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Bodies within affect. : on practicing contaminating matters through bioart

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Chapter 1
Introduction

1.1 *Contaminant G* like a Gift

On 12 May 2017, as a part of the project "Trust Me, I'm an Artist", a series of artistic events focused on the ethical frameworks for art working with living matter, the artists Jennifer Willet and Kira O'Reilly gave a performance entitled *Be-wildering*, in the Waag Society in Amsterdam. According to the organizers, the main goal of "Trust Me, I'm an Artist" "is to provide artists, cultural institutions and audiences with the skills to understand the ethical issues that arise in the creation and exhibition of artworks made in collaboration with biotechnology and biomedicine."[1] Yet, Willet's and O'Reilly's performance provided something rather different.

Dressed in a white coat, tailored into a baroque dress, Jennifer Willet entered a scene of ethical examination next to Kira O'Reilly, who was wearing a green costume dress. Attached to Willet's coat dress were bulbs, which seemed to function as Petri dishes, but also looked like nipples held by the pink flounces, containing samples from the many encounters that artist had experienced when wearing the coat. O'Reilly's dress was dazzling and it was impossible not to look at her and her hat, with a majestic green feather [Figure 1]. The artists performed in front of an actual ethical committee consisted of experts in ethics and biotechnology, which judged whether their artistic pursuit could be fulfilled according to ethical norms.

Willet and O'Reilly began the event in a slightly mocking and cheerful tone. They started with a conversation, a narration of what was to happen and what their thought processes were when preparing for the event. Sipping wine and wandering around in front of the

[1] Trust Me, I'm an Artist, "About – Trust Me, I'm an Artist," http://trustmeimanartist.eu/about/, accessed 11 February 2017.

audience, they debated how to create ethically and whether trust is important within art: "Is trust important? Does it demand to be fixed or moving? On what is trust based? Maybe it is not about trust or distrust – [in art] you are more alert, ready for change. Not knowing what will happen is a condition rather than obstacle."[2]

To the sound of O'Reilly's dress shimmering, sequins sparkling, and sipping wine, the artists engaged in a calm conversation about the possibility of ethically evaluating art, and about their latest plan – to gather and spread contaminations, by collecting multiple samples and travelling through multiple spaces dispersing green glitter into the water and forests of Canada and Finland.[3]

Having filled the space with glitter narrations, the artists exited the scene of the investigation, giving the ethical committee time to decide whether their project was an ethical one.

The initial reaction from the ethical committee was annoyance at their grotesque play and ignorance of ethics: "they were playing us by not giving us the risk assessment." In response, Willet said: "yes, but we gave something to you, we shared a gift with you." But the ethics committee was only concerned with the dangers of contamination: "the danger is that the purpose [of the performance] is to contaminate."[4]

The artists gave the gift of fabulation, of thinking about contamination and transformation. However, the ethical committee, attached to their fixed norms and protocols, could not grasp what had happened. Willet and O'Reilly were conditioning affect, while the ethics committee were trying to fix affect. In other words, the artists were conditioning the spaces of contamination: they were giving a gift of change, the possibility of transformation, while the ethics committee wanted to control, to manage the relations of change and direct the movement of change into a desired and stable form.

This art-ethics encounter seemed doomed to failure from the outset – how can you capture what, in fact, cannot be captured, but only lived through? How can one live with relations of transformation? Yet, with their creative, dazzling fabulations, the artists gave the gift of change – by creating the conditions of contaminations. It is for us to decide whether and how to use this gift.

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[2] Jennifer Willet & Kira O'Reilly, Performance *Be-wildering* by Jennifer Willet & Kira O'Reilly, 12 May 2017, Waag Society, Amsterdam "Events – Trust Me, I'm an Artist," http://trustmeimanartist.eu/events/, accessed 18 June 2017.

[3] For a detailed explanation of the project see "Events – Trust Me, I'm an Artist."

[4] Jennifer Willet & Kira O'Reilly, Performance *Be-wildering* by Jennifer Willet & Kira O'Reilly; conversation with the ethics committee, 12 May 2017, Waag Society, Amsterdam.

Figure 1. Jennifer Willet & Kira O'Reilly, *Be-wildering*, performance, 12 May 2017, Waag Society, Amsterdam. Photo by A. A. Wołodźko.

1.2 Thinking with Contamination

There is something symptomatic in the proliferation of references and applications of affect within the art and theory concerned with multiple materialities and incorporealities. 'Affect' has become a buzz word in the last decades of cultural, technological, visual, artistic, political, semiotic, but also biosemiotic studies concerned both with the life of bodies, their material ways of being and with explorations of their meaning outside any linguistic discourse.[5] As a consequence of its myriad use and definitions, the word affect has come to denote, above all, a particular onto-epistemological alternative, offering an image of the world that is based on embodied relationality and connectivity. Melissa Gregg and Gregory J. Seigworth summarize it as follows:

[5] See, for instance, Brian Massumi, *Parables for the Virtual: Movement, Affect, Sensation*, 1st edition (Durham, NC: Duke University Press Books, 2002); Brian Massumi, *Politics of Affect*, 1st edition (Cambridge,UK/ Malden, MA: Polity, 2015); John Protevi, *Political Affect: Connecting the Social and the Somatic* (Minneapolis, MN: University of Minnesota Press, 2009); Melissa Gregg and Gregory J. Seigworth (eds), *The Affect Theory Reader* (Durham, NC: Duke University Press Books, 2010); Marie-Luise Angerer, *Ecology of Affect* (Lüneburg: Meson Press, 2017).

> Affect is born in in-between-ness and resides as accumulative beside-ness. Affect can be understood then as a gradient of bodily capacity-a supple incrementalism of ever-modulating force-relations-that rises and falls not only along various rhythms and modalities of encounter but also through the troughs and sieves of sensation and sensibility, an incrementalism that coincides with belonging to comportments of matter of virtually any and every sort. Hence, affect's always immanent capacity for extending further still: both into and out of the interstices of the inorganic and non-living, the intracellular divulgences of sinew, tissue, and gut economies, and the vaporous evanescences of the incorporeal (events, atmospheres, feeling-tones).[6]

In particular, in view of the contemporary biotechnological practices that manipulate the body, such as gene editing, stem cell research and tissue engineering, our old views about the materiality of the body as a passive bearer of identity are challenged. For instance, what once was clearly considered as the inorganic and the organic, human and non-human, has now become blurred. Bodies may be dead and alive, may be human and non-human, may be multiple and yet one, may contain a person's entire biological information and yet be commodified. Thus, the way we think about what bodies are, and how we practice those bodies has become inseparable with these biotechnological practices. Along with new technological possibilities came new desires: we hope to not only materially transform the structures of our bodies to such a degree that we will think and act differently, but we realize that our presupposition and ideas about possible ways of thinking about bodies directly shape these practices. Never has the reciprocal relationship between the thought and practice been so exposed. Affect has come to denote a contaminating force. It encompasses all that is material, bodily, biological, semiotical, psychological, cultural, visual, metaphorical, aesthetical, technological and ethical as interrelated dimensions of how bodies are.

However, the continuous urgency and demand for the identification and categorization of the possibilities to directly apply theoretical findings[7] seems to result in the notion of affect losing its transformative capacity and all that constitutes its novelty. Thinking with affect demands a different logic to thinking that has an actual, material implication for not only what we understand by the body today, but specifically, how we practice corporeal and incorporeal bodies. If the word affect is to be used to understand the relational, contaminating materialities of our bodies, we must rethink the actual matters of affect; that is: what are the actual implications of practicing affect?

In this sense, thinking with affect may offer ways not only of thinking about how to change bodies in biotechnological, philosophical and artistic practice, but it may actually change the practices of body manipulation. In this book, therefore, I argue that thinking with affect presents tangible problems that must be tackled.

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[6] Gregg and Seigworth, *The Affect Theory Reader*, 2.

[7] For more on this argument, see the "Contaminant P" section in this chapter.

We need a particular methodology to study these tangible problems of thinking with affect. In order to map the actual changes in thought and practice that affect implies, we must go back to the philosophies of, in particular, Baruch Spinoza and Gilles Deleuze, for whom knowledge derives from the study of affect, i.e. the study of relations of bodies by mapping their implications. An urgent question in this regard, then, is how to map the implication of affect, and what happens after we acknowledge the affective nature of our bodies? In other words, how can we live with and practice affect? How can we live with contaminating encounters, and in what way might contaminating affect actually create new bodies and multiply new relations rather than destroy them? As performance by Willet and O'Reilly, *Contaminant G*, explores, how can we accept, but also give the gift of transformation?

