

# Imagination laboratory: making sense of bio-objects in contemporary genetic art

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## Abstract

Public engagement in biotechnology has declined as cloning, genetic engineering and regenerative medicine have become socially and culturally normalized. Zooming in on existing bio-technological debates, this article turns to contemporary genetic art as sites for ethical reflections. Art can be viewed as an “imagination laboratory”, a space through which un-framing and rupturing of contemporary rationalities are facilitated, and, in addition, enabling sense-making and offering fantastic connections otherwise not articulated. In this article, the framework of “bio-objectification” is enriched with Bennett’s (2001) notion of enchantment and the importance of wonder and openness to the unusual, in order to highlight alternative matters of concern than articulated through conventional politico-moral discourse. Drawing on a cultural sociological analysis of Eduardo Kac’s “Edunia”, Lucy Glendinning’s “Feather child”, Patricia Piccinini’s “Still life with stem cells” and Heather Dewey-Hagborg’s “Stranger visions”, we discuss how the intermingling of art, science, critics, art historians, science fiction, internet, and physical space, produce a variety of attachments that this article will unpack. The article demonstrates that while some modern boundaries and rationalities are highlighted and challenged through the “imagination laboratory” of the art process, others are left untouched.

## Keywords

bio-objectification, gene technology, ethics, enchantment, Bennett, politico-moral discourse

## Introduction

It is often said that novel biotechnologies give rise to controversial and complex ethical discussions (c.f. Prainsack et al, 2008). And, indeed, ‘bio-objects’ as new technologically produced life forms – for example embryos, xeno-grafts, or human-animal cybrids – have the potential of stirring heated debates when interrupting natural and cultural taxonomies (Vermeulen et al. 2012). But looking closer at public debates on the matter, it seems like they more or less follow narrow scripts for what ethical aspects that are even discussable.

Available ‘politico-moral discourses’ in bio-ethical debates depart from utilitarian cost-benefit calculations and underscore human exceptionalism, national innovation schemes and biomedical expectations (Mulinari, Holmberg & Ideland, 2015). Like e.g. Hall (1996) describes how discourses produce sets of available and unavailable subject positions for human actors, politico-moral discourses limit and enable what characteristics, identities and values that are connected to the non-human bio-object. For instance, Lauritzen (2005:26) describes a British stem cell debate as, ‘almost choreographed’, meaning that the ‘ethical issue’ is easily recognizable and the public debate seems to have got stuck. It seems as if ethics has been hijacked by a scientific and rational discourse, transforming valuation into cost-benefit calculations. In Weber’s words, scientific rationality has conquered the overall cultural sphere, so that we are misguided to think that ‘there are no mysterious incalculable forces that come into play, but rather . . . one can, in principle, master all things by calculation’, and therefore, ‘the world is disenchanted’ (Weber, 1958: 139).

Zooming in on alternative sites for bio-technological debates, the present article turns to contemporary genetic art, understood as art works explicitly reflecting on existing or imagined genetic technologies (Baker, 2003). Genetic art can in itself be produced through DNA technologies or by use of more traditional artistic materials and expressions (eg. sculptures). For the present study, we consider genetic art works as sites for reflections on

biotechnologies, ‘appropriating modern science as a tool for generating social narratives’ (Aloi, 2012: 77). In order to potentially vitalize debates on new biotechnologies, we also employ Bennett’s notion of ‘enchantment’ and the importance of wonder and openness to the unusual in order to be ‘struck and shaken’ (Bennett, 2001: 4). Enchanting possibilities are thus studied in selected art works that problematize bio-technological potentialities and concerns. These genetic art works are in turn understood as ‘imagination laboratories’, through which un-framing and rupturing of contemporary rationalities are facilitated, while they offer new crossings and attachments. In the writings of Haraway (1997), art cannot be viewed as a separate sphere; cultural tropes are relationally produced and circulate through different sectors of society. In cultural sociological terms, art is less a product of social forces, but ‘co-produced’ by human and non-human actors within social spheres (de Nora, 2003), where ‘attachments link all of these heterogeneous elements, at once determinant and determined, that carry constraints and make the course of things rebound’ (Hennion, 2007: 112). In the present case of genetic art, the intermingling of art, science, critics, art historians, science fiction, internet, and physical space, produce a variety of attachments that this article will unpack (cf. Strandvad, 2012).

As scholars aligning with the ‘new sociology of art’ (de la Fuente, 2007), we investigate the genetic art works included as sociological phenomena, embedded in multiple institutional and cultural layers. We want to say something meaningful about their esthetical, ethical and emotional performativity and attachments, without falling into the trap of, on the one hand essentializing the art, and on the other, to reduce its value to social structures. Our aim is twofold: 1) to employ the conceptual trope of ‘imagination laboratory’ in exploring contemporary genetic art works and; 2) through this approach, highlight alternative matters of concern in debates on novel bio-technologies – matters other than those articulated through the conventional politico-moral discourse.

