Revisiting *Genesis*: Living as Misspelling

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Revisando *Génesis*: viviendo como error ortográfico

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Abstract:

This paper revisits the online documentation of Eduardo Kac's work *Genesis* (1999) in order to address the problematic of embodiment as it emerges in the process of specta(c)torship afforded by this work. The central piece of *Genesis* consisted in a genetically modified bacteria which incorporated an artist-designed synthetic gene created by translating into DNA base pairs a sentence from the biblical book of Genesis. The reading that I propose problematizes the meaning of the *human* body in view of the complex entanglement of living and technological systems that appears in this work. Relying on elements from the archival theory formulated by Jacques Derrida, this paper reads *Genesis* as an attempt to playfully undo the origin (the *human* master of *nature*, and the associated duality between *culture* and *nature*) form inside the very history that this origin grounds, by folding into one another the *cultural* archive of the written biblical fragment, the technological archive that makes the work possible, and the DNA as an archive of chemical sequences that constitutes the fundament of life. The article also raises the question of how to address environmental crisis from a perspective that does not rely on the figure of the *human* and on the *nature/culture* divide.

Keywords: art theory, contemporary art, spectator, human nature, culture.

Resumen:

Este artículo revisa la documentación en línea de la obra *Génesis* (1999) de Eduardo Kac con el fin de abordar la problemática de la encarnación tal como surge en el proceso de expectación-actuación que ofrece esta obra. La parte central de *Génesis* consiste en una bacteria genéticamente modificada la cual incorpora un gen sintético artísticamente diseñado, creado al traducir una frase bíblica del libro del Génesis en pares de bases de ADN. La lectura que propongo problematiza el significado del cuerpo humano en vista del complejo entrelazamiento de sistemas vivos y tecnológicos que aparecen en la obra. Basándome en elementos de la teoría de archivo, formulada por Jacques Derrida, el artículo hace una lectura de *Genesis* como un intento lúdico de deshacer el origen (el maestro humano de la naturaleza, y la dualidad asociada entre la cultura y la naturaleza) dentro de la misma historia que fundamenta este origen, doblando entre sí el archivo cultural del fragmento bíblico escrito, el archivo tecnológico que hace posible la obra, y el ADN como archivo de secuencias químicas que constituyen la base fundamental de la vida. El artículo también plantea la cuestión de cómo abordar la crisis medioambiental desde una perspectiva que no se base en la figura de lo humano y en la división naturaleza/cultura.

Palabras clave: teoría del arte, arte contemporáneo, espectador, naturaleza humana, cultura.

1. Introduction

Exhibited for the first time in 1999 at Ars Electronica, *Genesis* is a work by Eduardo Kac that "explores the intricate relationship between biology, belief systems, information technology, dialogical interaction, ethics and the Internet" (Kac, 1999, para. 1). The central piece consists of a Petri dish with two kinds of genetically modified bacteria, one of them incorporating a synthetic gene that was created by translating a sentence from the biblical book of Genesis ("Let man have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moves upon earth") into Morse Code, and subsequently converting the Morse Code into DNA base pairs. Mutations occur in the synthetic gene as the result of natural bacterial multiplication processes, interactions between the two different kinds of bacteria, and human-activated UV

radiation (Kac, 1999). Live music, based on the DNA sequences of the bacteria, was produced using an algorithm designed by Peter Gena in collaboration with Dr. Charles Strom.[1] Live video and audio recordings of the work were streamed on the web, and the online spectators were allowed to control the UV light, turning it on or off, and thus accelerating or slowing down the mutation rate of the bacteria. At the end of the show, the DNA sequence of the synthetic gene was decoded and translated back into plain English revealing the mutations that the text has suffered (Kac, 1999).

Rather than trying to explain the work as a stable object, or to place it in the context of Eduardo Kac's art practice, the present paper focuses on analyzing a specific instance of specta(c)torship afforded by this work, and on unpacking its consequences.

We have to start with a short clarification of the terminology. I use the term *specta(c)torship*, inspired by Augusto Boal's *spect-actor* (Boal, 2008), in order to point towards an interplay of activity and passivity that is inherent in the encounter with the artwork, an interplay that in the last instance bears upon the being and becoming of the embodied subjectivity of the spectator.[2] In other words, the underlying methodological claim that grounds this paper is that the critical exercise is not a means of stabilizing the meaning of the artwork by passing judgements regarding a clearly defined object, but rather a way of further complexifying the work of art by problematizing its consequences upon the embodied spectator. As Jacques Rancière's theory of the partition of the sensible (Rancière, 2006) suggests, it is one's entire experience of the world that is at stake in the encounter with the artwork, and not merely passing a judgement (aesthetic or otherwise) upon an object (artwork) that remains exterior to the embodied subjectivity of the spectator.

Genesis proposes at least three instances of specta(c)torship: first, there are the spectators that experience the work in the gallery space during the original exhibitions, a direct encounter with an artwork that is literally alive; second, there are the spectators that visit the work online during its live exhibition and have the chance of interacting with it by turning on and off the UV light, hence having a direct influence upon the life of the bacteria and their evolution; and third, there are the spectators who access the online documentation of the *Genesis* in a space and time seemingly remote from the life of the work. The present paper focuses on this third instance of specta(c)torship, engaging with the theoretical issues that tend to emerge with a heightened urgency in this case.