The focus of this book is thus to map the conditions of how to live within affect – how to live within contaminating relationality so that the multiple relations that construct our bodies, us, can multiply and grow? In order to understand the importance of this question, I focus on the definition of affect that includes the notion of contamination. What is affect, and how to think with affect will be the subject of the second chapter. For now, it is crucial to think of affect as contamination.

There has been a long historical analysis of the sociology of the concept of contamination positioned against ideas of purity, clarity or objectivity, which this book cannot possibly do justice to. For instance, within the history of science, laboratory practices were based on the understanding of contamination as a threat to "pure medium cultivation,"[8] and therefore the need to control conditions. Contamination was juxtaposed with the sense of purity of and certainty about scientific findings, but also with the sense of autonomy and rationality of practicing scientific methods. For this reason, scholars such as Michel Foucault and, before him, Ludwik Fleck, the biologist and physician whose work on the collective understanding of knowledge production influenced Thomas Kuhn, argued that, as relational and contingent, contamination was a conceptual tool for understanding how our knowledge works.[9] As "defilement, pollution, infection," and as the "blending of forms, words, or phrases of similar meaning or use so as to produce forms, word, or phrase of a new type,"[10] contamination denotes not only destruction, but also construction by multiplication, and the creation of new relations and new bodies, as well as ideas about those bodies.

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[8] Bruno Latour, *Pandora's Hope: Essays on the Reality of Science Studies*, 1st edition (Cambridge, MA: Harvard University Press, 1999), 167; See also Bruno Latour, Steve Woolgar, and Jonas Salk, *Laboratory Life: The Construction of Scientific Facts*, 2nd edition (Princeton, NJ: Princeton University Press, 1986).

[9] Although Ludwik Fleck did not write explicitly about contamination, the way he analysed the working of scientific fact was characteristic of relationality, collectivity and contingency, as opposed to individual reflection and the given fact of knowledge; for more on scientific fact see: Ludwik Fleck and Thomas S. Kuhn, *Genesis and Development of a Scientific Fact* (ed.), Thaddeus J. Trenn and Robert K. Merton, trans. Frederick Bradley (Chicago, IL: University of Chicago Press, 1981); Robert S. Cohen and Thomas Schnelle (eds), *Cognition and Fact: Materials on Ludwik Fleck*, 1986 edition (Dordrecht/ Boston,MA: Springer, 1986); Michel Foucault, *The Birth of the Clinic: An Archaeology of Medical Perception* (New York: Vintage, 1994).

[10] "Contamination, N.," *OED Online* (Oxford University Press, n.d.), http://www.oed.com.ezproxy.leidenuniv.nl:2048/view/Entry/40057, accessed 16 March 2017.

The fear of destruction has created a double bind, in particular, according to Bruno Latour, between science and the humanities. Science has pursued purification in the sense of accuracy of "subjectivity, politics, or passion."[11] By contrast, within the humanities, there has been a struggle to maintain the purity of humanity – the notion of morality, dignity and subjectivity – and keep it free of any influence from "science, technology, and objectivity."[12] Recently, however, another notion of contamination has emerged, i.e. that rather than denoting a threat to the "purity" of disciplines, their methods and findings, contamination calls for creation.

For instance, Alexis Shotwell, when writing about the social movements, their politics and ethics, argues that "we are in and of the world, contaminated and affected."[13] As an extension of Latour's belief that "we have never been modern,"[14] Shotwell argues that "we have never been pure."[15] Arguing against the notion of purity, by affirming the omnipresence of contamination, she explains that: "To be against purity is […] not to be for pollution, harm, sickness, or premature death. It is to be against the rhetorical or conceptual attempt to delineate and delimit the world into something separable, disentangled, and homogenous."[16] In turn, Anna Lowenhaupt Tsing, who has written about the multiple relationalities of Matsutake mushrooms, argues that we should approach "contamination as collaboration," through which a sum becomes bigger than its parts, and a gathering transforms into an event and a "happening."[17] Importantly, encounters and relations are unpredictable within such understandings of contamination – we do not know in advance how bodies will influence or affect each other.[18] Hence, for Tsing, it is necessary to learn how to listen to stories and the narrations of multiple encounters as a method of being and living with contamination.[19]

I therefore use the word contamination as a conceptual tool for thinking about relations in a particular way. Contamination, rather than being in opposition to the idea of purity, is used as an ontological status quo. I posit that the notion of contamination is an affirmation of relations of transformation where tension and change is not just inscribed into the nature of our bodies, but welcomed. Rather than focusing on historical and scientific analysis, which, like the ethics committee, reveals the urge to fixed and manage relations, this study's

[11] Latour, *Pandora's Hope*, 18.

[12] Ibid., 18.

[13] Alexis Shotwell, *Against Purity: Living Ethically in Compromised Times* (Minneapolis, MN: University of Minnesota Press, 2016), 10.

[14] Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Cambridge, MA: Harvard University Press, 1993).

[15] Shotwell, *Against Purity*, 13.

[16] Ibid., 15.

[17] Anna Lowenhaupt Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (Princeton, NJ: Princeton University Press, 2015), 27.

[18] Ibid., 33.

[19] Ibid., 37.

focus is on the practice of art and its encounters as multiple stories of contamination. Thus, narrating art's encounters within contamination is a way of studying the implications of affect, the shadows that envelop – yet, never exhaust – the imperceptible and dynamic nature of affect.

As the performance by Willet and O'Reilly exposed, contaminations are the condition of a creative approach to living matter. Robert Mitchell famously argued that bioart, or what he calls vitalist bioart,[20] which works with living matter, often using the tools of biotechnology and life science, not only creates conditions for contaminations, (which he calls "affects"), but also prolongs those contaminations (affects): "bioartworks […] seek to extend the experience of affect rather than allowing it to resolve into situated perceptions and cognitions."[21] Bioartists' use of tools from life science and art is not coincidental. By blurring the boundaries and looking for ways to expand the contamination between disciplines and perspectives of science and art, the practice of bioart with respect to life and living bodies becomes particularly focused on affect, even though artists may not explicitly refer to affect. Thus, the study of bioart's practice of conditioning contaminations becomes a necessary starting point when understanding the possibility of living and thinking with affect. I adopt Mitchell's ground-breaking analysis of affect in bioart in order to analyse affect as part of a wider socio-cultural struggle for thinking and living within transformative relations – within the contaminations of affect. By looking at how art and, in particular, bioart, conditions thinking and the practice of the relations of transformation, we can grasp what affect is and how we can live with it.

In order to think about bodies within affect, I use the notion of contamination not only as a conceptual tool for visualizing relational and mutually transformative materialities, but also as a way of writing and thinking. Here, contamination becomes relevant when no other method for practicing and thinking bodies within affect is possible. Thus, in this study, I create a way of thinking and analysing bodies within affect according to contamination. Moreover, the concept of contamination and its way of being, with its rhizomatic relationality, forms the structure of this book. In other words, contamination becomes a way of understanding and accessing bodies within affect. Thus, each chapter of the book begins with an encounter with a contaminant, be it blood, air, food, shit, bacteria, organs, multispecies, plants or chemicals, that constructs its own story and provides its own narration of living matter transformations. Importantly, each contaminant's story can be shifted easily between chapters and can be juxtaposed with each other by multiplying concepts and the problems they generate as they all share some strain of relation with each other. In this way, the reader may not only experience the tension that living with

[20] Mitchell distinguishes within bioart works that seek transformation (vitalist) and works that merely reflect on biotechnological and biomedical realities (prophylactic). For further analysis, see Robert E. Mitchell, *Bioart and the Vitality of Media* (Seattle, WA: University of Washington Press, 2010), 11-12. I do not follow Mitchell's distinction within this book. The definition of bioart is elaborated on later in this chapter.

[21] Ibid., 77.

contamination entails, but also learn how to map and condition affect's transformative capacities.

An important aspect of this approach is the style of writing adopted for this research. Since a contamination that changes or modulates bodies is hardly a safe phenomenon, it is important to reflect this sense of risk and tension in my writing as well. I therefore investigate bodies within affect using two trajectories, which pervade each chapter. The first is trajectory charged with personal experience and is used to write about encountering art's practice with bodies and the problems that arise when thinking about bodies' relationality. By contrast, the second trajectory has a scholarly and non-personal tone, which I learned as a philosophy student. Sometimes, these two trajectories are entirely separate, at others they intermingle, producing not only tension for the reader, but also revealing my struggle to grasp the ungraspable. Thus, these two trajectories are not complementary. They are not a universal overview of perspectives. Rather, I seek sustainable tension and disruption as a way to condition the search that belongs to living within affect.