## Selection and analysis

In order to explore alternative matters that could trigger ethical debate, we use art works that explicitly comment on and explore contemporary biotechnologies – with help from the technologies themselves and/or through more traditional artistic expressions. Four works were chosen from netographic mapping of different artists and art projects commenting on gene technologies. This mapping was done through wide Google searches on the word ‘art’ in combination with any of the words ‘biotechnology’, ‘biomedicine’, ‘gene technology’, ‘genetics’, ‘transgenic’ and ‘stem cell’. From this search, ten artists appeared as interesting for the study. From this group, we chose not to analyse local artists or art projects on themes that best can be described as related to gene technology (e.g. animal experimentation). In the end we selected one specific artwork from each of four artists: Patricia Piccinini’s *Still Life with Stem Cells* (2002), Lucy Glenndinning’s *Feather Child* (2012), Eduardo Kac’s *Edunia* (2009) and Heather Dewey-Hagborg’s *Stranger Visions* (2012-2013). These were chosen because of the ambiguity of their meaning-making and their possibilities to enchant through different kinds of crossings (life/non-life, human/animal, technoscience/art). They also represent, in different ways, issues of bodily boundaries, ecological sustainability and alien life forms. Moreover, they make claims about performing the future. Still, they are different from each other in terms of form, materials used, and stories told.

The analysis departs from the genetic art works themselves as well as interviews and texts written about them, mainly by the artists themselves on their official webpages, but also commentaries by journalists and art scholars. The methodological approach is to analyse the art works from a cultural sociological perspective rather than from an art sciences perspective. Our cultural sociology focuses on meaning making, materiality and practice, as a force that should be studied in its own right, but within its political context (Hutnyk, 2006: 355). Conversely, we are not focusing on the content of the art itself as much as on its contributions

to an extended ethical debate on modern biotechnologies, in which affective responses are invited and fostered. To be clear, it is not our own emotions and reactions that are analysed, but rather emotional performances as they are articulated in the data.

For the analysis, we expand on the concept of enchantment through attachment, and discuss how the art works can be interpreted in these terms, asking: 1) What *affects* are mobilized through the art (disgust, fear, wonder, recognition); 2) What kinds of *forms* are used (formlessness, hybridity, ordinariness, ‘scientificness’); 3) Which *ethical* responses are enacted (protection, rejection, othering, inclusion)? Through analysing how affects, materialities and ethical standpoints are performed in and through the art works, we can understand them as imagination laboratories producing, among other things, ethical questions beyond the usual ‘choreographed’ debate.

In the following, we review previous research in the field of bio-art – admittedly a wider concept than genetic art – in science and technology studies (STS), cultural and post-humanist studies, with a focus on art as a potential source for challenging and widening debates. The next section outlines our theoretical frames, consisting of building blocks for the overall concept of ‘imagination laboratory’. We use the concepts bio-object and bio-objectification to highlight how the interconnectedness between art and science is established, while using the concept of enchantment in order to understand why this interconnectedness has been established: the possible outcomes of the imagination laboratory. The next step is to analyse our selected art works in two different sections, classified by the boundaries and crossings at stake: *Wonders of the grotesque* and *Wonders of science and technology*. In these analytical sections, we address the selected works using the trope of imagination laboratory. The concluding discussion evaluates the conceptual frame and concludes that enchantment is made through the movements and crossings, attachments and alienations, taking place in the bio-objectification process. Finally, we return to the question of how art can re-vitalize the

stagnated bio-ethical debate through an intermixing of discourses that challenge rationality.

### Genetic art in a cultural context

Biotechnologies have been a subject for critique from popular culture, literature and art, probably as long as such technologies have existed. Modern technological development goes hand in hand with cultural comments. Eduard Kac's glowing bunny *Alba* is a well-known example of art that comments on transgenic technologies (Aloi, 2012; Wolfe, 2006). *Alba* can be seen as an offspring of cultural articulations like Shelley's *Frankenstein* and Huxley's *Brave new world*. More recent productions like *Gattaca* and *Jurassic Park* have contributed to the public discussion on genetic determinism and surveillance, as well as cloning (Turney, 1998; Kirby, 2000; Malik, 2005). These familiar narratives operate as powerful ethical tropes in public debates (Hamilton, 2003: 269).

Biotechnology today transgresses not only ingrained dichotomies such as life/non-life, organism/artificial, but also, perhaps foremost, the human/animal. Within the field of animal studies, researchers have analysed art as an ethical catalyst, their purpose being to illuminate and problematize animal subjectivity and human exceptionalism. Pedersen and Snæbjörnsdóttir (2008) have shown how art is an effective tool for posing new questions and positions for humans and animals. The authors propose that, 'art can create counter-hegemonic spheres where objectifying practices and institutions are challenged and the animal's visibility is in some way restored' (2008: 115). Further, Baker considers that art frames and unframes social issues in the capacity of, 'tools for thinking, and one that's sometimes viewed with suspicion because of their unfamiliarity' (Baker, 2013: 2). The surprise, the unexpected crossing, is not only confusing, but also productive as regards our understanding of, for instance, novel bio-objects. Gigliotti states that art is not just about unframing and rupturing, but its role is also, 'to make sense, for instance, to creatively look

for alternatives, to offer connections where none were seen before' (Baker and Gigliotti, 2006: 44 f).