David Hunt, in a text for the gallery brochure of the *Genesis* exhibition at Julia Friedman Gallery in 2001, observes that "we enter the Genesis exhibition in the same free-form, subjective manner that one might use to burrow into the core of a hypertext novel" (Hunt, 2001, para. 3). Hunt underlines two aspects of this hyper-textual nature of *Genesis* with respect to the processes of specta(c)torship that it affords. The first one is the freedom of the spectator to wander throughout the gallery and approach each part of the work in whatever sequence they choose, constantly zooming in and out as *Genesis* carries them from the micro-level of bacterial DNA to the macro narratives of language, history, and biology. The second one is the existence of multiple readings of a single overriding story structure (Hunt, 2001). The parallel that Hunt proposes, between the structure of hypertext fiction and the *Genesis* exhibition, already hints towards the fact that a reading of the work as it appears through its hyper-textual online documentation might be more relevant than it seems at first glance. Following this understanding, we could argue that the process of online specta(c)torship proposed by the hyper-text online documentation of *Genesis* is, in a sense, already foreshadowed by the structure of the live version of the work.

In other words, the online documentation, instead of being a marginal excrescence removed from the work itself, is rather at the core of the work from the very beginning through the type of specta(c)torship that the work proposes. This perspective is also confirmed by the fact that the documentation is a constitutive part of *Genesis* from the very beginning: while providing a powerful sensorial experience for the gallery spectator, nonetheless, the work always points backwards towards the documentation (be it online or offline) of the process through which it emerged (the transcription of the biblical phrase into the DNA, the genetic modifications of the bacteria, etc.). This is simply to say that the experience proposed by *Genesis* would

be completely different without access to the documented history of its emergence. The inclusion of an important online component (online access to live audio-video streaming of the work, and the possibility of turning the UV light on and off) further emphasizes the complex intertwining between the online and offline processes of specta(c)torship that the work affords.

This is not to collapse the differences between the three instances of specta(c)torship identified above, but to underline that there is no simple line going from the immediate presence of the live work in the gallery, to its weaker presence mediated by the technologies that subtend the internet and finally to a documentation that is merely an online trace of a past presence. Rather the understanding of immediate embodied presence and remoteness is complicated by inscribing the experience of online specta(c)torship at the very core of the immediate presence of the work.

In the last instance, this constitutes the problematic folding into one another of different archival layers present in the work. The process of online specta(c)torship with respect to the documentation of the work is a specific way of navigating a *cultural* ³ archive (the webpages comprising the documentation) subtended by a specific technology (the internet in its materiality), while at the same time *Genesis* problematizes the relationship between the *cultural* archive (the biblical fragment), the DNA as a bio-chemical archive that drives the life of the bacteria, and the complex technological milieu that shapes this relationship. Turning our attention to the process of specta(c)torship afforded by the online documentation of *Genesis*, hence brings to the fore the problematic of a complex intertwining of archival layers. What does it mean to navigate an online archive of traces relating to a work that playfully problematizes the meaning of DNA as a material archive that grounds all life? And what does that do? What does it mean that this *cultural* archive that we navigate is subtended by a specific technological network that is already deeply embedded in my day-to-day experience, but also participates in the modifications of the bio-chemical archives that support life?

The problematic that opens up in process of specta(c)torship that *Genesis* affords, and that this paper attempts to explore, is predicated on the complex relationship between (1) *cultural* archives — the written words inscribed in the living bacteria, the online documentation of the work; (2) the DNA as an archive that grounds the possibility of life as we know it; and (3) the technological complex that makes the work and the online documentation of its traces possible, itself a very specific type of archive. The stringent questions that emerge are: How do these three types of archives function with respect to one another? What does it happen (and what does it mean) when they are folded into one another? ⁴

2. The question of embodied subjectivity

Since the live exhibitions of *Genesis* (1999/2001) the extent to which our own experience of the world, in its assumed immediacy, is grounded by the potentialities of the technologies that underlie the internet became more and more clear. If, following Bernard Stiegler, we understand the question of technology as being inherent to what it means to be *human* (Stiegler, 1998), the claim that a particular technology, almost ubiquitous in our western societies today, shapes our experience of the world in its immediacy, comes as no surprise.

It is important to note though, that the influence of the internet upon the embodied experience of the world is not something that comes from the outside to modify a pristine way of being in the world, but participates, along with other technologies, in the coagulation of the experience of the world in the first place. The world comes to be through specific technologies. This is what Yuk Hui, building upon Stiegler's philosophy of technology, names *cosmotechnics* an intertwining of the 'cosmic order,' the 'moral order' and 'technical activities' that subtends what the 'cosmos' for a particular *culture is* and how it *becomes* (Hui, 2016/2019). In this sense, for Hui, digital objects circulating on the internet, as an integral part of the contemporary western cosmotechnics, participate both in the coagulation of a specific cosmos, of a specific world, and in the construction of embodied subjectivities that are inherent to that world. Hui

proposes that digital objects perform tertiary protentions which run the risk of automatizing transcendental imagination (Hui, 2016). It is outside of the scope of this article to delve deeper into a critical reading of Hui's understanding of digital objects in relation to transcendental imagination, four our purpose here, is enough to note that the potentialities afforded by the internet appear in this sense as inherent to the construction of embodied subjectivities and of the specific worlds associated with them.