Finally, contamination, as both a concept and a method, allows me to avoid a linear approach to discussing bodies within affect. Rather than juxtaposing the fields of science, art and philosophy and comparing and illustrating arguments about their multiple perspectives, I create encounters between them. In this way, contamination built on relationality and transformation shapes my methodology without a method when practicing contaminating bodies within affect.

1.3 *Contaminant P* like a Patent for Cancer

The particular discrepancy between the practice of affect and its control, between discovering the relations of transformation and managing these relations in order to achieve particular formations, is present in the practices of biotechnology. Take, for instance, the patenting of the human genome, which touches the very intimate and existential realm of what it means to have and be a body. Donna Dickenson reports that, according to common law, once a part of your body is separated from you, it is legally treated as waste and as not belonging to anybody [lat. *res nullius*].[22] Dickenson believes that this disposable attitude to body parts that have been detached from the body is due to the traditional distinction between a person and raw matter. Unlike a body part, persons cannot be owned as this would undermine the notion of human dignity.[23] However, as Dickenson states, recent biotechnological practices

[22] Donna Dickenson, *Property in the Body: Feminist Perspectives*, 1st edition (Cambridge, UK/New York: Cambridge University Press, 2007), 3.

[23] "Man cannot dispose over himself, because he is not a thing. He is not his own property - that would be a contradiction; for so far as he is a person, he is a subject, who can have ownership of other things. But now were he something owned by himself, he would be a thing over which he can have ownership. He is, however, a person, who is not property, so he cannot be a thing such as he might own; for it is impossible, of course, to be at once a thing and a person, a proprietor and a property at the same time," in Immanuel Kant, *Lectures on Ethics*, ed. J.

undermine the boundaries between what can be considered as a person and what is just a raw body part, which results making the body a much more fluid and hybrid phenomenon.

The scale and implications of the hybridity and relationality of the body as a result of biotechnological practices can be seen, for instance, within the phenomenon of human genome patenting and genetic testing, the most lucrative applications of biotechnological innovations.[24] Till 2013, it was common practice to patent the human genome once it had been isolated from the body. Even though genes are not an invention as such, their isolation from a body was considered an innovative practice and thus subject to patenting laws.[25] This resulted in an enormous biomarket, where, in the 1980s-1990s, till 2005, over twenty per cent of the human genome was patented in the US.[26] A patent is "a legal right granted to inventors by national governments to exclude others from making, using or selling their invention in a given country,"[27] and so, in this context, its function presupposes that parts of our own body are legally owned by companies and institutions.[28] Most importantly, gene patents are usually applied to all methods of their detection. This means that every test and tool involved in the management of a particular sequence are covered by patent laws. The patent thus reaches a very broad research area, and this may have consequences for future innovation and medical care. Since the main role of patents in the biotechnology that has induced genetic testing was to allow for private investment in research and development, biotechnology has transformed from a common good into a commodification and exploitation of the body.

Arguably, things have changed once the US Supreme Court banned the patenting of "natural" genes in the case of the Myriad Genetics Inc., the company that discovered the sequence and location of BRCA1 and BRCA1 – a gene mutation that increases the risk of ovarian and breast cancer: "A naturally occurring DNA segment is a product of nature and not patent eligible merely because it has been isolated, but cDNA is patent eligible because it is not naturally occurring."[29] However, things become more ambiguous when we look not only at the differences, but also at the similarities between DNA and its copy, cDNA (complementary DNA). cDNA is "a type of a man-made DNA composition, which

B. Schneewind, trans. Peter Heath, new edition (New York: Cambridge University Press, 1997), 157; Dickenson, *Property in the Body*, 5.

[24] Robert Cook-Deegan and Annie Niehaus, "After Myriad: Genetic Testing in the Wake of Recent Supreme Court Decisions about Gene Patents," *Current Genetic Medicine Reports* 2, no. 4 (2014): 223

[25] David Koepsell, *Who Owns You: The Corporate Gold Rush to Patent Your Genes*, 1st edition (Chichester, UK/ Malden, MA: Wiley-Blackwell, 2009), 5-6.

[26] Kyle Jensen and Gloria Bevan, "Intellectual Property Landscape of the Human genome. (Intellectual Property)," *Science* 310, no. 5746 (2005): 239-240, doi:10.1126/science.1120014.

[27] Yann Joly and Patricia N. Tonin, "Social, Ethical and Legal Considerations Raised by the Discovery and Patenting of the BRCA1 and BRCA2 Genes," *New Genetics and Society* 33, no. 2 (2014): 170.

[28] Koepsell, *Who Owns You*; Donna Dickenson, *Body Shopping: Converting Body Parts to Profit*, 1st edition (Oxford: Oneworld Publications, 2009).

[29] Supreme Court of the United States Syllabus Association for Molecular Pathology, *Certiorari to the United States Court of Appeals for the Federal Circuit No. 12–398*. Argued April 15, 2013. Decided 13 June 2013, http://www.supremecourt.gov/opinions/12pdf/12-398_1b7d.pdf, accessed 7 February 2015.

is made in a lab with an enzyme that creates DNA from RNA template."[30] Not naturally occurring, and structurally and functionally different from DNA, cDNA thus complies with the patent law. Nevertheless, some critics argue that, despite its structural and functional difference, which allows for the further research, the copy (cDNA) still holds exactly the same information as the original (DNA).[31] Moreover, because cDNA is not distinct from the methods it is extracted with, there is no specification of how much intervention is actually needed in order for the gene to be legally patented, since mere simple separation from the body is no longer a boundary.[32]

Despite the lack of boundaries and clear definitions of what a body's natural state is and what its manipulated state is, Myriad, (like other companies involved in human gene patenting), practices what is now called *personalized medicine*. Bodies are practiced as autonomous and fixed identities, independent from collective relations.[33] As Dickenson argues, personalized medicine deliberately positions itself against *we medicine*, emphasising individual responsibility and care, rather than a collective and relational understanding of the way our bodies are. We witnessed the power of individual choice when the American actress Angelina Jolie announced that she had undergone a double mastectomy due to the presence of the BRCA gene in her body. This was in 2013, just before the Supreme Court decision in the Myriad case and the actress's experience provoked a public debate about the necessity of testing for the cancer gene. However, the media conveniently failed to mention the patent that applied to the BRCA gene, and just how expensive the test to detect it was (in 2013, the test cost between US$3,000 and US$4,000).[34] Moreover, the decision to undergo the mastectomy – which for the average woman does not end with a full breast reconstruction as it did in Jolie's case – was portrayed as being a woman's – a mother's – individual choice. The discussion of the elective surgery largely ignored any discussion of the financial, political or social situation of women, or of the industry involved in performing these tests.

Importantly, in order for the testing to be accurate and certain, a large database of the variation of this mutation is needed. You need "we medicine in order to perform a successful me medicine."[35] In other words, to be accurate, any medicine depends on a range

[30] Joly and Tonin, "Social, Ethical and Legal Considerations Raised by the Discovery and Patenting of the BRCA1 and BRCA2 Genes," 176.

[31] Kristen L. Burge, "Personalized Medicine, Genetic Exceptionalism, and the Rule of Law: An Analysis of the Prevailing Justification for Invalidating BRCA1/2 Patents in Association of Molecular Pathology v. USPTO," *Washington Journal for Law, Technology & Arts* 8, no. 4 (2013): 514.

[32] Cook-Deegan and Niehaus, "After Myriad," 224.

[33] Ibid.

[34] Gayle Sulik, "Opinion: Why Jolie's Cancer Test Costs so Much - CNN.com," Special to CNN, http://www.cnn.com/2013/05/24/opinion/sulik-patented-genes/index.html, accessed 21 May 2015; Paul Harris in New York, "Angelina Jolie's Cancer Decision Highlights Row over Genetic Technology," *The Guardian*, http://www.theguardian.com/film/2013/may/19/angelina-jolie-cancer-row-genetic-technology, accessed 21 May 2015.

