The Strategy of Genesis.
On the Productive Power of Artistic Iteration

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The paper aims at developing a theoretical outlook on Eduardo Kac's *Genesis*, a bio-artistic operation of "perversion" of the biblical passage that establishes men's dominion upon other living beings. The case study will be addressed through the analysis of the idea of productive iteration. Following Derrida's reflections on the general iterability of marks and Butler's investigation of the subversive potential of repetition, it will be shown how iteration can bring novelty into being – where such novelty occurs in a constantly renegotiated balance between chance and constraint. Finally, it will be claimed that this iterative dynamic can be regarded as a strategy of subjectivity production. These subjects, however, will be conceived in terms of sympoietic entities that are constitutively entangled with one another in relationships of mutual responsibility.

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— DERRIDA
— BUTLER

— KAC
— ITERATION

— SYMPOIESIS

«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 the earth», reads the Bible in *Genesis* 1:26 (quoted in Kac 2007, 164). Is the most famous divine command something that we can deal with?

In 1998-1999 bio-artist Eduardo Kac took this biblical sentence as the peculiar raw material constituting the basis for a transgenic artwork called *Genesis*, which was premiered at Ars Electronica '99. By translating the sentence into Morse code and converting the Morse code sequence into DNA base pairs (following a conversion principle expressively developed for the occasion), Kac produced a synthetic gene that he called the «artist's gene» (Kac 2007, 164). The artist's gene, that did not exist before, was later incorporated into *Escherichia coli* bacteria. The bacteria were then displayed in a gallery, whose visitors could choose whether to click or not to click on a button: a simple click, influencing the movement of an ultraviolet lamp, was able to cause random, unpredictable bacteria mutations at the DNA level. Not only the visitors, but everyone who had an Internet connection could click the button by accessing the website – thus pointing out the role of telepresence and bio-telematic in expanding the possibilities and the forms of presence. *Genesis* also included a DNA-synthesized music, generated live in the gallery and streamed on the Internet thanks to a DNA mixer that read the DNA sequence and performed a physio-musical conversion: [1] by clicking on the button the participants triggered various musical effects, such as timbral changes and variations in the tempo speed. The mutations induced through all these kinds of interventions altered the biological constitution of the DNA string: thus, the people interacting with the artistic installation changed the biblical sentence encoded in the living bacteria. After the exhibition the modified DNA was translated back into Morse code first and into linguistic terms later: the resulting sentence [2] was different from the biblical one, whose content – the claim of human beings' mastery over nature – was in this way symbolically brought into question (Kac 2007, 164).

In 2000-2001 the second phase of *Genesis* took place. Now focusing on proteomics, Kac explored the possibilities offered by the *Genesis* protein, i.e. the protein produced by the gene in which the biblical sentence was encoded. By investigating the potential displayed by *Genesis* on an embodied, three-dimensional level, the artist examined the transition from the linguistic dimension to the bodily one. As Kac explained, «The transmogrification of a verbal text into a sculptural form is laden with intersemiotic resonances that contribute to expand the historically rich intertextuality between word, image, and spatial form. The process of biological mutation extends it into time» (Kac 2007, 171). The small, solid objects produced in the second phase of *Genesis*, as well as the installation with living bacteria, were then presented together in Kac's solo exhibition that took place in Chicago from May 4 to June 2, 2001, at Julia Friedman Gallery.

[1] Kac was able to achieve this result thanks to composer Peter Gena and Dr. Charles Strom's help. Samples of the *Genesis* music can be listened to on Kac's website at the link http://www.ekac.org/dnamusic.html, lastly accessed on November 15, 2020.

[2] The modified sentence is readable on Kac's website at the link http://www.ekac.org/translated.html, lastly accessed on November 15, 2020.

In what follows, a possible theoretical perspective on this transgenic artwork will be provided, focusing on the emergence of novelty through repetition. Resorting to Derrida on the one hand and to Butler on the other, in the second section it will become apparent how *Genesis* is capable of making new meanings emerge from the biblical sentence. The outcomes of such creative, perverse praxis largely depend on chance; however, as it will be argued in the third section, chance is limited and guided by some constraints. In the fourth and last section it will be claimed that this iterative dynamic produces not only the work of art, but also the subjects interacting with it. This will result in a sympoietic perspective according to which subjects and other entities are always intermingled with one another in relationships of mutual responsibility.