It would not be thus an exaggeration to say that it is our whole being-in-the-world, our *being* and *becoming* through and together with our environment, that comes to be at stake in our online performances. When these performances, rather than reinforcing inertial identities and world-views, have a critical edge and point in new directions, when technē going beyond the imperative of utility approaches what we call art, the question becomes that of new possibilities for embodied experience, and, in Hui's vocabulary, of new cosmotechnic regimes (Hui, 2021).[5]

This is the problematic space that *Genesis* opens up: the *being* and *becoming* of the embodied experience of the world. To focus on probably the most conspicuous aspect of this problematic as it appears in *Genesis*: influencing the rate at which the DNA of the bacteria is modified, the spectator acts online upon the very basis that grounds being — the simple living cell and its genetic code. The work thus hints at the impact of the online performance upon the basic structures that ground embodied being and thinking. Upon critical consideration, this quickly becomes more than a metaphor. If we consider the actual environmental impact of the technologies that subtend the internet (Cubitt, 2017), ironically, one of the things that is always at stake in our unassuming clicks is exactly the quantity of UV light that will eventually reach us, with all the potential consequences on the DNA of our cells.[6] At the same time that the clicks of the online spectator influence the mutation of the genetic code of the successive generations of bacteria by remotely turning on and off the UV light, the cells of our bodies are subjected to a very similar experiment, albeit through a much more complex process that the same clicks participate in (by being part of the global digital network and consequently participating, even if infinitesimally, in its environmental consequences).

By using E. Coli bacteria, that are commonly found in our bodies as normal microbiota, *Genesis* forces us to think one step further down this path. The internet spectator accelerating the modification of the bacterial DNA does not act upon a non-human outsideness, but rather upon micro-organisms that are (or could be) constitutive of its own embodiment. As Donna Haraway insists, our bodies rather than simple unities are rather a 'mundane space' of interacting microorganisms (Haraway, 2008, pp. 3-4), a meeting space of a diversity of species, and the bacteria used in *Genesis* are a good example of such (micro-)otherness that is inherent to who we ourselves are. Once again, the online gesture that *Genesis* proposes has for the online spectator a critical self-referential direction.

This all adds up to emphasize the importance of addressing the embodied subjectivity that emerges at the intersection of *cultural* archives, bio-chemical archives (such as the DNA in this case) and technology.

3. Archives, bodies and the nature/culture divide

According to the description of the work on Kac's website the specific biblical fragment 'inscribed' in the bacteria was chosen "for its implications regarding the dubious notion of (divinely sanctioned) humanity's supremacy over nature" (Kac, 1999, para. 1). Thus, *Genesis* invites us to rethink the relationship between *human* and *nature* — which is to say between *nature* and *culture*, between on the one hand the *cultural* archive and the specific ways in which it is instantiated, embodied, performed and transformed, and on the other hand *nature* as the background and origin against which the *cultural* archive happens and evolves. But, as Jacques Derrida argues, the difference between *nature* (*physis*) and its others, between *nature* and writing, between *nature* and technics, between *nature* and the law, is inherent to the problematic of the archive (Derrida, 1996, p. 1). It is upon the *cultural* archive subtended by its technological supports that this distinction develops in the first place, and its negotiation is inherent to what the archive is. In other words,

the problematic of the archive is, at its most basic, the problematic of the (lack of) origin –physical, historical, ontological commencement (Derrida, 1996, pp. 1-5)– that grounds the archive, an origin nonetheless performed only upon the archival plane.

Genesis goes one step further and performs a mise-en-abîme of this problematic by folding the *cultural* archive, subtended by a specific technological milieu, back into its origin — that is, by inscribing the biblical fragment into the DNA of the living cell, but also by provoking critical reflection upon the online process of specta(c)torship and its influence upon the living ground (living organism) that supports it. But the question of the origin, the question of the beginning, revolves, as Derrida astutely observes, around the problem of the 'name of man' (Derrida, 1997, pp. 81-93). [7] That is, specifically with respect to *Genesis*, what comes to be questioned together with the relationship between *nature* and *culture* is the identity of the embodied spectator and the possibility of arresting it under the limits of the *human* — the limits of the *human* are in the last instance exactly the necessity of a divide between *nature* and *culture*.

Gerfried Stocker, in the catalogue of Genesis, published by O.K. Center for Contemporary Art, Linz, in 1999, speaks about the *nature/culture* divide and its questioning, more generally, in the practice of Eduardo Kac:

> Artists such as Eduardo Kac are working on proposals for our immediate future, in which the traditional differentiation between natural and artificial, which has been constructed along the lines of the concepts organic and self-organized for living beings and externally determined for machines, will no longer be valid. This is a development that challenges us to a new self-comprehension as human beings not only at a philosophical level, but also and at least as much at the level of so-called ordinary common sense. (Stocker, 1999, para. 10)

In resonance with Derrida's position regarding the interdependency between the 'name of man' and the *nature/culture* divide (*physis* and its others), Stocker underlines that Kac's work, by problematizing the differentiation between *natural* and artificial, challenges us to rethink the meaning of the *human*.

In line with Stocker's insight, this paper proposes that *Genesis*, inasmuch as it performs a renegotiation of the *natural*/artificial (*nature/culture*) relationship through a mise-en-abîme of the archival interplay that subtends the (re-)emergence of this duality, opens up a crisis of identity which provides the tensile background for redrawing the contours of our own bodies as spectators, rethinking their limits, their being, becoming and meaning.

4. The human master

It is clear from the first encounter with *Genesis* that it challenges the tradition which postulates the *human* as being above nature and in charge of it: the modification of the biblical sentence ('Let man have dominion ...') amounts to a critique of the anthropocentric paradigm that it grounds. It should be noted though that the idea of *human* supremacy over *nature* is deeply embedded in our social, political, and economic practices, well beyond the boundaries of the Christian tradition that the biblical quote points towards. In fact, maybe not so surprisingly, it seems that the more we dismiss the *human* supremacy over *nature* in public discourse, the stronger it grows as an unconscious force linking together apparently discrepant and confronting positions.