[35] Donna Dickenson, *Me Medicine vs. We Medicine: Reclaiming Biotechnology for the Common Good*, 1st edition (New York: Columbia University Press, 2013), 47.

of relational practices and multiple bodies from various social, political and biological states. Any distinction, therefore, between "me" and "we" medicine is an artificial one. Medical practice has exposed how "me" medicine has already been "we" medicine. The tangible danger, however, is that these relational practices become veiled by the abstract categories of individuality and autonomy. In other words, while we are already living within affect, and are already practicing affect's contaminations and its multiple relations and implications for various spheres of living bodies, we have never really changed our logic with regard to affect.

In the case of Myriad, while, in principle, researchers, share their genome database in order to provide an exchange of information for the common good and to promote innovation and accurate medical care, fear of competition led the company to stop contributing to the data already in 2004. It has also stopped publicising new information about variations. As a major performer of tests for the BRCA gene, Myriad has thus significantly restricted research on breast cancer. The company's self-interest, clothed in a policy of personalized medicine has stopped the flow of data and, therefore, causing less accurate medical care.[36] What is worse, after the US Supreme Court decision of 15 April 2013, Myriad filed a number of lawsuits against laboratories that had started to offer the BRCA test more cheaply.[37]

What we learn from the BRCA case, is that by failing to change the logic of thinking about the bodies and as a result of its perpetuation of the belief in the autonomy of bodies, despite their obvious dependence on bodies' relationality, the gene patenting industry has created even stronger hierarchies among bodies. The industry's policies have enacted a strong belief in determinism, ascribed to DNA within the practices of biotechnological, economic and political application. The idea of the autonomous body is stronger than the actual matters of practice and relations that construct the body. Such practice of the body has preserved the nature/culture divide in a bizarrely paradoxical way.

The US Supreme Court's decision perpetuates a belief in the exclusion of nature from any economic-political spheres. As long as something does not occur in "nature", it can be patented. However, as shown in the case of Myriad, the copy (cDNA) of DNA that is to be patented holds exactly the same information as the original (DNA). The border between what occurs naturally and culturally, what is original and what is a copy, is thus blurred. Without the "original" DNA there would be no cDNA in the first place. Moreover, what is considered as artificial and therefore ready for manipulation and commodification, materially influences and transforms what we consider to be "natural". The promise of cure and treatment that has justified the privatization and monopolization of research, ultimately influences our own bodies and lives. Patented genes sequences do not regard a particular body, but "the body". Patents have a universal function, which, in turn, incorporates all

[36] Joly and Tonin, "Social, Ethical and Legal Considerations Raised by the Discovery and Patenting of the BRCA1 and BRCA2 Genes," 177-78.

[37] Cook-Deegan and Niehaus, "After Myriad," 227.

our bodies under its law. Once you have a breast cancer, part of you, what you think of as the "natural" you, belongs, in practice, to the corporation. The artificial divide between the "state of nature" and man-made practice does not respond to our bodies, which are an entanglement of living matter and practices.

Furthermore, the Myriad case is also a striking example because it shows the consequences of our lack of understanding that biotechnology has a real material impact on our social and political life. Here, the idea of personhood and human dignity cannot do justice to the scale of novelty and unpredictability of the biotechnological world. Biobanks, which are the modern equivalent of surveillance and property, have resulted in: commodified cell lines, such as those in the Henrietta Lacks legal case,[38] promises of regenerative medicine via new methods that transform a cell from an adult body into any other type of a cell, and CRISPR genome editing, which makes the idea of designer babies not just futuristic speculation, but a scientific possibly.[39] Indeed, these new biotechnological inventions have undermined any doubt about the influence that biotechnology already has in shaping our lives.

These phenomena are not just the concern of bioethical committees and economic policies, they directly touch the multiple political, social and cultural realms of our existence. Ingeborg Reichle called the unprecedented power inherent to the use of biotechnology "bottom-up eugenics", which is not based directly on a socio-cultural idea and narration, but rather the market and profit.[40] As Robert Zwijnenberg argues, biotechnology inevitably correlates with such problems as, for instance, human enhancement, posing not only ethical and legal problems, but forcing more philosophically and culturally varied questions and attitudes, i.e. "who and what do we want to be as humans, and who and what do we want to become?"[41]

Biotechnological innovations that allow us to manipulate our bodies construct economic-social realities that do not respond to disciplinary divisions. Economic and political demands are strongly entangled with scientific findings, technologies and their agencies, which, in turn, inevitably influence social and cultural, individual and the population's practices, as well as our lives and bodies. However, as the Myriad case shows, once these multiple entanglements are applied according to the traditional beliefs in autonomy, individuation and personalization, which do not respond to the relational nature of phenomena, we enter

[38] Henrietta Lacks, an African American woman born in Virginia, United States of America, died in 1951, aged 31, of cervical cancer. Her cells were taken from her body without her or her family's consent. The cells were then commodified into a cell line known as the HeLa cell. This gave rise to over ten thousand patents, which have been used extensively in medicine and research ever since. However, in 2013, the Lacks family won some right to acknowledgment.See *"Lacks Family," Lacks Family Website*, http://www.lacksfamily.net/, accessed 21 May 2015. See also Rebecca Skloot, *The Immortal Life of Henrietta Lacks* (New York: Broadway Books, 2011).

[39] Heidi Ledford, "CRISPR: Gene Editing Is Just the Beginning," *Nature News* 531, no. 7593 (10 March 2016): 156, doi.org/10.1038/531156a.

[40] Ingeborg Reichle, Art in the Age of Technoscience: Genetic Engineering, Robotics, and Artificial Life in Contemporary Art, preface Robert Zwijnenberg, trans. Gloria Custance, 1st edition (Vienna/New York: Springer Vienna Architecture, 2009), 26.

[41] Robert Zwijnenberg, "Biotechnology, Human Dignity and the Importance of Art," *Teoria* No. 1(2014), pp. 131-148.

into the realm of utopian beliefs in purity and clear-cut boundaries between species and disciplines. For instance, transhumanists' desire for designer babies and perfect humans,[42] fuelled by an unquestioning use of technology, is just one among many examples of using relationality not as an ontological way of being, but as a means for strengthening the fixed ideas about our bodies. We already live and practice affect, that is why, if we do not think and act according to its dynamic nature, we create even sharper dualisms, polarizations and hierarchies. It is therefore time to map these material and relational ways of understanding. It is time to map bodies within affect, in order to meet the challenges of the biotechnological future. The question is, how to do that? How can we relationally practice the relational nature of our bodies? In other words, how do we make matters of affect matter?

1.4 *Contaminant E* like an Embryo's Little Wings

One of the first classes on bioethics in practice that I attended was conducted by Robert Zwijnenberg and Amalia Kallergi. It was titled *Who Owns Life* and involved the bioartist Boo Chapple. This lecture was part of a series of hands-on bioethics classes initiated by Zwijnenberg at Leiden University since 2006, gathering together students from various faculties such as literature, history, philosophy, law and life sciences. The first class of the series was with Adam Zaretsky and his project *VivoArts: Art and Biology Studio – Wet Lab Practice and Bio-Art Pedagogy*, which set the tone and experimental nature of the subsequent lectures.

In the class with Chapple, we were asked to join a performance to baptise chicken egg embryos, following a protocol of 'windowing', as is practiced in developmental study. Chapple explained that the embryos never reach their adult stage and so it might be a humanitarian act to baptise them. I remember clearly how most of my presuppositions about ethics and morality collapsed and appeared meaningless once I was asked to use my hands and "get them wet" in the vast matters of the materiality of bodies, in order to understand what is actually happening in biotechnology. My "humanistic" idea about life and the living body was insignificant, and I was overwhelmed by the sense of powerlessness I felt when dealing with issue of body manipulation.