II.   Subversive repetitions and the production of novelty

Let us consider more carefully the sentence at the core of the *Genesis* project. In short, the passage reads: «Let man have dominion [...] over every living thing that moves upon the earth». This sentence, far from being a neutral statement or a mere description of a state of affairs, aims at producing the very situation it appears to refer to. The human mastery on the rest of the living beings cannot be regarded as an external, already extant condition to which the biblical sentence simply refers; rather, it is what the utterance itself strives to bring into being. Adopting John L. Austin well-known distinction between constative and performative utterances, it is possible to claim that this biblical sentence represents one of those cases in which «to *say* something is to *do* something» (Austin 1962, 12, emphasis of the author). Here, language has a productive power capable of establishing new portions and aspects of reality. Kac's instrumentalization of the power and the violence of the biblical performative [3] shows that a sentence, when it cannot be proven false, can be *perverted*. The means of such perversion are those of repetition.

[3] Another biblical rendition of the performative is «Let there be light!», as pointed out by Judith Butler (1993, 13).

According to Austin, a performative utterance consists of a singular and original event located in a well-defined context and uttered by a consciously and intentionally present speaker: «The "I" who is doing the action [...] come[s] essentially into the picture» (Austin 1962, 61), so that the source of the performed action is non-detachable from the linguistic action itself. Such an understanding of the performative has been deconstructed by Jacques Derrida. From Derrida's standpoint, what lies at the core of all utterances (and of performative utterances among them) is «the possibility [...] to be "quoted"» (Derrida 1988, 16), which was excluded by Austin as an «abnormal» case in which language would be «*parasitic* upon its normal use» (Austin 1962, 22, emphasis of the author). Arguing for a «general citationality» or, more precisely, for a «general iterability» (Derrida 1988, 17) of «marks» (i.e. linguistic entities), Derrida focuses on «the possibility of disengagement and citational graft which belongs to the structure of every mark» (Derrida 1988, 12). Not only does Derrida consider those cases in which a sentence is uttered in the absence of its referent, but he also takes into account the possibility of a sentence to function in the radical absence of its receiver and of the speaker. The disruption of consciousness and presence pairs, here, with the disruption of the

context as "saturable", i.e. as endowed with rigid boundaries that circumscribe it in a clear way. This does not entail that the mark locates itself out of any context; rather, this means that «there are only contexts without any center or absolute anchoring [*ancrage*]» (Derrida 1988, 12). As the mark wanders through the most different scenarios, its «origins get lost along the way» (Derrida 1988, 12), which results in the loss of the original meaning of the linguistic expression as well as in the vanishing of the intention of the speaker (the *vouloir-dire* of the author). Stretching this logic to its extreme consequences, Derrida ends up arguing for presence to be an effect of repetition, where such repetition proves itself to be «more original» than any alleged authentic origin (Moati 2014, 47-48).

Addressing the problem of the beginning – as its name also suggests –, *Genesis* can be seen as displaying the loss of meaning and origin through repetition. Here, every click is performed by subjects who are not fully present both because they are differed in space (thanks to the Internet) and because they are not consciously, intentionally arguing for the content of the biblical sentence: their performatives are *unhappy*, as Austin (1962, 14) would say. Every click counts as a quotation of the supposed original passage, which, in turn, appears to be a mere perspective effect engendered by the chain of iterations.

Genesis pushes this logic even further when it exhibits the production of a brand-new meaning (which also takes the form of embodied, material novelty) as the result of the series of repetitions. In order to address these aspects, Judith Butler's thought might come in handy. Drawing on Derrida's theory of general iterability, Butler strengthens the link between citationality and performativity, which is regarded as the dynamic through which identity is molded and produced: «performativity is not a singular act, but a repetition and a ritual» (Butler 1990, xv), she writes; «Performativity […] is always a reiteration of a norm or set of norms, and to the extent that it acquires an act-like status in the present, it conceals or dissimulates the conventions of which it is a repetition» (Butler 1993, 12). In Butler's theory, the linguistic performative has a twofold function and an ambivalent status: on the one hand, it can be a tool of the authoritative speech, an expression of sovereign power and coercive norms; on the other hand, it is the only element possibly capable of causing an anti-hegemonic deviation from those norms themselves. The power at stake here is not the one pertaining to a subjective, intentional agent; rather, it is a kind of impersonal, distributed power that emerges in the collective iteration of dominant practices. It is precisely in this collective iteration that the unexpected can occur: being constitutively liable to de-contextualization, the performative element is capable of breaching the hegemonic context and producing new meanings. When the performative utterance is employed in this subversive way, taking advantage of the possibility of re-signification and re-semantization of that given expression, one witnesses the emergence of novelty. This novelty is both social and physical, to the extent that the linguistic transformation always has material results (Butler 1993), and it does not occur *ex nihilo*, but rather is the emergent and transient outcome of the series of variations.