It is no surprise that the capitalist discourse predicated on progress attained by exploiting *natural* resources is inherently postulating the *human* supremacy. What is more counter-intuitive though is that, as Jane Bennett observes, various positions concerned with protecting *nature* are predicated on a similar anthropocentric paradigm — inasmuch as the idea of caring for an environment defines the environment as a substrate of *human culture*, as a passive and sometimes recalcitrant context for *human* action (Bennett, 2010, pp. 111-112). According to Bennett, an important part of the recent comeback of environmentalism can be criticized for being "motivated in large part by self-interest, by fear of the environmental 'blowback' of human actions" (Bennett, 2010, p. 110). We can add to this the problematic commodification of *nature*

produced at the intersection of capitalism and certain environmentalist discourse, where the *human* master conspicuously resurfaces as consumer, a consumer of *nature*: botanical gardens, zoos, nature documentaries, a wide range of touristic practices and so on, all participate in this culture of mastery, even while dismissing it in their discourse. Which is not to say that there is no value in ecological practices that aim at protecting *nature* or in documentaries that seek to bring awareness to ecological problems or to educate, and even in the simple enjoyment of *nature* from the position of a consumer (as a tourist or in front of the screen). I would like to make my position clear in this respect, these practices are valuable and, more than that, stringently necessary, but at the same time we should be critically conscious of their limits.

Such a critical position is formulated for example by Jean-Baptiste Gouyon with respect to wildlife documentaries. Gouyon provides a historical account of documentary practices in the United Kingdom, placing these practices in between two imperatives, generating knowledge and the necessity of spectacle, and warning that the production of knowledge in wildlife documentaries can often hide the naturalization of specific *cultural* values. As such, for Gouyon, critically addressing documentary practices is essential in the context of current environmental crisis (Gouyon, 2019). From another angle, in more general terms, Ursula K. Heise's article "From the Blue Planet to Google Earth" (2013) provides a convincing review of debates regarding the 'local' versus the 'global' in the context of environmentalist discourse, and highlights the dangers of utopian positions formulated on both sides of this spectrum. The relevant point for us here, in both cases, is that discourses concerned with the protection of the environment cannot be assumed to be unproblematically 'good,' on the contrary it is essential to be able to critically scrutinize these discourses and their limits.

This critique does not deny the stringent necessity for action in the context of the ongoing environmental crisis. It is also not a claim that all positions gathered under the umbrella term of environmentalism are mistaken. Rather it is a self-reflexive exercise that aims at uncovering the extent to which a core premise of the process that resulted in the current environmental crisis (and that continues to deepen it) might be also covertly present as an unacknowledged premise in the discourses and practices concerned with tackling this very crisis. To put it in simple terms: as long as 'protecting the *nature*' means protecting it for the *human*, *nature* remains defined as a subset of *human culture* that exists maybe not anymore to be exploited, but to be enjoyed, studied, explored, etc. And this remains painfully inadequate in its anthropocentrism — inadequate, that is, if we agree that anthropocentrism itself is one of the problems at the core of the environmental crisis.

Thus, what *Genesis* brings into discussion is not only a specific (and maybe obsolete) religious tradition but rather an ideology (in a very large sense of the word) that encompasses a very large part of contemporary society. Namely, an ideology that subsumes *physis* to *logos*, *nature* to the word — to the word of order '*human*!'.

5. Vibrant Matter

There is of course a rapidly growing body of theoretical work that aims at going beyond this divide between *nature* and *culture*. I propose to follow one particularly intriguing example, Jane Bennett's *Vibrant Matter* (2010), in order to ask what could the *human* still mean when *nature* and *culture* stop being opposed.

Vibrant Matter is an argument for the vitality of all matter, for recognizing the capacity of all non-human bodies to act as quasi agents, as "forces with trajectories, propensities, or tendencies of their own", which exist alongside and inside *humans* (Bennett, 2010, p. viii). Bennett considers that parsing the world into inanimate things (dull matter) and living beings (vibrant life) is nothing more than a partition of the sensible, in Jacques Ranciere's terms, [8] and thus implies that the duality between the living and the nonliving is just a consequence of specific political projects, and not a *natural* given (Bennett, 2010, p. vii). Hence, there is an inherent political dimension to the attempt of thinking vibrant matter, that is to say, to the attempt of grasping the world from a perspective that does not operate with a definite boundary between inanimate

matter and living beings. What I would like to question is the relationship between the figure of the *human* and the political project under critique, the relationship between the *human* and the partition of the sensible that operates with a distinction between inanimate things and living beings.

First, let us draw an outline of what the *human* body would mean in the perspective opened up by vibrant matter. Considering non-human bodies as actants (in the sense given to the term by Bruno Latour [9]) rather than objects, means that there is a need to rethink as well the status of *human* actants and consider their constitution as vital materiality. In other words, from this perspective, the materials that compose our bodies are lively and self-organizing rather than passive means under the direction of a mind or soul (Bennett, 2010, p. 10). Bennett contends that the body (including the *human* body) is a heterogeneous assemblage, [10] and that agency is distributed across an ontologically heterogeneous field rather than being simply localized in a *human* body or a *human* collective. Assemblages are here understood to be ad hoc groupings of diverse elements, of vibrant materials, open-ended collectives not governed by any central head (Bennett, 2010, pp. 23-24). Distributive agency, instead of positing a subject as the root cause of an effect, recognizes that there is always a swarm of vitalities at play, the question being how the contours of the swarm can be defined (Bennett, 2010, pp. 31-32).