The usual procedure for windowing an egg involves making a whole in the shell so that you can observe the inside without significantly harming the embryo. First, you remove the egg from the incubator into an environment that has a constant temperature of 37 degrees and 60% humidity. Before an egg can be windowed, it must be sterilized using 70% ethanol. You carefully make a cut in the egg shell following the given instructions about the size,

[42] "Humanity+, *Philosophy*, http://humanityplus.org/philosophy/philosophy-2/, accessed 25 August 2017.

angle and pressure necessary to make an opening [Figure 2]. After your study, you must close the shell with plastic tape and return the egg to the incubator.[43]

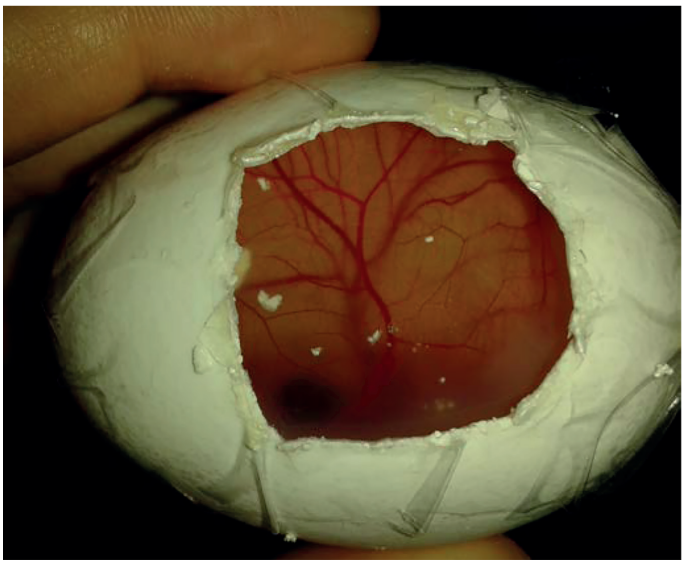

Figure 2. Windowed egg with an embryo.
Photo by A. A. Wołodźko

In my case, making the incision at the proper angle and in the correct place went smoothly and according to the rules. I and my fellow students performed the experiment with a careful precision and accuracy, and felt proud to have carried out the procedure successfully. Everything changed, however, when the students were able to see a chicken embryo inside. The strange fulfilment of the desire to see and explore what is hidden overwhelmed the entire group of quasi-scientists. Students of law, art history, literature and philosophy, wearing white coats that seemed to shield them from any moral judgement, were poking and prodding, extracting the yolk fluid, laughing and cheering. Some baptized the embryo by squirting it with water from a syringe. Unable to connect their material discovery with fixed ideas and identities, they were playing with the embryos. At the end of the session, all the eggs were thrown into the biohazard trash box. I also threw away mine.

Intriguingly, before the experiment, Chapple carefully explained what the embryos would look like in their developmental stage, and outlined what the windowing procedure involves, and how she sees the baptism of those embryos as a humane act since they would be exterminated before reaching an adult stage. Students were then asked whether they still wanted to participate. We must have been so bored with the usual ethics classes, that we all enthusiastically put on our white coats, ready for our first experience with living matter. The only student that refused to take part was a third-year life science student, who was

[43] Matthew J. Korn and Karina S. Cramer, "Windowing Chicken Eggs for Developmental Studies," *Journal of Visualized Experiments*: *JoVE*, no. 8 (October 1, 2007), doi.org/10.3791/306.

taking the classes to learn about the ethics of biotechnological manipulation. She told us that she had joined the classes to learn more than her department was able to offer her. I was intrigued when she explained, after the class, that this experiment was useless and unethical. According to her, the performance of baptising the windowed egg served no purpose in terms of developmental learning and was just some artistic project.

I took the chicken embryo that had been ascribed to this girl home. I felt it would be a pity to throw away it like that, and I was also feeling guilty about destroying the one I had opened so easily. I had an idea about performing the same experiment in a different environment. I wanted to see what would happen in a space like my home kitchen. I suspected that the place and the circumstances influence the experiment's findings. Therefore, when I arrived home, I put the egg in a fridge. The next day, I performed the same experiment, this time with the aim to extract the embryo and keep it in the alcohol, as a reminder of this baptism-performance experience. However, I had not anticipated my reaction when performing exactly the same act as the day before, but without my white coat, laboratorial environment, teachers and others who were doing exactly the same. I knew it would be different, yet I did not foresee that I would actually be shaking on seeing that this eleven-day-old embryo was not a mass of wet yolk, but a little being, which already had the form of a chicken [Figure 3]. I could see the beak, little wings and legs. I found myself thinking that this whole experiment was pointless and even cruel. I realized that, despite myself, I had been driven by immediate emotions and moral judgement: because I could recognize and identify the yolk as a chicken, I was able to question my action, I was able to feel responsible. My moral position and even empathy, was thus only driven by my ability to identify and to categorize according to a given understanding of what is a living being that deserves life. I was caught in my need for anthropomorphising; my morality was anthropocentric. Only then did I understand a little better what Boo Chapple had tried to show us.

1.5 New Material Contaminations

We know that all knowledge and meaning must have context; yet, we act and learn in a non-contextual way. Secured within our disciplinary boundaries, we have no chance to experiment with other perspectives, contaminations and their challenges. Moreover, within the short hands-on bioethics classes, I had soon come to realize that we actually have no methodological tools to address the problems that we were being confronted with, such as the commodification of living bodies in a more situated, relational and processual character. We take context, its material tools and methods for granted, instead of inquiring about what their role is in the formation of meaning. Above all, after many discussions with the students and teachers of the *Who Owns Life* course, it gradually became obvious to me that we do not have the semiotic tools to address this contaminated, local and embodied

production of meaning. We were all approaching the dilemmas from the closed perspective of focusing on human subject and human-like identities, fixed laws and disciplinary boundaries. We thus seemed to lack the understanding that our bodily state, habits and presuppositions significantly influence what we take as knowledge. We do not know how to relate with radical difference, how to act in a situation where perspective and habits are contaminated, or how to approach something that we cannot categorize and compare to what we already know. Instead of following fixed rules and established methods when studying the relationality of bodies and its practice, there seems to be an urgent need to implement relationality and contamination as a valid material understanding. This need results in a shift from the priority of epistemological fixation on truth, to an onto-ethical attentiveness about how we select what is important and how we deal with consequences of such choices.

Figure 3. Embryo from windowed egg, kitchen experiment.
Photo by A. A. Wołodźko

Annemarie Mol described this shift in philosophical thinking as a change of question, from: "how can we be sure?" to "how to live with doubt?"[44] In her analyses of the body in contemporary medical practice, she moves from epistemology, which is concerned with

[44] Annemarie Mol, *The Body Multiple: Ontology in Medical Practice* (Durham, NC: Duke University Press Books, 2003), 165.

the accuracy of our representations of reality, towards a more ontological perspective, understood as a focus on how the objects of our study are enacted in practice. In this sense, Mol is arguing for the multiplication of reality: "objects come into being – and disappear – with the practices in which they are manipulated. And since the object of manipulation tends to differ from one practice to another, reality multiplies."[45] Her question is thus focused on relations, how the objects of our study – in her case, bodies in medical care – are related to each other, while bearing in mind that each multiplied body is as real as any other. In that sense, for Mol, knowledge is a matter of ontology understood as practice and enactment, rather than representation and truth. As such a practice of multiplicity, constructed meanings are uncertain, fragile and often volatile.

This transitory character of the multiple notion of the body, has been exercised continuously in Zwijnenberg's classes. Rather than discredit such generation of meaning due to its epistemologically uncertain nature, students were forced to confront the question of how to take it seriously. The challenge to take seriously what is elusive and partial, consequently, constructs a highly ethical position: "somehow we must learn to understand how it is that given the possibility, we can still act."[46]

The affirmative approach to doubt, understood in terms of a volatile notion of the meaning of bodies, is what Donna Haraway famously defines as situated knowledge. She transforms the traditional idea of objectivity, based on Thomas Aquinas's corresponding notion of truth and the idea of disengagement of the subject from the object of study, into a more partial perspective: "Objectivity is not about disengagement but about mutual and usually unequal structuring, about taking risks in a world where "we" are permanently mortal, that is, not in "final" control."[47] Partiality, unlike relativity, which, she argues, is only a mirror of the representational idea of truth, is grounded in responsibility and care. Haraway argues that a situated approach to knowledge demands an ontological shift: it "requires that the object of knowledge be pictured as an actor and agent, not as a screen or a ground or a resource."[48] As shown in Zwijnenberg's lab classes, this involves introducing a sense of risk and experimentation to the humanistic reflection that acknowledges responsibility and care in the face of human, but also non-human multiple agencies. The debate around the body is transformed here into a more material logic that involves what, in academia, has recently come to be known as "a new material thinking".

"New materialism" grew from an understanding that our bodies must be approached in terms of relational thinking. Scholars such as Rosi Braidotti, Elizabeth Grosz or Stacy Alaimo have been arguing that the practice of relational thinking about bodies is fostered, in particular, by the contemporary biotechnological practices that make biology and life

[45] Ibid., 5.

[46] Ibid., 165.

[47] Donna J. Haraway, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," *Feminist Studies* 14, no. 3 (1988): 595-596.