In the case of *Genesis*, it is through a similar process that novelty is produced by means of repetition: a new linguistic string is created by the reiterated clicks, by the sequence of (slightly) unfaithful quotations of the

supposedly original sentence. Moreover, the second phase of *Genesis* displays the materialization undertaken by the linguistic expression, showing how language can also shape the physical dimension. Kac exploits this dynamic in order to state his rejection of the anthropocentric perspective that underpins not only creationist views but also misunderstandings regarding evolution, as it is the case for the so-called "march of progress" that depicts *Homo sapiens* as the peak of the evolutive path (cf. Gould 1989, 12 for a criticism of this popular iconography). As Kac explains, «the ability to change the sentence is a symbolic gesture: it means that we do not accept its meaning in the form we inherited it, and that new meanings emerge as we seek to change it» (Kac 2007, 164): there are alternatives to a perspective according to which humanity holds the mastery of all living beings.

However, it might be worth clarifying how the novelty at issue is produced and at what level it takes place. «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» – so reads the sentence resulting from Kac's bio-artistic operation. Claiming for a brand-new meaning could appear biased at the least, as the text looks just like the previous information in a noisier version: *Genesis* case – it could be argued – merely reveals the entropic decay undergone through time by any information. But Kac's operation shows that novelty arises at the level of the expression of meaning, not on the plane of signification: Kac's sentence exhibits the inauguration of a new, asignifying sense by displaying this slight detour from the divine command. The bio-artist's productive gesture unfolds a post-signifying, counter-signifying field in which novelty happens. The strategy of *Genesis* is perversion: the perversion that occurs when iteration deviates from its own terms.

The subversive options that emerge through the iteration of the hegemonic vision result also from chance, which finds place within the interstitial spaces disclosed in and by repetition. Kac's transgenic artwork makes us aware of the possibility of inhabiting the aleatory space among one citation and the following one, thus exploring the opportunities offered by such minoritarian, insurrectional strategy of sense-making.

III.   Between Chance and Constraint

If one considers *Genesis*' outcomes (the sentence resulting from the clicks, the synthesized music, the molded objects), it is hardly arguable that their exact features are the result of Kac's careful project, even though one can rightly affirm that Kac is the artist who authored the art piece. Those actual features, that were not designed by Kac, should be rather regarded as the result of chance – a chance inserted by Kac in his work of art. But what kind of chance is at stake here?

Being both biologically living *and* an artwork, *Genesis* raises some peculiar problems: it is not clear whether the chance and the risk involved should be regarded in the exact same way one regards the chance at work in, say, Jean Arp's collages, or whether the biological activity of Kac's artwork implies that such work has a radically different status, bringing a different kind of chance into the picture. Drawing a strict distinction between *Genesis* and more ordinary artworks would be a way to dismiss

the problems raised by bio-art, such as the analogy between artworks and living organisms. In fact, bio-art does not differ from art in general: it forces us to explicitly consider some problematic aspects of art as such, like the agency that lies in every artwork at least to some extent.