However, the challenge of hegemonies, the contribution to ethical debates as well as the sense-making of complex cultural and technological phenomena, is not necessarily radical. Art can also conserve established ideologies (Pedersen and Snæbjörnsdóttir, 2008), and thus, there are problems of using, without reflection, the clichéd assertion that art is the last bastion of radical thinking (Baker, 2013). Stracey (2009) discusses ethical problems associated with bio-art's and bio-artists' 'because-I-can' attitudes; they become so enchanted by the technology itself that the works consolidate the scientific rationality rather than challenge it. Stracey thus states that bio-art deserves a more reflective examination, where the uncertainties and ambivalences embedded in the art works and the production of them must be subjected to a more critical and thoughtful debate. This thoughtfulness could concern the artists' reproduction of a scientific/economic discourse or, as Gigliotti (2006) points out, the very anthropocentric worldview that many artists claim they are challenging. On the contrary, it can in fact consolidate hegemonic politico-moral discourses, which is not surprising if we consider art as well as science as parts of the same 'apparatus of bodily production' (Haraway, 1991). The relationship between art and science in the context of genetic art is a complex issue in additional ways. On the one hand, artists may run the risk of idolizing scientists, thus ultimately reproducing popular cultural images of the iconic role of science as that of saving (human) lives. Artists sometimes ally with scientists – an alliance that, through the knowledge and truth claims that spill over to artistic practice, has the effect of strengthening the artist's authority (Dion, 2012: 150). On the other hand, the risk of reproducing the similarly widespread demonic image of science, as in the iconic works referred to above, is just as great.

The present article will analyse how genetic art can be disturbingly sense-making in its ethical

exploration of novel bio-objects like transgenic creatures and DNA traces. While keeping in mind that art potentially operates as both a challenging and conservative force, we investigate how cultural categories are challenged through the same process, also keeping a critical eye on the stories that are consolidated.

### Imagination laboratory – adding ethics of enchantment to bio-objectification

As stated in the introduction, our theoretical challenge is to build a framework for understanding contemporary art projects that intervene with biotechnology and these projects' potential to awake responses and sense-making that go beyond the reductionist rational logics of established politico-moral discourses, such as cost-benefit calculations. To this end, this section outlines the building blocks used to construct the overall conceptual trope of the 'imagination laboratory'. Ricoeur talks of 'literature as a laboratory of imagination where experiments are conducted in the realm of good and evil' (Reagan, 1996: 85). We develop this idea and think about the studio, the Internet, and other spaces of exhibition, as laboratories through which art produces versions and values of reality that are different to those produced in ethical boards and scientific laboratories.

As mentioned above, Weber's thesis of the disenchantment of modern life, through the distribution of scientific rationality in bureaucratic organizations, has been challenged from various perspectives (Howe, 2006). In *We have never been modern* (1993), Latour argues that modernity is indeed characterized by such preoccupation with rational 'purification' – of taxonomic categorizations, resulting in the separation of society from nature and the human from the nonhuman. Yet at the same time, a parallel movement is that of hybridization, of the crossings between purified binaries (Latour, 1993: 10 f.). Purification is never complete, but produces transgressions, messing up modern rationalities and institutions. Transgenic creatures are good examples. On the one hand, they are produced by modern science,

responding to the needs framed by modernity such as to enhance human health. On the other hand, bio-technologically produced life forms – what we here conceptualize as ‘bio-objects’ – mess around with species boundaries within policy institutions, calling for cleansing activities as stipulated by new laws or institutions (Brown and Michael, 2004; Holmberg, Schwennesen & Webster, 2011). These ‘re-inventions of nature’ (Haraway, 1991) are unstable, and in the process not originally intended connections are established. The cyborg is a good example: Although derived from militaristic robotics, it can bring about new possibilities and become food for thought for post-humanist feminists (Haraway, 1991).

In political philosopher Bennett’s (2001) version, the master discourse of the disenchanting modern life can be challenged by equally ubiquitous narratives of encounters with magical phenomena, evoking enchantment in everyday life. Enchantment, in her words, is the embodied experience arisen from of the contrast between - on the one hand – the mundane, familiar and unreflected, and on the other hand the extraordinary, unexpected and even uncanny. Enchantment is something that hits us, but can also be fostered by more or less deliberate strategies (2001: 4). As regards enriching modern life, Bennett thus puts forward the importance of wonder and openness in relation to the unusual and unfamiliar. Sources of such enchantment may be scientific objects, artistic creations, natural phenomena, mythological narratives and more. Stirring affects and emotions such as wonder, fear, affection, or curiosity, this perceived enchantment could eventually lead to moral action. How is that? As pointed out by, among others, Latimer and Miele (2013), ‘affect’ means both becoming attached, and becoming moved (2013: 7). This relational attachment helps moral action move between bodies of various kinds and species. Bennett writes:

if crossings function as contemporary sites of enchantment, then they might play a role in cultivating an ethical sensibility. Their magic might generate what might be called presumptive generosity toward the animals, vegetables, and minerals within one’s field of encounter (Bennett, 2001: 30).