The *human* body, in this view, is both an assemblage of other bodies and a member of other more complex assemblages. In consequence, any one of its actions should be seen a composite result: it is determined by the agencies of simpler bodies; it is a component of a more widespread agency; and supposedly there is also an agency specific to the *human* body as such (as an assemblage). Here is how Bennett understands this in one of their examples:

> The sentences of this book also emerged from the confederate agency of many striving macro- and microactants: from 'my' memories, intentions, contentions, intestinal bacteria, eyeglasses, and blood sugar, as well as from the plastic computer keyboard, the bird song from the open window, or the air or particulates in the room, to name only a few of the participants. (Bennett, 2010, p. 23)

The question that I would like to raise is: since the agency responsible for producing the writing is complex enough to impede its classification as *human*, then where is the *human* agency that would define a *human* body to be found? Is the *human* body a pertinent concept that can still be used in this context? Are we not introducing under the name of the *human* a set of untenable limits to our understanding of embodiment?

In Bennett's own words: "In a world of vibrant matter, it is thus not enough to say that we are 'embodied.' We are, rather, an array of bodies, many different kinds of them in a nested set of microbiomes" (Bennett, 2010, pp. 112-113). So, the stringent questions are: do concepts like 'human,' '*human* body' and '*human* subjectivity' still retain any meaning? Do they have any kind of sense outside a partition of the sensible that separates dull matter from vibrant life? Or, conversely, was the *human* only a consequence of a political project now (hopefully) on the point of being left behind?

The problem that the concept of *human* poses to a theory of vibrant matter is acknowledged by Bennett (Bennett, 2010, pp. ix, 120), and I take this to be an argument for the pertinence of the questions formulated here above, but is not pursued further because it is considered misleading. And indeed, that is the case, the question of what *human* means seems to always lead back to an anthropocentric paradigm, as Bennett notices. Using the term without specifically discussing its meaning, though, and simply postponing the question does not solve the problem, it merely reincorporates unacknowledged anthropocentric principles in a discourse that strives to overcome them. The try to conceptualize experience in non-anthropocentric terms correlated with the ongoing emphasis on *human* and *humanity* add up to a self-contradictory understanding of *culture*. On the one hand there is *human culture*, on the other hand *culture* is seen as the result of heterogeneous assemblages that while, in Bennett's view, are not excluding the *human*, nonetheless are not limited to it. At its most extreme the formulation is: "culture is *not* of our own making, infused as it is by

biological, geological, and climatic forces" (Bennett, 2010, p. 115). But, in this case, how can *culture* be termed *human* since it is not human agency that drives it?

The incompatibility of *human* and *culture*, in a view informed by a non-anthropocentric concept of agency, has far-reaching consequences, since at least from the middle of the 19th century and the rise of modern anthropology onward *culture* is what defines *humanity*, it is the concept that gathers in itself that which characterizes the *human*. From Darwin's theory of the evolution of species (Darwin, 1859) onwards, the *human* is not anymore opposed to the animal but rather understood as a specific kind of animal: the animal that develops a *culture*. [11] L. Kroeber and Clyde Kluckhohn's 1952 book *Culture: A Critical Review Of Concepts And Definitions*, a work listing more than 150 definitions of *culture* offering a comprehensive survey of the meanings of the term as formulated in the late 19th century and the first half of the 20th century, makes this interlink between *culture* and the definitions of the *human* patently obvious. While the text lists a wide range of definitions of *culture*, all of them are constructed around the centrality of the *human* and of the question of the identity (that is the definition) of the *human*. This problematic of *culture* as identity emerges at several distinct levels, from that of the individual defining itself in relation to other individuals, to that of a *human* collective defining itself in relation to other collectives, and finally, to that of the *human* distinguishing itself from *nature*. In other words, in a more general formulation, with respect to the *human*, *culture* is the concept for that which distinguishes and contours (individual among individuals, groups among other groups, the *human* in *nature*): with respect to the *human*, *culture* is that which defines. *Human nature*, that which defines the *human*, is culture: the movement of *nature* distinguishing itself (*nature*, animality, body) from itself (producing *culture*). To cite a definition that clearly states this position (there are many others in which it is implied without being specifically stated):

> Culture is a phenomenon of nature. Language, manners, morals, and social organization grow up within the ongoing activity in the effort of a group to maintain itself, to secure food, and to rear children (Faris E. as cited in Kroeber and Kluckhohn, 1952, p. 99)

What this means, is that *culture* develops on the background offered by *nature* and abiding by *natural laws* (which, as it appears from the fragment quoted, are the Darwinian laws of evolution), as a set of specific characteristics that come to define a group, and in the last instance the *human*. As Ostwald's 1907 succinct definition puts it: "That which distinguishes men from animals we call culture" (Ostwald W. as cited in Kroeber and Kluckhohn, 1952, p. 70).

My point is not that these definitions are correct, in fact it is clear today that they are not (as the work of Bennett, among many others, points out), but rather that the definition of the *human* is strictly interlinked with that of *culture*. A concept of *culture* only partially *human* is self-contradictory, since *culture* is the name of those aspects of experience which define the *human* (as an individual, as a group, as a species). If the agency that drives *culture* reveals itself to be otherwise than *human* –and I take the arguments of Jane Bennett, among those of many other scholars (including Latour, Deleuze or Derrida, mentioned above), to cogently show this–, then the bodies and consciousnesses contoured by this agency, are themselves other-than-human. The only other option would be to accept an unquestioned definition of the *human* that simply exists by default. Recent theoretical anthropological discourses, such as Eduardo Viveiros de Castro's *Cannibal Metaphysics* (2014), resonating with this insight, are already well aware that rethinking *culture* means at the very same time rethinking embodied identity beyond the figure of the *human* and in the last instance rethinking *nature* towards 'multinaturalism'.