The parallel between artworks and living beings represents a long-standing issue in philosophy. Already Aristotle drew a comparison between them, suffice it to mention the passage of the *Poetics* in which tragedy is compared to an animal (Poet. 1450 b 34-35); such idea has been widely exploited ever since, from Goethe and Romanticism up to very recent days (for example in 1958 Étienne Gilson argued for the «embryogenesis of the painting», Gilson 1958, 196-212, my trans.). Nevertheless, organisms and artworks have usually been compared with reference to the internal necessity and coherence they both appear to display: the artwork «is made in the *only* manner it was *possible* to make it» (Pareyson 1960, 51, my trans., emphasis of the author), wrote for instance Luigi Pareyson when arguing for an intrinsic, necessary law pertaining to (and established by) each and every work of art – which was in turn understood in terms of an organism (Pareyson 1960, 62). According to these views, in the artistic process aleatory elements can be admitted as long as they will retrospectively prove themselves to be necessary. However, it may be possible to regard such popular parallels from yet another perspective, i.e. arguing that both the artistic and the organically living domain rely on chance.

Arguing for the radical contingency of evolution, paleontologist Stephen Jay Gould claimed that if one could let the tape of evolution run again, its outcomes would be very different from the forms of life we are acquainted to experience today (Gould 1989, 17-22). [4] Even more radically, in 1970 French biochemist and Nobel-prize winner Jacques Monod had already argued for life *tout court* to have originated as a contingent event: «The universe was not pregnant with life nor the biosphere with man. Our number came up in the Monte Carlo game» (Monod 1971, 145-146). Evolution shall thus be regarded as a process largely guided by fortuitous events, a dynamic in which no room for finalism can be found. These traits are not at odds with the logic underpinning artworks. Wolfgang Welsch, for instance, has recently argued that chance is at work not only in biological evolution but also in the artistic domain, provided that one focuses on the process of the making and on the moment of reception rather than on the finished products (Welsch 2017, 172-173). Chance, moreover, famously plays a paramount role in Avant-garde movements as well as in a number of tendencies Avant-garde gave rise to – from automatic processes of composition to aleatoric music. «Emphasizing non-intentionality and auto-generativity», Welsch writes, «Avant-garde artworks provide us with an access to the logic of evolution» (Welsch 2017, 174, my trans.). If Joseph Beuys regarded his own «sculpture as an evolutionary process» (Beuys & Harlan 2004, 9), the same could be said in even more radical terms of Kac's *Genesis*. Here, the work of art is literally alive and it cannot avoid going through changes: it evolves and develops new features in front of the recipients or, more accurately, thanks to its interaction

[4] Strong evidence of such contingency is provided by *Pikaia gracilens*, an ancestor of chordates (and of *Homo sapiens* among them), that was pretty rare to find in the Middle Cambrian. Being the only chordate found in Burgess Shale or in other Lower Paleozoic Lagerstätten, *Pikaia* leads to the conclusion that our phylum was not largely represented at the time. Therefore, our very existence may now be seen as depending on the unlikely fact that *Pikaia* did survive the decimation of the Burgess fauna, and that such survival «was a contingency of "just history"» (Gould 1989, 175).

with them. *Genesis* displays in the clearest terms the evolutionary process undertaken by artworks as such by stressing the role of chance in this very proceeding.

Here, however, one does not confront an unrestrained declension of randomness: the genetic variations induced by the clicks (i.e. by the movements performed by the ultraviolet lamp when participants are clicking) are indeed fortuitous, but they still take place within a range of actual possibilities. The space and time disclosed by the reiterated clicks – the moment between one click and the following one, in which the lamp moves and the DNA changes – have to be understood as a flexible, yet localized field of possibility in which one witnesses a constant renegotiation of the balance between chance and constraint. As regards *Genesis*, such constraints are primarily linked to the biological status of the artistic installation. It has been rightly pointed out that «a long-standing tradition, rooted in classical antiquity first and christianity later, has accustomed us to regard Nature as *chora*, as formless, precisely because capable of accommodating *any* form» (Mandrioli & Portera 2013, 270, my trans., emphasis of the authors). From the 20th century onwards, however, life sciences have acknowledged the fact that not any form is actually feasible: when evolving and developing, biological structures are always subjected to some constraints. Such constraints consist of «genetic, ontogenetic, physical, structural, mechanical, functional, historical» (Mandrioli & Portera 2013, 278, my trans.) limitations imposed to the activity of random variation. It is the «double scandal» to which Alessandro Minelli has drawn attention:

> calves with two heads and Drosophilas with four wings would seem to be impossible creatures, and yet nature is able to produce them. Scolopendras with twenty-two pairs of legs would seem a banal variation on the more common ones with twenty-one pairs, but nature is incapable of producing them. (Minelli 2009, 64-65)