Enchantment, however, is not equated with ethics, but rather a mode of ethical potential. Thus, the crossing of boundaries that produces the unfamiliar may lead to enchantment and, as an effect, may open the door to greater ‘generosity’ towards other humans and non-humans (Despret, 2004). Of course, this need not be the case. The aesthetic-affective view of ethics implies that, depending on the attachments enacted, all kinds of responses may follow: othering, exclusion, aversion and even extinction practices (Ahmed, 2004). Douglas (1996) has taught us that anomalies – objects out of place – threaten cultural orderings and, thus, normalizing strategies such as reconceptualization, exclusion and eradication are used. However, they may also be conceptualized as magical, as carrying precious transformational and protective power. What Bennett brings to this framework, in addition to stressing the modernity context, is an emphasis on the mobility of crossings, and the potential of moving the spectator in the flesh:

To the extent that crossings have the power to enchant, what about them is responsible for this effect? I pursue the line of thought that their magic resides in their mobility, that is, in their capacity to travel, fly, or transform themselves; in their mobile transits (Bennett, 2001: 17 f).

Following Bennett’s emphasis on movement, we align with the framework, recently developed in Science and Technology Studies (STS) circles, of ‘bio-objectification processes’, through which bio-technologically produced, potentially controversial and boundary crossing objects – such as GMOs or human embryonic stem cells – come into being (Vermeulen et al., 2012). Circulating through the time-spaces of laboratories, parliaments, bio-ethics committees, databases, mass media, bio-banks and clinical trials, these ‘bio-objects’ attach to different identities (Ideland, 2014; Mulinari et.al., 2015). In the present article, we add the arts to this chart of time-spaces, investigating alternative representations of bio-technological presents and futures. Bio-objects can be understood as new morphings that have the potential to interrupt natural and cultural scripts (Vermeulen et al., 2012; Holmberg et.al., 2011). As such,

they are bio-technologically produced matters out of place, and fitting escorts if one wishes to investigate the potential of artistic sense-making for policy processes. Examples of bio-objects include transgenic animals, designer babies, synthetic biological materials, and pluripotent stem cells. A common characteristic is that they challenge taken-for-granted boundaries and categories – between humans and animals (such as xenograft), living and non-living (embryos), life and matter (synthetic biology) – and thus also pose challenges to regulatory bodies and policy debates (Hansen and Metzler, 2012). The result is often a re-instatement of boundaries, of purifying categories, which determine, for example, whether an admixed embryo is in fact human or animal (Haddow et al., 2010). Analysing genetic art as entangled with bio-objectification processes, through which meanings, values and affects are attached and ascribed, alternative understandings of the bio-technological processes and products are constructed.

Combining the bio-objectification framework and its focus on circulation and reframing of discourses and policies with the concept of enchantment through crossings and attachments, enables us to contribute to the study of the affective and ethical dimensions of bio-objects. In our view, then, enchantment is a mechanism of the bio-objectification process, as it becomes a catalyst for the movement between different arenas and spaces. In the following sections, we set this frame in motion through our analyses of the selected art projects, here considered as imagination laboratories – enabling and limiting potential ethical questions and the possibility to be moved.

## The wonder of the grotesque

### *Still Life with Stem Cells: imagining more-than-human futures*

Patricia Piccinini is a Melbourne based artist, who has done an extensive amount of art projects problematizing bio-technological futures. Embracing rather than questioning

technological advances, she asks her audiences to think carefully about how they wish to use bio-technologies, asking, in short, ‘What we are going to do with it?’ (Fernandez Orgaz and Piccinini, 2007). Her drawings, arranged photos and, foremost, sculptures have a distinct form and expression that make them immediately recognizable as Piccinini’s offspring. Their motifs are familiar and deeply disturbing at the same time, ‘simultaneously beautiful and repulsive’ (Lauritzen, 2005: 30). In her works, mundane places such as the bedroom are inhabited by both familiar and uncanny figures, encountering each other in play, friendly embraces or caring situations (Piccinini, 2012). In her imagination laboratory, she contrasts the safe and innocent with the uncanny, and the magic of surprise and chock to shake her audiences. This is done through multiple and witty movements, problematizing the traditional tropes of the normal and grotesque.

In *Still Life with Stem Cells* from 2002, Piccinini places a child at the centre, this time a girl cuddling and playing with pet-like blobs, which are said to be giant stem cells.