In this case, the whole anthropological project and the *human* that it defined remain valid only as elements of a specific episteme (in the sense that Yuk Hui gives to this concept), [12] elements of a specific experience of the world dependent upon a political project (in a very large sense of the term 'political,' a distinct partition of the sensible). There is a *human* as long as there is a *culture* that is in some way a trace of *human* agency. If, as it follows from Bennett argument, *culture* should be understood as a form of non-human or at least not-

only-human agency (the example given for the action of writing a book can be extended to any other action), then this *culture* defines other-than-human bodies and subjectivities.

In other words, a concept of *culture* that springs from non-human agencies, as the one that can be inferred from *Vibrant Matter*, renders any kind of *nature/culture* distinction preposterous. When this distinction stops making sense, the whole argument for a *human culture* fails too, and with it the very figure of the *human*. Consequently, the argument here is that the concept of the *human* stops being relevant when the distinction between *nature* and *culture*, that grounds it, ceases to exist. The *human* can exist only as the telos that is inscribed in the beginning, as the Word (of order) that orients the origin. Yet, as works such as *Vibrant Matter* argue (and works such as *Genesis* point towards) such an anthropocentric paradigm cannot account for the other-than-human agencies at play in any type of *culture*, or, in the terms that I prefer here, it cannot account for the complex archival folding that we perform and are performed by.

What comes to be at stake in the attempt to rethink the *nature/culture* duality is the identity of the embodied thinking subjects that we, the spectators, (never quite) are. For as long as this identity is collapsed under the frame of the *human*, the duality is simply reinstated. The *human* is an order, an imperative that dictates a separation between *nature* and *culture*, whatever form that might take.

Yet, there is another facet to this problem. For as long as a discourse accepting the fluidity of embodied thinking (a fluidity that cannot be captured without rest under the name *human*) does not account for the emergence of our experience of the world, an experience of the world in terms of individuals relating with each other, an experience which revolves around the figure of one's body as identical with itself (as the hinge of the possibility of identity, or alternatively as its ultimate result), it remains self-contradictory. [13] The possibility of seeing, the possibility of naming, the possibility of perceiving individuals in the world and of acting upon them, relies upon the emergence of a form of identity, and that form of identity ultimately hinges upon the identity of the embodied thinking subject. Nonetheless, inasmuch as embodied thinking is historical –inasmuch as 'I think' in a specific socio-cultural, technological, and material context, in a specific cosmotechnic regime– the dynamics of intensive difference [14] that result in the identity that grounds the possibility of the world as a system of individuals and of myself ('my body') as a specific region of this world, are dependent upon the background context upon which they happen.

Which is to say, inasmuch as the *human* figure (one specific form of the individual equal with itself) is at the core not only of the contemporary socio-political and economic context but also of the tradition of thinking that grounds the possibility of this debate around the duality of *nature* and *culture*, there is no escape from the biases that it instates. That is, there is no absolute outside of the *human* that a discourse might ground itself into; the very language, logical system, experience of the world etc. that subtend our discourses are impregnated by this figure at the very moment when they strive to go against it. The alternative that remains is to deconstruct the system from within, to play its premises against one another.

In the beginning was the word, the command *human* –which is to say the collapse of the movements of intensive difference around a specific form of identity, that results in a specific thinking body, a specific world, and a specific set of possible relations between them–, and our task is to deconstruct this command from within the history that it grounds and that in turn grounds it. If we are to go beyond treating *nature* as a resource, we have to rethink the centrality of the *human*. Rather than protecting *nature* for the *human* the problem is how to construct practices of care that would allow for the differentiation of embodied subjectivities and *natures*. Such practices of care would involve the pluralization of models of embodied subjectivity, a pluralization of technological systems, and a pluralization of *natures* (see the below next section). I take *Genesis* and other similar artistic practices, usually discussed under the umbrella term of bio-art, to constitute valuable steps in this direction. From the perspective that I propose here experiments at the border of art/science/technology/philosophy, as well as the spectatorial experiences that they provide, are integral to the attempt of finding valid solutions for the environmental crisis. And these solutions necessarily imply rethinking who we are and the potential directions for our embodied becomings.

6. Living as Misspelling the Law

I read here *Genesis* as an attempt to playfully undo the origin (the *human* master of *nature*, and the associated duality between *culture* and *nature*) form inside the very history that it grounds: by folding into one another the *cultural* archive of the written biblical fragment (an instance of an overarching contemporary ideology), the technological archive that makes the work (and ourselves) possible and the DNA as an archive of chemical sequences that subtend the very possibility of life. What do the living bacteria tell us when retranslating the literary fragment back into plain English at the end of the exhibition? "LET AAN HAVE DOMINION OVER THE FISH OF THE SEA AND OVER THE FOWLOF THE AIR AND OVER EVERY LIVING THING THAT IOVES UA EON THE EARTH" [15] –it seems to be something along the lines: in the beginning was the word, and to live is to misspell it.

The possibility of a translation between the literary fragment and the DNA through the technological milieu suggests that the *cultural* archive is somehow there from the beginning. Conceptualizing the basic possibilities of life (as we know it) as a 'code,' deciphering the hinge between matter (be it vibrant matter) and biological life in a formal language represents such a positing of a specific *cultural* archive and of its dynamics as origin. A very real origin, to be sure, but an origin that is formulated and makes sense (matters) in a specific *cultural* code, a *cultural* code that permeates our whole experience of the world. Yet *becoming*, life, appears in light of *Genesis* as the recursive misspelling of the code that subtends it, an erring that opens the archive towards its improbable potentialities. This functions at a metaphorical level: the biblical fragment is 'corrupted' in the living bacteria; but also at the very basic biological level: the impossible to calculate repercussions of recursive genetic mutations, and consequently the equally unpredictable (long time) results of directly manipulating the genetic code. At the same time, the origin 'itself' –the *human* embodied thinking subject that is coextensive with the possibility of something like *culture*– *is* and *makes sense* only through this misspelling –the *human* is itself living, and in doing so its genetic code is modified. To be alive is to err away from the event of the primordial origin which is always yet to come. It is this identity with itself of the *human* that comes to be at stake in the *cultural* gesture that this work performs: a culture of living cells that, inasmuch as they are living, are misspelling the word of order inscribed as their origin, namely misspelling the proclamation of the *human* as master of *nature*.