Chance dwells within the boundaries set out by these material constraints, which, however, should not be regarded exclusively as negative limitations. They actually do not prevent the occurrence of novelty – quite the contrary: constraints can be understood as positive elements in guiding and influencing evolution (Mandrioli & Portera 2013, 280). Moreover, such constraints are not fixed. This is to say, the boundaries that circumscribe the reign of feasibility are themselves constantly changing over generations: «first and foremost, what evolve are the rules», Minelli underscores (quoted in Mandrioli & Portera 2013, 286, my trans.). *Genesis* displays precisely the novelty emerging through repetition: a novelty, thus, that does not occur *ex nihilo* but is built at the very margins of reality, renegotiating them by questioning the delicate balance between chance and constraints, opportunities and impossibilities.

In this framework, both *Genesis* artwork, on one hand, and biological evolution on the other appear to recall tinkering more than engineering (Jacob 1977, 1163-1164): there is no previous plan to follow; novel features or meanings are not produced from scratch but through variation. It is through the crafty activity of recombination and assemblage of those elements that are already at disposal that something new occurs. The subversive sense of *Genesis*' "perverted" sentence emerges by means

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of re-signification, just as it happens to those anatomical structures that get "re-signified" in the cases of *exaptation* ("exaptation" referring to «those characters, evolved for other usages (or for no usage at all), and later "coopted" for their current role», Gould & Vrba 1982, 6). In such praxis – that could also be regarded through the lens of Claude Lévi-Strauss notion of *bricolage*, for instance (Lévi-Strauss 1966, 16-36), or by means of Michel de Certeau's *poaching* [*braconnage*] (Certeau 1980), or in comparison to Charles Jencks' paradigm of *Adhocism* (Jencks & Silver 2013) – some elements get assembled together while other elements get decoupled. This often results in «incongruous marriage[s]», in «the copulation of incommensurable things» (Jencks & Silver 2013, xix). By way of the «devious means» (Lévi-Strauss 1966, 16) of this *bricolage*-like procedure, art and nature bring novelty into being and shape the world we inhabit.

IV.   Sympoietic subjects and responsibility in the entanglement

Genesis elicits practices of participation: the recipients, here, are not disinterested beholders that merely stare at a piece of art that, in turns, lays inert in front of them. *Genesis* cannot be regarded as located in an autonomous, fictional, ineffective dimension clearly and quietly parted from reality. On the contrary, *Genesis* is real and alive, and *Genesis*' recipients already dwell in the same space of the artwork when they decide to click or not to click on the button that induces genetic mutations. In both cases, they cannot but play an active role in shaping *Genesis*' DNA and molding its subsequent outcomes. However, this morphogenetic activity is not a one-way process: as they modify the living art piece, the human participants get in turn subtly shaped by it. The relation between artwork and human subject, thus, produces the latter as well as the former. Artistic participation turns into a practice of subjectivation.

How should we conceive such practice? A first hypothesis could consist in regarding this process of mutual shaping in terms of autopoiesis. If we adopt this biological concept (Maturana & Varela 1980), which accounts for the cases in which producer and product overlap in a self-productive operation, we can understand the whole *Genesis* project as an autopoietic system that includes human beings as well as bacteria, artificial DNA, linguistic strings. The notion of autopoiesis has found an explicit and fruitful application within art theories, specifically in the *Ästhetik des Performativen* outlined by Erika Fischer-Lichte (Fischer-Lichte, 2008). Fischer-Lichte argues for a «self-generating and ever-changing autopoietic feedback loop» (Fischer-Lichte 2008, 50) occurring between the people involved in a theatrical play or in an artistic performance; such feedback loop works through a constant increase of its effects, which spread on the model of infection and contagion [*Ansteckung*] (Fischer-Lichte 2008,: 94-95; on this see also Fischer-Lichte 2005). To put it briefly, Fischer-Lichte emphasizes the role of «the bodily co-presence of actors and spectators» (Fischer-Lichte 2008, 38) who implicitly interact and mutually influence each other, so that the art piece itself appears to be elusive (*unverfügbar*: unavailable, not at disposal) because no participant (not even the artist) can univocally decide its developments: «the performance […] occur[s] *between* the actors and spectators, and even between the spectators themselves» (Fischer-Lichte 2008, 33, emphasis of the author). Similarly, Georg