<Figure 1. Patricia Piccinini’s *Still Life with Stem Cells* from 2002>

The cell sculptures have a white skin texture, resembling that of living organisms. Thus, the title plays around with the genre of ‘still life’, challenging the boundaries of living/non-living. Portraying a peaceful encounter, the project invites the spectator to feel wonder for the living unknowable. Through the magic of wonder, again, Piccinini moves the spectator through emotions of sentimentality. In reflecting on this piece, the creator writes about her first encounters with stem cells, differentiated into heart cells and growing in a petri dish. In her view, their potential to become anything in an endless openness, makes them perfect:

The question of whether this is a good or a bad thing is both too simplistic and a little academic. As with so much of this biotechnology, the extraordinary has already become the ordinary. The real question is ‘what are we going to do with it’. *Still Life with Stem Cells* is one possible answer.

The magic in this art piece invites us to challenge what it means to become human as well as the evolutionary order, thus creating crossings by stirring the relations between natural and artificial, human and animal, life and non-life. By contrasting genetically modified life with the child, crossing innocence with scientific engineering, the work comes to evoke a narrative of scientific curiosity, and for imagining a space not far from where we live. A more queer reading of the project would suggest that the child instead stands for horror; the not yet socialized child foremost represents ‘no future’ (Edelman, 2004). Thus, the child/monster relationship is not as clear-cut innocent/horrific as it may appear, and the combination of form/formlessness creates uncertainty of what affects that are invited:

However, this cannot withstand the fact that the sculpture clearly shows that it is not so much the monsters that are abhorrent, but the children, who are looking on with such wide-eyed innocence, oblivious to the fact that the situation should seem abhorrent (Smith and Dreyer, 2009: 27).

As Haraway (2007) has pointed out, Piccinini’s work is foremost about relationships in natureculture. It invites us to the idea that humans are neither as special as we like to think, nor are we separated from other species. This effect is created first through showing that genetically modified life is something more-than-objects, creating an ‘uncomfortable closeness’ (Aloi, 2012: 68). Second, through this move, Piccinini puts these objects within the context of a bio-technological evolution, and a widened ecological narrative. Without evoking the all too familiar ‘right to life’ argument (Bennett, 2010: 86; Lauritzen, 2005), Piccinini thus highlights how bio-technologically produced life forms – bio-objects – are next of kin that point at wonderful but unpredictable futures. These bio-objects disrupt modern categories and thus have similarities with Haraway’s cyborg figure. However, *Still Life with Stem Cells* can be understood in terms of a genetically created product of techno-natural practices and materials, it is created out of imagined human parts, ‘a being that is augmented or changed by science into something that can be perceived as better than the original subject (most often

from multiple genetic parents)' (Smith and Dreyer, 2009: 24). Thus, the piece is not 'purely' human, but rather a 'more-than-human' (Whatmore, 2006) creation. This hybrid bio-object, the 'childcellpet' operates as an imagination laboratory, disturbing and making sense of possible bio-technological futures far away from the ordinary public debate.

### *Feather Child: Enchantment and enhancement*

Another project that promotes awareness of the consequences of bio-technologies through the grotesque, is Lucy Glendinning's exhibition *Feather Child* (2012). Glendinning is a British sculptor and installation artist, however, not as established as Piccinini in the genre. She states that she explores and comments on the human body as a 'semiotic medium' (Glendinning, 2012). *Feather Child* is a series of five sculptures of sleeping children, covered by feathers of different colours and sizes. The bodies, in life size, are curdled up in comfortable sleeping positions, and no eyes or other facial details are visible beneath the feathers. The feathered children look soft, innocent and disturbingly strange at the same time.

<Figure 2. Lucy Glendinning's Feather Child from 2012>

According to the artist, the feathers symbolize the bio-technological possibilities of enhancement of human kind and the risk for human hubris:

The fragility of the feathers is simultaneously mirroring the perhaps most classic tale of human hubris: the fate of Icarus in Greek mythology. How far can humanity progress before everything falls apart? (Glendinning, 2012)

The sculptures are described as contemporary cultural comments on genetic manipulation, inviting imaginations of side effects of regenerative medicine and its aim to fight ageing and improve human health, giving voice to the victims left behind. Glendinning states that the sleeping children are supposed to be interpreted as vulnerable, waiting for someone to look

after them (*Kobra*, 2012). By emphasizing the passivity and vulnerability of the children, Glendinning questions the modern will to enhance the world as an active choice; can humans resist the possibilities to ‘improve’ themselves, and what unforeseeable consequences will this hubris have? Glendinning further uses a poem for the imagination laboratory, related to the feather children sculptures:

Will we be able to resist it?

A decoration applied with

a gene, not a needle

to breath under water.

Wouldn’t that be useful

or to fly who could resist that.

To be special we all want it,

once we are no longer a child [...] (Glendinning 2012)

The poem explicitly asks what happens when the boundaries for what counts as a healthy or normal human person are challenged. Will we be able to resist species-transgressing possibilities, or the potential financial gains of human enhancement? Glendinning thus questions gene technology, and especially the danger of ‘progress’ through genetic modification. According to her, the combination of scientific curiosity and the will to continuously improve and progress, coupled with economic benefits, is too strong. The project *Feather Child* cites an established discourse on genetic and stem cell technologies, namely the fear of human curiosity within capitalism, and invites us to challenge what Waldby and Squier (2003), among others, have discussed as the ‘trajectory of human life’.