The vibrancy of matter is necessarily the proliferating instability of the trace, of differing and deferring the word, the origin, the name of the *human* –what Derrida calls 'program' (Derrida, 1997, p. 84). Matter in its pure immediacy is always already informed by the trace, by the erroneous movement of *culture* with which it is strictly intertwined. Matter, in its immediacy, is infinitely mediated. On the one hand, matter is always interlinked with the production of meaning, matter should be rather rethought as 'mattering', as Karen Barad insists (2004), as a process and not as a stable ontological given. On the other hand, matter is matter only inasmuch as it makes sense upon a specific *cultural* background –matter, the *natural* (lack of) origin, emerges as a function of the *cultural* archive. Inasmuch as matter is a question of individual particles relating with each other, it is interlinked with a necessary yet erroneous collapse of the movement of difference into a specific form of identity. And what this question ultimately bears upon is the kind of identity that the embodied thinking subject recursively performs as 'oneself' –there is a particle of matter inasmuch as there is a being for whom there is identity, for whom there is 'a = a,' and 'a = a,' in its turn, depends upon having (or misunderstanding 'oneself' as having) a body identical with itself.

Recognizing 'our' bodies as processes that produce and are produced by a system of identity, and thus problematizing the border between *culture* and *nature* in a deconstructive gesture that does not pretend to be placed outside of its own history, enlarges the area of our responsibility to include the production of our own bodies. Instead of *natural* givens, our bodies enter the sphere of that which is to be performed, [16] to be created, to be produced. And this producing has to be accounted for. It is not enough to say that the body is a complex ecosystem without stable limits, one also has to account for the erroneous limits that come to bound

the body, for the parerga that bring it into being as an individual (be it an erroneous individual). In producing ourselves we modify our own origin erring away from the *human* from inside the history of its consequences.

If, we understand our bodies by problematizing the *culture/nature* duality without pretending to place ourselves outside of it, then we have the responsibility to modify, remake, and even question them all together. An unquestionable and immutable body is nothing more than an unquestionable and immutable ideology. If *culture* and the *human* are to retain any meaning they can do so only as systems decomposing their own premisses towards an always improbable and unknowable event, towards erroneous individuals, erroneous embodied thinking beings that do not fit the frame imposed by their own origin, that in living err away from the command inscribed as the origin, err away from the very premise of their being.

There are stringent ethical questions regarding living understood as a necessary misspelling of the origin. Not every misspelling is as good as any other. Think for example about the catastrophic effects of increased UV radiation combined with other factors of climate change, mentioned above. The responsibility of deconstructing the *human* master is, at its very basis, the responsibility of deconstructing a paradigm that understands *nature* as a resource to be exploited, or, as Heidegger puts it, as 'standing reserve' (Heidegger, 1977). In this sense, the deconstruction of the *human* is strictly interlinked with Yuk Hui's call for a plurality of cosmotechnics (Hui, 2016/2019) (which resonates with theoretical discourses in anthropology arguing for 'multinaturalism'). While the deconstruction of the *human* is not an innocent project leading to a utopian future, nonetheless it is a necessary move if we are to overcome the anthropocentric *nature/culture* distinction and be able to address its consequences. [17]

7. Conclusion

This paper argued that the process of specta(c)torship afforded by the online documentation of Eduardo Kac's work *Genesis* is not a marginal outgrowth but a core problematic with respect to the work, a problematic which complicates our understanding of immediate presence. Critically following the problems raised by this process of online specta(c)torship allows us to understand *Genesis* as a complex folding of *cultural* archives, technological milieu, and bio-chemical archives (that compose the DNA).

I argued that the problematic of embodied subjectivity constitutes the hinge of this complex archival interplay, and that *Genesis* offers impulses for rethinking this embodied subjectivity beyond the figure of the *human* which is always already interlinked with the instantiation of a duality between *culture* and *nature*. Yet, inasmuch as our whole experience of the world (*nature*) is predicated upon the assumption of the *human* body identical with itself (one's own body), there is no absolute outside of the *human* that could ground such discourse. Rather, this paper claims, going beyond the figure of the *human* can happen only as a deconstruction performed from within the *cultural* archives that the *human* grounds as an original lack of origin.

The origin 'itself' –the *human* embodied thinking subject that is coextensive with the possibility of something like *culture*– is and *makes sense* only by misspelling the law that it grounds. To be alive is to err away from the event of the primordial origin which is always yet to come. *Genesis* brings to the fore this problematic by proposing a *culture* of living cells that, inasmuch as they are living, are misspelling the word of order inscribed as their origin: the *human* master of nature. I propose that this deconstruction of the *human* figure, and the renegotiation of embodied identity, both in discourse and in practice, constitute a stringent responsibility if we are to overcome the anthropocentrism of the *culture/nature* duality and deal with its consequences.