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Bertram suggests that individuals «articulate their own understanding of themselves through the interaction with artworks, thereby determining their status as human beings» (Bertram 2017, xxix, my trans.). Bertram, however, dismisses the specific materiality of the artwork (Bertram 2017, 72); Fisher-Lichte instead, though excluding the activity of non-biological matter, acknowledges the central role of the body. The transformative power of the artistic relationship acts upon the bodies of the participants, which recalls the thesis of performative production of identity outlined by Butler. According to Butler, the body itself is a practice: it is «not a "being", but a variable boundary» (Butler 1990, 177); it is «less an entity than a living set of relations» (Butler 2015, 65). There is always a recursive dynamic that takes place between subjects and environment, as scholars who brought attention on the so-called "niche-construction" have not failed to notice (e.g. Odling-Smee et al. 2003). «The body cannot be [...] dissociated from the infrastructural and environmental conditions of its living and acting» (Butler 2015, 65), Butler adds; however, this does not entail any "originality" of the body nor of the environment: they both are the constitutively unstable result of the never-ending relationship in which they are involved. The subjects produced through and by the interaction with *Genesis* therefore appear as the embodied yet flexible outcomes of a praxis of artistic iteration which develops according to an autopoietic pattern.

In this account, however, subjects could be conceived as completely non-detachable from one another, up to making one wonder about their subjective status *tout court*. Autopoiesis seems to absorb difference in an exceedingly cohesive complex, a small-meshed system in which the relational space between one element and the other is reabsorbed as the different elements themselves end up overlapping. The notion, then, should be mitigated in the sense of heterogeneity.

Drawing on the work of biologist Lynn Margulis and particularly on her theory of endosymbiosis, Donna Haraway has philosophically developed the idea of *sympoiesis*, concisely defined as a «making-with» (Haraway 2016, 58). Sympoiesis is not necessarily at odds with autopoiesis, provided that one does not conceive autopoiesis as self-sufficient autonomy and as absence of relations. The two are then in a relationship of «generative friction, or generative enfolding, rather than opposition» (Haraway 2016, 61): «Sympoiesis enfolds autopoiesis and generatively unfurls and extends it» (Haraway 2016, 58). [5] In the process of sympoiesis «critters become-with each other» (Haraway 2016, 58), they experience what Margulis called «the intimacy of strangers» (quoted in Haraway 2016, 60): in the sympoietic scenario the different elements – be they living or non-living entities, human beings or non-human creatures – do not precede the relationships in which they are caught up; rather, they «make each other through semiotic material involution» (Haraway 2016, 60). These assemblages and concatenations are truly creative, they produce a full-fledged novelty that, however, does not come from nowhere but is rather the result of unexpected assemblages. *Genesis* is, in fact, a symbiogenesis: it is the queer encounter between Kac, a passage of the Bible, the Morse code, *E. coli* bacteria, museum visitors,

[5] In defining sympoiesis and autopoiesis Haraway writes: «In 1998 [...] M. Beth Dempster suggested the term sympoiesis for "collectively-producing systems that do not have self-defined spatial or temporal boundaries. Information and control are distributed among components. The systems are evolutionary and have the potential for surprising change". By contrast, autopoietic systems are "self-producing" autonomous units "with self-defined spatial or temporal boundaries that tend to be centrally controlled, homeostatic, and predictable"» (Haraway 2016, 61). If one sticks to these definitions, it becomes plain to see why the notion of sympoiesis may result more appropriate in accounting for *Genesis*, whose intrinsic relationality we want to stress.

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Internet users… Symbiogenesis do not display original origins, because they happen *between* the subjects they generate. If an artistic installation such as Kac's can be said to elicit praxis of subjectivation, then, one has to keep in mind what kind of subjectivity is at issue here: a subjectivity that only takes place in this radical betweenness. The conceptual tools traditionally employed by aesthetics, such as the notions of artist, artwork or recipient, are now no longer useful: far from representing foreclosing categories, artists, recipients, art pieces are intimately enmeshed with one another.

