & Poor’s, and other rating agencies, do nothing else but “play games” *with our future* and that is indeed a core ingredient of gaming itself.

Games are all about predicting the future regardless of whether this future is immediate or a hundred years from now. Uncertainty is both at the core of what is fun about games, and the reason why mathematical game theory dominates economic theory today. It’s all about living with contingency. The mediation of paradoxes seems to be the last remaining space of human freedom and the place where the arts, at last, come into their own. But this is just one side of the story. Making connections perceivable that would otherwise be unperceivable and risking

loss or the destruction of known boundaries are indispensable for games to work. By letting markets collapse and deliberately “raising the stakes” in the process, profits are maximised and wars are won. In an effort to conceptualise a truly interdisciplinary approach to game studies that would bring all these aspects of gaming into the equation, we have to consider the notion that games are intrinsically humanist as a romantic one.

We have to decide how to approach games as one of the great cultural resources of humanity. Gaming and playing don’t mean passively embracing indifference. On the contrary, they are an active encounter with difference, and computer games, being digital media, especially allow us to practice navigating uncertainty. Historically, game studies and its subject, what I called ludic epistemology, are heirs to postmodernity in that they don’t play well with intellectual laziness and superficial relativism and especially not with essentialisms. Playing games is a way to be in contact with the world in a way that doesn’t allow for quick answers and handy definitions. It might be a mad world out there, but the dance of paradoxes is not just something to be feared, but something to be explored, and games as framed uncertainties allow just that.

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