*Feather Child’s* visual and material attachments, crossing the human child with bird feathers, engages emotions and affects such as wonder about the unknown, but also fear of un-natural life. Through Glendinning’s warning for bio-technological temptations, certain kinds of

affects are supposed to be fostered. In this laboratory, in the bio-objectifying intermix of the child and the bird, empathy for both creatures could be awakened. At the same time, fear and perhaps even disgust for the crossing itself, the uncanny formlessness, may be triggered. The sleeping child and the bird that has sacrificed its feathers are both represented as innocent victims for the human ‘progress’ Glendinning doubts that we are able to resist. The project is far from a celebration of an ‘open body’ (Gigliotti, 2006) – which could be enhanced through genetic modification – but rather a wish to close an ‘ecological system’. The environmental issue here concerns conservations – of ideologies and species – in contrast to Piccinini’s imagination of novel futures.

The imagination laboratory of the ‘childbird’ is materialized through an artistic bio-objectification process, in which Glendinning has used children and feathers to add new characteristics to a human – the artwork being more difficult to interpret as a bird with a human body. Even if Glendinning explicitly states that she is interested in the ecological system, it communicates an anthropocentric view. The discrepancy between human and animal is emphasized rather than questioned, and the critique is raised from an exclusively human point of view (Pedersen and Snæbjörnsdóttir, 2008: 110). If *Still Life with Stem Cells* work blurs the borders of humanness, *Feather Child* consolidates them. The trans-species crossing of a human and a bird is communicated as wrong and risky, and does little to problematize our cultural concepts of human and non-human – a subject that will be further elaborated on in the next section.

## The wonders of science and technology

### *Edunia: enchantment through transgenic normality*

One of the most famous artists in the field is Eduardo Kac. His area is transgenic art, ‘a new art form based on the use of genetic engineering to transfer natural or synthetic genes to an

organism, to create unique living beings' (Kac, 2005: 64). In 2000 the picture of his transgenic rabbit Alba was published worldwide. Alba, or *GFP Bunny* which was the name of the art work, glows in the dark because it has been modified with a jellyfish gene. Baker (2003) compares Kac's transgenic art with art-as-philosophy, or as Kac himself has expressed it, 'philosophy in the wild'. This intention is definitely also present in the art piece that we analyse here, the 'plantimal' *Edunia* – a genetic hybrid combining a Petunia flower and Kac himself. What makes *Edunia* special is that its red veins express Kac's DNA (Kac, 2009).

<Figure 3. Eduardo Kac' *Edunia*, as presented in the exhibition Natural History of Enigma in 2009>

Ironically, one can say that the 'plantimal' *Edunia* works as an imagination laboratory through its commonness. It looks like a perfectly ordinary pink Petunia, with red vessels. Without its history of being transgenic, it would not even have been noticed or considered as art. Its commonness is also expressed in exhibited seed packs, providing information about exposure and bloom period just as for any ordinary plant:

A prolific bloomer, the *Edunia* is free flowering in the garden and weather tolerant. It is an annual that will grow ten to fourteen inches (25-30 cm) high with 4-inch red-veined wavy-edged blossoms. Good timing and uniformity in flowering guaranteed! (Kac, 2009: 3)

But through the hybridity, the ordinary looking *Edunia* is transformed into an 'ordinary exclusivity': both wonderful and normal at the same time (Holmberg & Ideland, 2009). On Kac's website, he explains the scientific procedure behind the artwork and provides evidence of its transgenic status, by publishing PCR photos of the *Edunia* alongside with an ordinary petunia. The attachments used in Kac's project to enchant the spectator thus differs a great deal from, for example, the one used by Piccinini and Glendinning. If their works employ new and unfamiliar forms to mobilize affects such fear, wonder and disgust, Kac' work enchants

through contrasting the simple and mundane with science fiction to call for wonder, create kinship and familiarity with other life forms, as well as to appeal to trust of science. *Edunia* is explicitly used to explicate the ordinariness of transgeneity (cf. Gigliotti, 2006). Kac explains:

This work seeks to instill in the public a sense of wonder about this most amazing of phenomena we call 'life'. The general public may have no difficulty in considering how close we truly are to apes and other non- human animals, particularly those with which it is possible to communicate directly, such as cats and dogs. However, the thought that we are also close to other life forms, including flora, will strike most as surprising (Kac, 2009).