In the framework of this radical enmeshment it is no longer possible to trace actions back to a subject capable of fully intentional and conscious deeds because, as Derrida has shown, original intentions and meanings get lost along the path of repetitions. Subjects emerge in the relations rather than preceding them, which leads to the possibility of conceiving forms of agency without agents (Butler 1990, 187) or forms of agency that exceed agents: as Butler claimed, «there need not be a "doer behind the deed"» because «the "doer" is variably constructed in and through the deed» (Butler 1990, 181).

> Signification – Butler points out – is not a founding act, but rather a regulated process of repetition that both conceals itself and enforces its rules precisely through the production of substantializing effects. [...] All signification takes place within the orbit of the compulsion to repeat; "agency", then, is to be located within the possibility of a variation on that repetition. [...] It is only within the practices of repetitive signifying that a subversion of identity becomes possible. (Butler 1990, 185)

Such scenario, in which one confronts a distributed kind of agency that only takes place within the interstitial spaces of relations and iterations, may appear to result in an outlook on reality in which there is no room for responsibility. But this is not necessarily the case. Karen Barad, who bases her agential realism on quantum mechanics, deconstruction, post-structuralism and feminism, has deeply stressed the *entanglement* in which all entities are caught up, not only at a cultural level but rather in a deeply material sense. According to Barad, the world is not made of «independent objects with inherent boundaries and properties»: it is rather made of *phenomena*, which «*are the ontological inseparability of agentially intra-acting "components"*. That is», Barad adds, «phenomena are ontologically primitive relations – relations without preexisting relata» (Barad 2003, 815, emphasis of the author). In syntony with Haraway and her notion of *responso-ability* (Haraway 2016), Barad reconciles ethics with such relational ontology of the entanglement, rooting responsibility in the very physics of matter. In this way, ethics does not result in a superimposition of human values upon the living (as it was the case in the biblical passage) and upon reality as a whole (as it happened in the project of modernity), it is rather a feature displayed by reality itself in its ontological structure. Entanglements do not entail the loss of differences, quite the contrary:

> Entanglements are relations of obligation – being bound to the other – enfolded traces of othering. Othering, the constitution of an "Other", entails an indebtedness to the "Other", who is irreducibly and materially bound to, threaded through, the

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"self" – a diffraction/dispersion of identity. "Otherness" is an entangled relation of difference (*différance*). Ethicality entails noncoincidence with oneself. (Barad 2010, 265)

In this way, one can acknowledge that responsibility lies at the core of reality without seeing subjects as entities with strong boundaries or as primary sources of agency and sense-making.

> Responsibility – Barad goes on – is not an obligation that the subject chooses but rather an incarnate relation that precedes the intentionality of consciousness. Responsibility is not a calculation to be performed. It is a relation always already integral to the world's ongoing intra-active becoming and not-becoming. It is an iterative (re)opening up to, an enabling of responsiveness. (265)

Such material responsibility is the one displayed by *Genesis*. *Genesis* elicits forms of dialogue and relationship that entail responsiveness; it therefore assumes ethical, social and emotional connotations. In general, as it has been pointed out (Di Stefano 2012, 79-80), responsibility can be regarded as the main issue addressed by Kac's artistic activity.

Ultimately, not only can one claim that *Genesis* symbolically represents (that it is about) the dismissal of the anthropocentric fallacy of human dominion upon the living world; it is also possible to argue that such dismissal is accomplished by the art piece itself. *Genesis* does not merely address the topic: it performs it. Far from ruling the world, human beings should regard themselves as irreducibly enmeshed and entangled in the materiality of "nature". There is no dominion; rather there are (there can be, there must be) alliances and forms of *making kin*, as suggested by Haraway. Kac's transgenic art helps us understanding that we are earthlings, and that «earthlings are *never alone*» (Haraway 2016, 58, emphasis of the author): «The Human Genome Project (HGP)», Kac states, «has made it clear that all humans have in their genome sequences that came from viruses, acquired through a long evolutionary history. This means that we have in our bodies DNA from organisms other than human. Thus we too are transgenic» (Kac 2007, 180). The fact that «we have never been individuals» (Gilbert et al. 2012, 325) does not necessarily imply that we cannot be subjects – subjects, however, that have to be conceived in terms of «assemblages [that] [...] crystallise complementary segments of subjectivity», subjects that «[find] themselves enveloped by a number of transversal collective identities or [...] situated at the intersection of numerous vectors of partial subjectivation» (Guattari 1995, 98), as Félix Guattari has suggested. In a word, sympoietic subjects that can never elude responsibility in the entanglement.