[48] Ibid., 592.

the main focus of humanistic concerns.[49] New materialist thinkers thus urge rejecting the epistemological dualism of mind and body as well as the idea that living matter is subordinate and passive.[50] By engaging in an analysis of life as a non-human and non-organic generative force, new materialist scholars force us to rethink the notion of matter and life within philosophical, cultural and political studies, in a more egalitarian, self-critical and non-essentialist way.[51] This means that, rather than understanding living bodies in terms of fixed properties, they understood bodies as being composed of relations and processes, dynamic, folding, continuously contaminating each other. New materialism thus breaks with the a-biological perspective on the body within the humanities, and shifts the discursive analysis to highly relational thinking.[52] It calls for a readdressing of the question of knowledge production, which is not a representation of the world, but rather a relational, ethological and shared process of meaning construction beyond anthropocentrism. Because of that new focus on meaning production, recently, Jakob von Uexküll's notion of *umwelt* and relational understanding of meaning production in the animal world has received much attention. I will explore his ideas in the context of material notion of meaning later. For now, it is important to note that the questions that have been raised mainly within biosemiotics and zoosemiotics,[53] have become part of new materialism and reinforce a discussion on the material and environmental notion of meaning production within wider socio-cultural and political study.

Importantly, new material non-anthropocentrism as a mode of thought is not about a sudden deprivation of the human perspective. After all, as humans, we have a particular body that determines how and what we can experience. The focus is rather on the particular materiality of this experience that implements various non-dualistic and collective understandings of the way we live and how we gather our knowledge. In that sense, it is much more than a non-dualistic shape of methods and values. Rather than discursive deconstruction of the human as a normative idea and a methodological paradigm, it is about a material and relational approach to already existing concepts such as the body, life and matter.

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[49] Elizabeth Grosz, *The Nick of Time: Politics, Evolution, and the Untimely* (Durham, NC: Duke University Press Books, 2004); Rosi Braidotti, *The Posthuman*, 1st edition (Cambridge, UK/Malden, MA: Polity, 2013); Stacy Alaimo, *Bodily Natures: Science, Environment, and the Material Self* (Bloomington, IN: Indiana University Press, 2010).

[50] Diana Coole and Samantha Frost (eds), *New Materialisms: Ontology, Agency, and Politics* (Durham, NC/London: Duke University Press Books, 2010); Rick Dolphijn and Iris van der Tuin, *New Materialism: Interviews & Cartographies* (Ann Arbor, MI: MPublishing, University of Michigan Library, 2012).

[51] Donna J. Haraway, *When Species Meet* (Minneapolis, MN: University of Minnesota Press, 2007); Cary Wolfe, *What Is Posthumanism?* (Minneapolis, MN: University of Minnesota Press, 2009); Joanna Zylinska, *Bioethics in the Age of New Media*, 1st edition (Cambridge, MA: MIT Press, 2009); Rosi Braidotti, Transpositions: *On Nomadic Ethics* (Cambridge [etc.]: Polity, 2006); Braidotti, The Posthuman, 2013.

[52] Braidotti, *Transpositions*; Braidotti, *The Posthuman*, 2013; Roberto Esposito, *The Third Person*, 1st edition (Cambridge: Polity, 2012); Protevi, *Political Affect*, 2009; Alaimo, *Bodily Natures*.

[53] See, for instance, Wendy Wheeler, *The Whole Creature: Complexity, Biosemiotics and the Evolution of Culture* (London: Lawrence And Wishart Ltd, 2006).

Rosi Braidotti explains this in terms of the radical distinction between posthumanism and postanthropocentrism, where the former denotes disciplinary problems within philosophy, history, cultural studies and what she describes as classical Humanities, and the latter embraces transdisciplinary attentiveness and relations between "science and technology studies, new media and digital culture, environmentalism and earth-science, biogenetics, neuroscience and robotics, evolutionary theory, critical legal theory, primatology, animal rights and science fiction."[54] In other words, postanthropocentrism as a non-anthropocentric shift in thinking did not grow from anti-humanist, deconstructive premonitions, but rather from affirmative, material and transdisciplinary necessity for a more relational and vital understanding of our various ways of being, knowing and acting. Above all, it involves a semiotic turn that finds construction of meaning in various human and non-human, organic and inorganic agents and their reciprocal relationality and interactions.

The entanglements and relations between science, culture, nature become, or rather always have been, so varied and complex that we have finally realized that we must change our approach. While recent decades have seen the rise of the actor-network theory within the social sciences, which presupposes that everything is universally and homogenously connected, new materialists think in terms of contaminations; thus, for them, connections are everything. There are ethical and ecological consequences to such a position that focuses on particular relations rather than the universality of interconnectedness. While Timothy Morton argues that ecology starts with a radical openness to everything,[55] I adopt new materialist thought and propose to change the logic of thinking. Thinking with bodies within affect demands a different focus. Thinking with affect is initiated by an attentiveness to particular differentiations in relations – each relation contaminates, changes and transforms bodies in a radically different way. The challenge is thus how to relate so that we can continue to practice contaminations?

Moreover, according to Joanna Zylinska, because we are all entangled there is a requirement of responsibility.[56] Importantly, however, as Alexander R. Galloway and Eugene Thacker noticed, the idea of connectivity is already embedded within "a new management style, a new physics of organization that is real as pyramidal hierarchy."[57] Regarding the example of networks in cybernetics, Galloway and Thacker explain how a network, as a system of interconnectivity, is always ruled by protocols – immanent expressions of control. The main consequence of uncritical application of network systems in ecological and ethical debate is the treating of living bodies and biology, in general, as such an information network system, in which life is something to be managed and instrumentalized. In this way, biotechnology found an easy route through the ethical committees, for instance, since,

[54] Braidotti, *The Posthuman*, 2013, 57–58.

[55] Timothy Morton, *The Ecological Thought*, (Cambridge, MA: Harvard University Press, 2012), 1.

[56] Joanna Zylinska, *Minimal Ethics for the Anthropocene* (Ann Arbor, MI: University of Michigan Library, Open Humanities Press, 2014).

[57] Alexander R. Galloway and Eugene Thacker, *The Exploit: A Theory of Networks* (Minneapolis, MN: University of Minnesota Press, 2007), 29.

as another type of network, the body became an instrument for enframing the information system. As such, life and the body became easy to manufacture,[58] as the earlier example of gene patents showed. Although Zylinska signals that her new minimal ethics is based on differentiations and the dynamism of connections – and, in that sense, is "non-systemic" and "non-normative"[59] – in order for her plea to be realized in practice, stronger emphasis on the understanding of partiality and its actual consequences becomes crucial.

When we emphasize partial relations – local or global, yet always already situated in a particular context – then these relations carry a profound strength and consequences. They gain not only a particular politico-historical scale, but also have onto-ethical implications. Suddenly, relations determine our very existence. In that sense, the emphasis that relations are everything, rather than that everything is related, becomes crucial. We realize that our actions produce new relations, which, in turn, trigger new sets of relations and new problems. The question of ethics is thus the question of material entanglements, which generate situated forms of knowledge, material contaminating realities of living and practicing affect that we create and are created by. For this reason, in my study of bodies within affect, I adopt Nina Lykke and Anneke M. Smelik's material sense of meaning, which they formulate as "the new material-semiotic." As they argue, "we must develop scientific thinking at the intersection of different domains and learn to think in terms of processes and interrelations."[60]

The limitations of the research that follows does not allow me to do justice to the complexity and scope of the material semiotics that grew from the material feminist theories of such scholars as Rosi Braidotti, Elizabeth Grosz, Donna Haraway, Claire Colebrook, Jane Benett, Karen Barad and Stacy Alaimo.[61] My reading of their work thus focuses on those aspects of new materialism that are important to my study of contaminating bodies within affect, namely:

- a need for a human and non-human egalitarian reciprocity;
- an openness to the non-linguistic forms of meaning generation;
- the rethinking of the notion of life and agency outside the human dominion;
- the awareness of a "material contamination," which denotes that, because matter becomes inseparable from meaning, each encounter is intrinsically ethical.

The various influences and points of reference of new materialism have created a powerful conceptual basis for thinking about bodies. This book is a continuation of new material thought and its struggle to find new material methodologies. The main questions of new

[58] Ibid., 48.

[59] Zylinska, *Minimal Ethics for the Anthropocene*, 21.

[60] Anneke M. Smelik and Nina Lykke (eds), *Bits of Life: Feminism at the Intersections of Media, Bioscience, and Technology* (Seattle, WA: University of Washington Press, 2008), xiv.