A petunia becomes transformed into *Edunia* through a bio-objectification process that not only involves the genetic transformation, but also the artistic narration of the crossing between techno-science and art, human and plant – into a 'plantimal'. The novel bio-object *Edunia* is thus disturbingly sense-making (Gigliotti, 2006) and offers 'connections never seen before', through the image of the artist's blood in the flower's vessels. The bio-objectification process is enchanting. Through this specific imagination laboratory, ethical perspectives on gene technology that respect rather than fear the crossings of DNA and bodies are offered. This also means that the ethical responses fostered through the 'plantimal' are inclusion and protection of other species – even plants – and a problematization of the notion of humanness and life. While many artists have illuminated the power relations between humans and other species through chocking art pieces of dead animals, Kac uses discrete expressions to celebrate a gene technology – and implicitly gene technologists – that tests the kinship between species while manipulating the basis of the same kinship in terms of DNA.

#### *Stranger Visions – the magic of expanding bodily boundaries*

Heather Dewey-Hagborg is another American artist who uses gene technology in the art process. With a scientific background, she runs the art project *Stranger visions* (2012-2013) in

which she uses genetic material extracted from waste collected in public places – gums, cigarettes, hair, etc. From these traces, she extracts and duplicates the DNA and then generates 3D sculptural portraits of what the trace-leavers might look like. Dewey-Hagborg employs PCR technology to multiply and decode DNA, and a re-programmed, reversed face recognition computer program not to recognize, but to generate faces. The whole process is explained through a film on her website, which also portrays Dewey-Hagborg as a scientist and an artist in equal measure (Dewey-Hagborg, 2014a). Here, the imagination laboratory is built of crossings between gene technology and forensic science, and provides an ample site for investigating a multi-faceted bio-object. Her art project, however, is as much a photographic installation as a sculptural one; pictures of the emplaced traces are shown alongside the rather numb faces, which – perhaps as a comment on the forensic tradition the art work cites – resemble rather anonymous portraits of criminals based on witness descriptions.

<Figure 4: Heather Dewey-Hagborg's *Stranger Visions* from 2012-2013.>

Dewey-Hagborg is more critical of scientific practice and its consequences, than is, for example, Kac, who criticizes the public fear of transgeneity and hybrids rather than the genetic engineering itself. On her website, Dewey-Hagborg writes a personal statement about how her art operates as both a critique of and homage to science:

Such a double form comes from a place of passion for the beauty and elegance of science, of genuine love for the act of experimentation, combined with an endeavour to realize its framing, an attempt to understand its flaws, limitations, and biases (Dewey-Hagborg, 2014b).

Dewey-Hagborg states that she wants to contribute to public engagement in issues of technological possibilities and their consequences. Aiming for that engagement, she 'calls attention to the impulse toward genetic determinism and the potential for a culture of genetic

surveillance' (Dewey-Hagborg, 2014a). This call for attention is made through references to often-mediated practices, such as criminal investigations and public surveillance. The 'portraits' of the DNA traces raise questions about probability and credibility – how precise the surveillance really is or could be. Through new connections and attachments, *Stranger Visions* invites emotions and affects such as insecurity and fear, while at the same time underscoring wonder and fascination in relation to science and DNA technology.

Similar to Kac's *Edunia*, Dewey-Hagborg's portraits are not spectacular by themselves. Instead, they appear to be quite ordinary portraits of random people. The enchantment moves the spectator through the process that precedes the sculptures, upstream the bio-objectification process. It is the story of the origin of the portraits that is potentially frightening, that traces from un-known bodies are transformed into images of un-known, but traceable, individuals (Yim and Chung, 2013).

<Figure 5 & 6: Heather Dewey-Hagborg's *Stranger Visions* from 2012-2013.>

Further, the fact that the portraits are displayed together with a petri dish carrying the trace itself (the hair, cigarette, etc.) and photograph of the public place where it was found is also part of the enchanting move, 'a surprising encounter, a meeting with something that you did not expect and are not fully prepared to engage' (Bennett, 2001: 5). Ordinary things invite surprise and unease through the extraordinary crossing of a petri dish with, for example, hair, a recognizable face and an ordinary place where anyone could have left the trace. Together they create a space for wonder and ethical reasoning. Through the crossing of techno-science, art and the story of the process, the bodily waste is re-embodied; the trace becomes a face with a history.

Furthermore, *Stranger Visions* may be enchanting because it ruptures the established limits of the human body, where it begins and ends. The feeling of insecurity is here represented in

relation to the body itself, its boundaries and the extension of the human body through time and space. Do we own the right to our own bodies, our DNA and our face? How can one's DNA be used in other individuals' interests? The emotions of insecurity and fascination can be seen as two sides of the same coin, and the imagination laboratory of the 'facetraces' calls for responses like awareness of what one leaves behind and how it could be used for new and unintended purposes with the help of technology.

Like Glendinning's *Feather Child*, *Stranger Visions* questions the limits and possibilities of technology, such that human boundaries become blurred, but the art project does not critically explore the category of the 'human' in the same ways as Kac's *Edunia* and Piccinini's *Still Life With Stem Cells* question cultural understandings of species and kinship. But Dewey-Hagborg's *Stranger Visions* certainly does rupture both our understanding of where our bodies begin and end and their traceability, by trying to make sense of DNA, surveillance and technological possibilities, though the enchantment of the imagination laboratory of the 'facetrace'.