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Ālea.

Pratiche artistiche e modi di soggettivazione
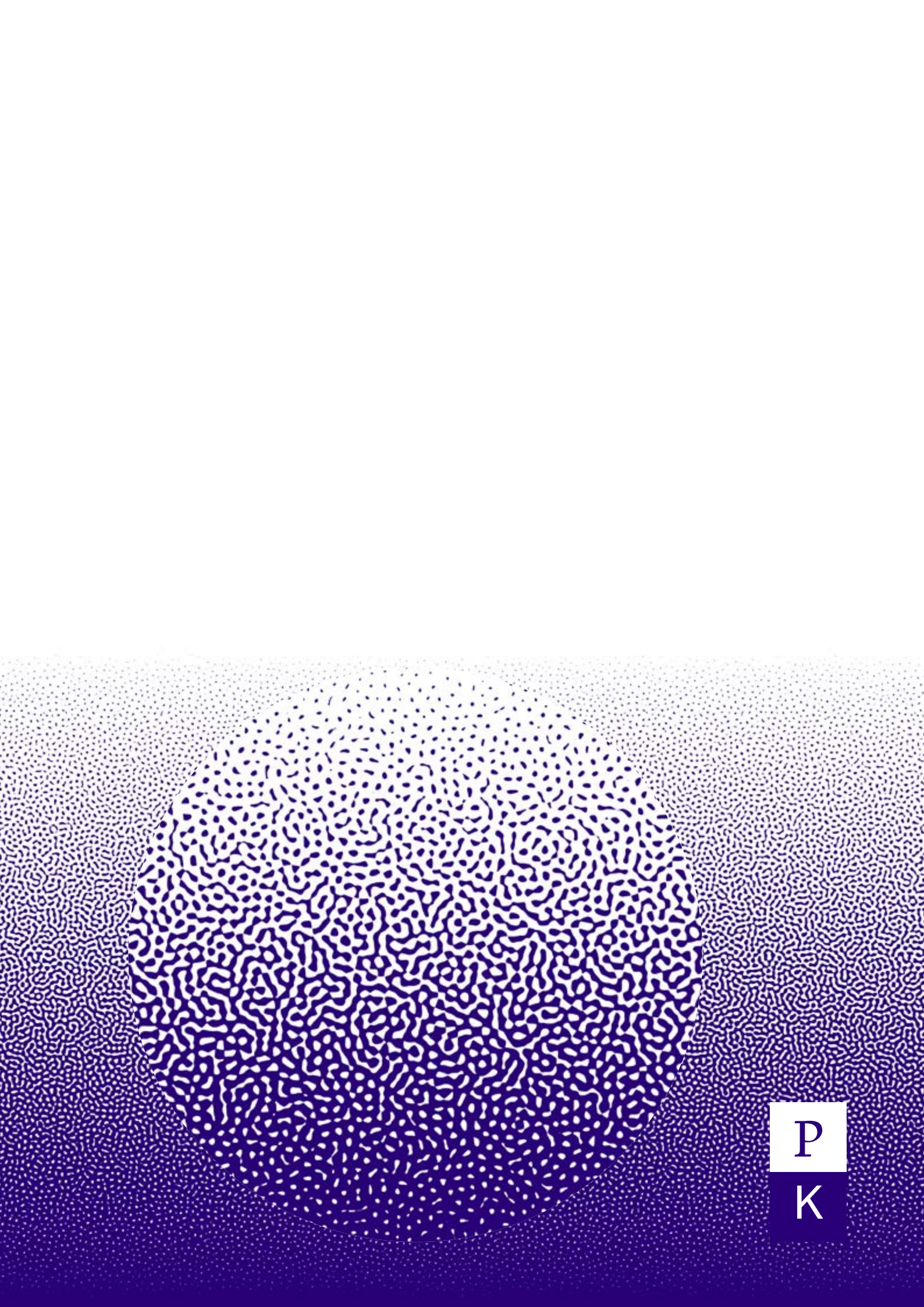
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