[61] See Stacy Alaimo and Susan J. Hekman, *Material Feminisms* (Bloomington, IN [etc.]: Indiana University Press, 2008); Iris van der Tuin, "'New Feminist Materialisms,'" *Women's Studies International Forum* 34, no. 4 (July 1, 2011): 271–77.

material thinking will be analysed here with regard to how to practice the material way of thinking within affect. The main entry point for this search is the tension between three unlikely friends that deal with contaminating matters: art, science and philosophy.

1.7 Bioart's Gift

Tension between art, science and philosophy was of particular interest to Deleuze and Guattari for whom all three constitute and define thought.[62] I employ here their understanding of the relationship between art, science and philosophy, which carries a particular tension: "the three thoughts intersect and intertwine but without synthesis or identification."[63] Each field is different and yet related to the other by challenges and hesitations. Nevertheless, for Deleuze and Guattari, it is the particular nature of art that produces affect. Art generates relations of contaminations, it produces those relations by initiating transformations and movements. Both Deleuze and Guattari see art as "a compound of perceptions and affects";[64] art preserves affects, but, they argue, "if art preserves it does not do so like industry, by adding a substance to make the thing last."[65] Preservation does not fix things or capture them in their instability. On the contrary, art preserves that which cannot be captured, i.e. what belongs to a moment, but not to identities and particular bodies. What art preserves, according to Deleuze and Guattari, are affects and percepts, where affects are understood not as feelings but transformations of feeling, and percepts not as perceptions but transformations of ways of seeing. I argue, therefore, that the practice of art has already established a particular way of thinking with affect, which conditions how to practice and produce transformations, modulations of bodies. Thus, by studying the particular methods of art's preservation of affect we can come closer to understanding the vast implications of affect.

Following Gilles Deleuze, I argue that art not only works according to affect, i.e. according to the relational and transformative way of being of bodies, but it produces new affects, new relations of contaminations. Nevertheless, in this book, I have deliberately selected bioart case studies which undertake the problems and implications of bodily manipulations in practice. It is important to note that Deleuze never wrote on bioart or art that uses living organisms as its medium, although artists' use of plants and animals in their practice – and not only as a point of reference – was already documented first in the 1930s and later in the 1970s.[66] Moreover, my study of the relation between art and living

[62] Gilles Deleuze, Félix Guattari, *What Is Philosophy?* (London [etc.]: Verso, 1994).

[63] Ibid., 198-99.

[64] Ibid., 164.

[65] Ibid., 163.

[66] For comprehensive historical and contemporary documentation and analysis of art's relation with science and living matters see Reichle, *Art in the Age of Technoscience*; George Gessert, *Green Light: Toward an Art of Evolution*, 1st edition (Cambridge, MA: The MIT Press, 2010).

bodies with regard to affect cannot be based on Deleuze's writings on affect in art due to his focus on the specificity of the medium: in cinema, for example, it was about the change of habits of perception of time and space;[67] in literature, affect regarded the transformation of a sign;[68] in painting – transformation of line and colour;[69] in music – transformation of refrain.[70] However, Deleuze's way of writing about affect in relation to a particular medium already hints at how to think about affect within contemporary art practices. For Deleuze, affect within art is about the transformation of a particular medium. When art employs living bodies in its practice, the generated affects are related to the transformation of life and the body itself.

Although the issue of bodily manipulation and speculation about what might be possible within natural science has already been reverberating in art since the beginning of the last century, within, for instance, Dada and Futurism,[71] I would argue that the imagination and approach of today's art with respect to bodily modulations and contaminations gains a new importance. These practices not only work with living bodies, and speculate on the scientific tools and practices that change those bodies, but they also create rituals of their transformations. As the *Contaminant E* of Chapple's performance has already shown, these rituals are not aimed at a unified image of the body, or a unified concept and truth about the body. Rather, they seem to create spaces where, as Mitchell noted, transformations can occur, where the affects of bodies can be generated and prolonged.[72] This practice of transformation in bioart directly touches the relations and contaminations of bodies. Also known as transgenic art or wet art, I argue that it is about the transformation of what we understand by life and living bodies – that bioart becomes conditioning contamination.

Bioart engages with biotechnological tools and employs living materials such as cells, tissue, bacteria or DNA as its expressive medium.[73] By definition, then, bioart marks a break with clear-cut boundaries. By working "on the level of an actual intervention into living systems,"[74] bioart not only blurs fixed distinctions between artistic and biological media, as well as between what can be defined as living and artificial, as human and non-human body, it also makes visible the lack of boundary between the two. If art, as Deleuze and Guattari write, is to preserve uncontained affects, and if science, as they argue, is to contain

[67] Gilles Deleuze, *Cinema I: The Movement-Image*, 1st edition (Minneapolis, MN: University of Minnesota Press, 1986); Gilles Deleuze, *Cinema II: The Time-Image*, 1st edition (Minneapolis, MN: University of Minnesota Press, 1989).

[68] Gilles Deleuze, *Proust and Signs* (London: Continuum, 2008).

[69] Gilles Deleuze, *Francis Bacon: The Logic of Sensation* (Minneapolis, MN: University of Minnesota Press, 2005).

[70] Gilles Deleuze, Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. by Brian Massumi (London: Continuum, 2004), 329-41.

[71] Reichle, *Art in the Age of Technoscience*, 1.

[72] Mitchell, *Bioart and the Vitality of Media*, 77.

[73] See Jens Hauser, "Bio Art – Taxonomy of an Etymological Monster," *Hybrid. Living in Paradox, Ars Electronica*, 2005, http://90.146.8.18/en/archives/festival_archive/festival_catalogs/festival_artikel.asp?iProjectID=13286, accessed 4 September 2013.

[74] Monika Bakke, "Zoe-philic Desires: Wet Media Art and Beyond," *Parallax* 14/3 (2008), 21

and provide references and actualizations of affect in the state of things,[75] then bioart forces art and science into a curious relationship of affect with its implications. If bioart preserves living bodies, then it also regards the preservation of movements as the implications of body manipulations for the way we act.[76] In this sense, the most interesting question when encountering the phenomenon of bioart is not about its character, i.e. whether it is art or simply bad science, and how it should be treated; rather, it is what does bioart actually do when dealing with living matter?[77] That is, how does bioart work with contaminations of affect – how does it practice bodies within affect?

Bioartists consistently appear to begin with the Spinozian question of what the body can do? Adopting this speculative approach, rather than constructing a reflective image of the status quo, creates new realities in which the problems and implications of particular body manipulations acquire a material dimension. By experimenting with contaminations between bodies, bioartists work with questions such as: how can we know what the body is when the material reconfigurations change? How does our practice transform our presuppositions and knowledge? How is the new possible and how should we act when confronted with the new?

Importantly, the notion of the *new* within bioart is not treated as opposite to old or as an improved version of that which is considered to be old – such a definition would demand thinking according to categories, and a comparison and linear understanding of time and space. As Rick Dolphijn and Iris van der Tuin argue, when talking about new materialism, "new" is rather focused on the multiple relations that are at work; thus, *new* refers to now, i.e. to "this very moment,"[78] which we can also call affect. The *new* in a new material approach, as Dolphijn and Van der Tuin stipulate, indicates the continuous rewriting of the now.[79] Hence, I argue that being within affect as exercised in bioart is not a fixed and given state. As previously mentioned, the challenge arises because the relations of affect are risky; we are in doubt within affect, that is, we simply do not know what the bodies can do and how transformation and contamination will change bodies until we encounter them. Being and thinking within affect demands the continuous rewriting of the meaning and implications of the relations of transformation. Bioart's practice thus becomes one of many new stories of contaminating encounters.

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[75] Gilles Deleuze, Félix Guattari, *What Is Philosophy?*, 126.

[76] See an introduction to art and science collaboration in the context of bioart practice by Robert Zwijnenberg, "Preface. Art, the Life Science, and the Humanities: In Search of a Relationship," in Ingeborg *Reichle, Art in the Age of Technoscience*, xv-xxxii; also Zwijnenberg's article on urgency of art and science collaboration that bioartists reveal: "A Two headed Zebrafish," *Moebius Journal* 1/1 (12 December 2012), http://moebiusjournal.org/pubs/14, accessed 21 February 2014.

[77] See my article on the notion of the body's intensity in Deleuzian philosophy actualized in bioart, where I addressed this question: Agnieszka Anna Wołodźko, "Between Bio(s) and Art – Intensities of Matter in Bioart," in Ann-Cathrin Drews and Katharina D. Martin (eds), *Innen - Außen - Anders: Körper im Werk von Gilles Deleuze und Michel Foucault*, Edition Moderne Postmoderne (Publisher, Transcript Verlag, 2017), 221-236.