### Imagination laboratory: Stirring politico-moral discourses through enchantment

To recapitulate, bio-objectification refers to processes through which new bio-technological life forms become stabilized while their identities are negotiated and renegotiated. As a result, new social relations are produced through processes of attachments to human and non-human actors. These attachments, we argue, may be viewed as affective bonds. Typically, the studied processes take place in arenas such as laboratories, media and policy bodies, although we investigate alternative performativities of bio-technological presents and futures in contemporary bio-art, through the figurative trope of 'imagination laboratory'. Using this trope, we approach genetic art as an art form that produces certain understandings – 'sense-making practices' – by tinkering with crossings and attachments, while trying out

connections, allowing for potential reformulations and revaluations of bio-objects. Thus, our approach in this paper comes close to Hennion's conception of cultural practice as performative and creative:

People are active and productive; they constantly transform objects and works, performances and tastes. By focusing on the pragmatic and performative nature of cultural practices, the analysis can highlight their capacity to transform sensibilities and create new ones, and not only to reproduce an existing order without acknowledging it. (Hennion, 20015: 1)

The attachment that is of particular interest here is that of enchantment through the movements and crossings taking place, and their potential effects.

Our first point is that bio-objectification is performed through innovative attachments, where the connections made between texts and materialities in the imagination laboratory – for example of poems/interviews/feathers, petri dishes/faces/gums – create fantastic and provoking formulations of extraordinary forms: plantimal, childbird, facetrace, childcellpet.

Like Franklin's cyborg embryo, these bio-objects are not born and made, but made and born – their birth fully dependent on technology (Franklin, 2006). They stir emotional responses, through magical touches we are startled, moved and provoked. Inside these imagination laboratories, monstrous morphings, formlessness or unusual crossings foster affects and call for action such as rejection of gene technology, as with the *Feather Child*, or inclusion of human-made creatures into an extended ecological kinship, as with *Still Life with Stem Cells*.

A second analytical point concerns how ethical dilemmas can arise as a result of the crossings made. In the introduction, we stated that the imagination laboratory is a space for disturbing sense-making through connections not usually considered and represented. In the art works analysed, the crossings made between life and non-life, as in *Stranger Visions* and *Still Life with Stem Cells*, produce doubts about bodily boundaries and human subjectivity, which are

most often taken for granted. Similarly, species boundaries, humanness and human exceptionalism are challenged in the otherwise quite diverse works *Feather Child* and *Edunia*, producing doubts about human specificity through novel crossings. Valuation of these doubts, whether good or bad, is carefully orchestrated by the art works and the way they are represented on the web, in interviews with the artist and in the accompanying texts. Thus, what at first glance appear to be new possibilities for conceptualizing post-human futures are nonetheless sorted into well-established narratives on ecological sustainability and scientific progress. Thus, in a way, the potential openness to alternative sense-making is, in the end, closed down in the bio-objectification process, but still has a potential to be reopened again.

Turning to the second aim of the article, we ask how the imagination laboratory and its alternative matters of concern can enrich the limited cost/benefit approach to ethics, as articulated through a conventional politico-moral discourse. In bio-ethical institutions, complex and potentially troublesome issues regarding genetic modification, crossings of species boundaries, and meta-discussions of the ethics apparatus as such are more or less absent (Poort et al., 2013; Schuppli and Fraser, 2007). In addition, the political and public debates are strangely void of ethical issues regarding biotechnologies (Sperling, 2008). In consensus-oriented bio-ethical policy circles, the identities of bio-objects are typically reduced to purified categories with clear boundaries – life, matter, human, animal – thus fitting into modern institutional and culturally conceivable taxonomies. The zeitgeist diagnosed by Weber 100 years ago, is highly topical in these regards.

One need no longer have recourse to magical means in order to master or implore the spirits, as did the savage, for whom such mysterious powers existed. Technical means and calculations perform the service. This above all is what intellectualization means (Weber, 1958: 139).

Intellectualization and bureaucratization has in the case of bio-ethics, arguably led to what can

be termed a ‘circumscribed disenchantment’. We may occasionally be startled by ‘mysterious powers’, however, not in the ethics committees, nor in policy debates, but in the expectations on future breakthroughs presented in media and popular science. In contrast, the bio-objects produced through the imagination laboratory remain disturbingly unclassifiable as being in transition. Although their effects may be temporarily closed, they can be opened up in a bio-ethical debate, making them powerful and enchanting agents with the potential to invite lively ethical discussion aimed at heterogeneity rather than at homogenizing consensus – which is practice in many ethical boards. Moreover, we state that the borders between fixed categories such as human/animal/plant and life/non-life become challenged through the imagination laboratories, inviting new perspectives than the measurable cost-benefit evaluations that often are characterizing the ethical considerations of biotechnological issues. Through the ‘window of enchantment’ (Bennett, 2001: 131), ethical sensibility and new kinds of moral action become thinkable and alternative questions, answers and challenges may potentially be discovered.

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