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Notes

1   For information on the algorithm and audio samples see: http://www.ekac.org/dnamusic.html, Retrieved 26 April 2022.

2   Boal uses the term *spect-actor* in order to underline the political necessity of overcoming what he considers to be the passivity of spectatorship. Ideally, for Boal, the spectators become actors, first on the theatrical stage (in Forum Theatre for example) and then in the 'real' political life (Boal, 2008). The use of the term *specta(c)torship* here, while inspired by Boal, is nonetheless significantly different, insisting upon a necessary interplay of activity and passivity. For more on the understanding of specta(c)torship with respect to the problematic of activity and passivity see (Băcăran, 2021).

3   Throughout this article the terms *culture, nature* and *human* will be printed in italics in order to emphasize that these are problematic concepts in need of questioning and rethinking, rather than being taken for granted.

4   This tripartite distinction between a *cultural* archival layer, a chemic-biological one (the DNA), and technology as a particular type of archive in itself, does not mean that there are hard boundaries between these three domains. Quite on the contrary, I insist in this paper that they are folded into one another. The reader might find particularly problematic the distinction between the *cultural* archive and technology. While strictly speaking I agree that all *cultural* traces are intrinsically technological, and all technology is a *cultural* archive –and, with Gilbert Simondon that opposing technology to *culture* is self-contradictory (Simondon, 1989, pp. 9-11)–, nonetheless it is worthwhile distinguishing between a restricted meaning of the *cultural* archive as a system of traces that invites the immediate participation of the embodied subject (in the case of *Genesis* for example: the biblical text that requires reading, the set up of the exhibition space that requires being navigated, the documentation of the work, the images produced by scientific instruments, or the artistic practices that require understanding and emotional participation from the viewer in order to be actualized), and technology as a domain from which the embodied *human* subject gradually retreats (in the case of *Genesis* for example: the inner workings of the scientific instruments that do not require embodied participation in each of their steps, and the technological implements that are integral to the exhibiting process including the networked computers). For the understanding of technology as a domain from which the *human* gradually retreats (without ever doing so completely), cf. Simondon's theory of the concretization of technological objects (Simondon, 1989, pp. 46-47). The main point of this section is that this alterity of the technological object has to be taken into account as inherent to the type of embodied subjectivity that we perform, rather than being understood as a simple extension of the actions of a well defined body.

5   See especially Hui's argument regarding the 'augmentation of the senses' made possible by the work of art (Hui, 2021, pp. 28-29, 62, 124-125).

6   For the complex relationships between UV radiation, ozone depletion and environmental factors related to climate change see (Barnes et al., 2022).

7   Derrida maintains that the *human* is a contingent articulation in the history of the grammè, which is nothing but the history of life, starting with 'genetic inscription' (Derrida, 1997, pp. 84-85). The movement of the grammè, the arche-trace, constitutes the non-originary origin of *being*, an origin that is situated as a moment of discourse, as a moment in the history of its consequences (Derrida, 1997, pp. 57-65), that is as a moment of the history of 'man' that it grounds –this is what in *Archive Fever* appears as the principle of commencement (physical, historical, ontological) inherent in the problematic of the archive (Derrida, 1996). Hence grammatology, the study of the grammè, has as its characteristic question the question of the 'name of man' (Derrida, 1997, p. 83). In other words, grammatology as the study of an originary lack of origin problematizes the definition of the *human*.

8   For Rancière's partition of the sensible see (Rancière, 2006).

9   For Latour's understanding of human and non-human actants see Latour, *Pandora's Hope* (1999), pp. 174-215.

10   Bennett borrows the concept of assemblage from Deleuze and Guattari's *A Thousand Plateaus* (1987). It should be noted though that for Deleuze and Guattari an assemblage is a problematic of intensities before being subsumed to the figure of individuals, while Bennett understands the assemblage as a sum of micro-individuals. It is outside of the scope of this paper to follow this discrepancy further.

11   The attentive reader will have noted that the redefinition of the 'human' in the aftermath of new theories in natural sciences is intertwined with the question of origin: the origin of species.

12   For Hui, building upon the Foucauldian definition but going beyond it, the episteme is "the sensible condition under which knowledge is produced, implying more precisely a collective aesthetic experience of an epoch and a locality (its cosmos)" (Hui, 2021, p. 25).

13   Inasmuch as a form of identity (or, more precisely the collapse of a difference in the appearance of identity) is the necessary ground for the possibility of language, not to say anything about the possibility of a specific text, of signing a text, of getting credit for it, etc.

14 For intensive difference see (Deleuze, 1994). I am borrowing here Deleuze's vocabulary to refer to a level of experience that drives the individuation of bodies and subjectivities, while remaining prior to identity.

15 See http://www.ekac.org/translated.html, Retrieved 30 April 2022.

16 Cf. Judith Butler's theory of performativity in *Gender Trouble* (1990).

17 To my knowledge, there is no large scale example of environmental practice that actually engages with the deconstruction of *human* embodied subjectivity and the interrelated *nature.culture* divide. On a theoretical level, I consider the work of Yuk Hui on cosmotechnics to set up a promising platform for further thought and action, but at the same time it is obvious that we are still far away from formulating a philosophy that could account for a plurality of embodied subjectivities and *natures*. On a practical level, artworks such as *Genesis* offer the first steps towards such critical environmental practices that go beyond the myth of a pristine *nature* separated from *culture*, but that also refuse the fetishization of technology as a miraculous unproblematic solution. Yet, these first steps are far from providing actual frameworks for large scale projects that could have a significant material impact for embodied subjectivities and their environments. This is why, at least for the moment, environmental practices that are predicated on the attempt at preserving *nature* for the *human* cannot be simply discarded. They might be the best tactical steps forward (see attempts at reducing the carbon footprint for example), yet it is essential to remain critical of their pitfalls and to work on imagining potential alternatives.