[78] Dolphijn and Van der Tuin, *New Materialism*, 94.

[79] Ibid., 116.

Moreover, reflection informs every stage of the manipulative and creative process of bioart. Indeed, "doing is thinking" equates here to and is virtually inseparable from "thinking is doing". An excellent bioart formation that experiments with biotechnological body manipulations within art is the artist-run research laboratory, the *Tissue Culture and Art Project* (*TC&A*), created by Oron Catts and Ionat Zurr.[80] In response to the lack of discursive platforms addressing the issues and dilemmas of biotechnological realities, Catts' and Zurr's work expresses the need to redefine what life and the living body is when life has itself become a commodity. The problematization of bioartists' ironic and challenging attitude towards tissue culture and living matter manipulation is demonstrated in works such as: *The Semi-Living Worry Dolls* (2000) [Figure 4a, b], the first tissue engineered sculptures to be presented alive in a gallery context; *Pig Wings* (2000-01) [Figure 5a, b], an installation featuring living pig tissue taken from bone marrow stem cells and used to grow three different types of wings; *Semi-Living Steak: Disembodied Cuisine* (2003) [Figure 6a, b], a work in which a meat steak is grown from a frog's skeletal muscle, without necessitating the killing of the animal donor; and finally, *Victimless Leather* (2004-08) [Figure 7a, b], which involves the growing of living tissue into a leather-like coat-shaped form.[81]

In this book, the selected narrations of contaminants share the above-mentioned TC&A's struggle to rethink the roles and implications of biotechnological practices. Bioart's practice and its contaminants, which begin and disrupt each chapter of this book, ask how can we practice those biotechnological bodies in their relationality, which biotechnology itself seems to fail to sustain. The work of bioartists reveals a speculatively pragmatic question about how to transform bodies in a way that does not result in the immediate universalization and destruction of bodies? The discussion of contaminants in this book raises questions that emerge from a deeply affective understanding of how our bodies are and how they become; questions such as how to practice affect while producing affects.

In the following chapters, I will investigate bioart's distinct potential for the formation of relational and contaminating approaches that could be implemented in the study of affect. In this way, I am not interested in mapping any art theory, or in providing any comprehensive analysis of bioart as a form of art. Instead, my study regards bodies within affect; in other words, the conditions that allow bioart to produce and create spaces where affect can be generated and prolonged. Such an approach implies treating the bioart contaminants discussed in this book as documents and narratives of these practices.

[80] See the home page of the laboratory, which is part of the University of Western Australia, http://www.symbiotica.uwa.edu.au/, accessed 21 February 2014.

[81] For a more detailed analysis of the work with regard to a Deleuzian understanding of the body and materiality, see Wołodźko, "Between Bio(s) and Art."

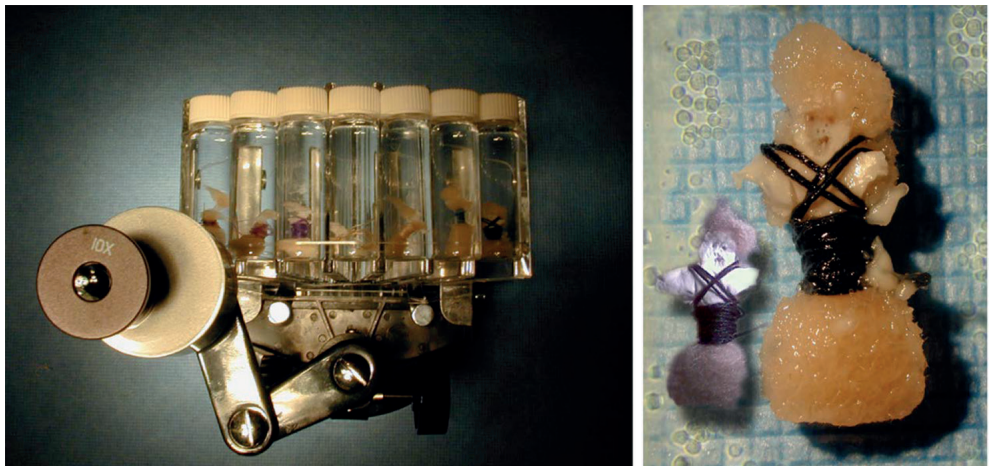

Figure 4 a, b. Tissue Culture and Art Project, *The Semi-Living Worry Dolls*, 2000, *http://lab.anhb.uwa.edu.au/tca/semi-living-worry-dolls/*, accessed 17 March 2017.

Figure 5 a, b. Tissue Culture and Art Project, *Pig Wings*, 2000-2001, *http://lab.anhb.uwa.edu.au/tca/pig-wings/*, accessed 17 March 2017.

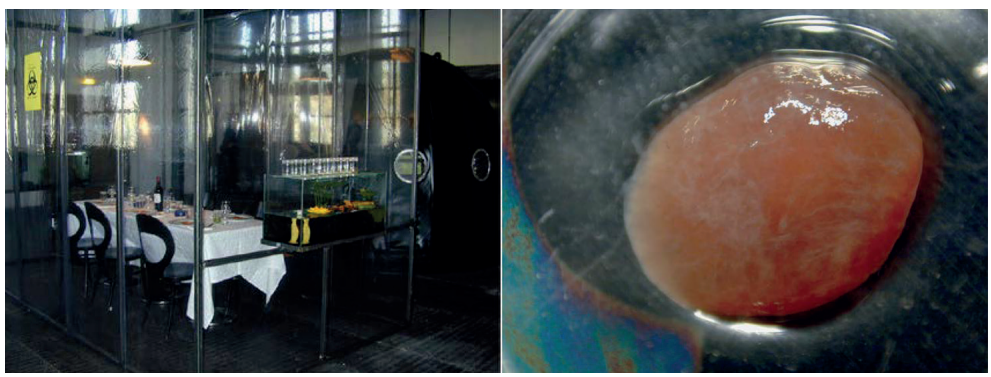

Figure 6 a, b. Tissue Culture and Art Project, *Semi-Living Steak* at *Disembodies Cuisine* exhibition, 2003, *http://lab.anhb.uwa.edu.au/tca/disembodied-cuisine/; http://lab.anhb.uwa.edu.au/tca/semi-living-steak/*, accessed 17 March 2017.

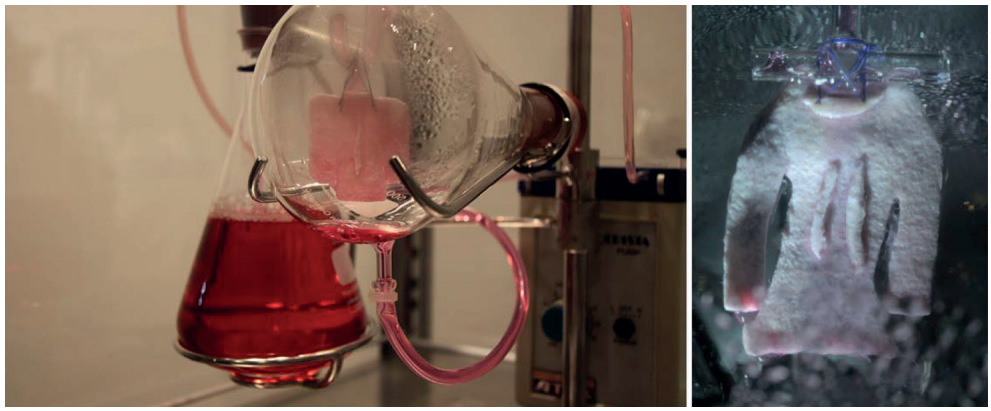

Figure 7 a, b. Tissue Culture and Art Project, *Victimless Leather*, 2004-2008, *http://lab.anhb.uwa.edu.au/tca/vl/*, accessed 17 March 2017.

Importantly, the understanding of bioart as documentation that emerges in this book, is far from an aspiration to bring the reader a detailed and full recollection of events or objects. As such, the notion of documentation would be intertwined with the problems of representing artworks that I want the reader to avoid. Rather, a processual and relational practice of bioart that is a result of working with living media forces the understanding of documentation as described by Groys, namely:

> art does not appear in object form – is not a product or result of a "creative" activity. Rather, the art is itself this activity, is the practice of art as such. Correspondingly, art documentation is neither the making present of a past art event nor the promise of a coming artwork, but rather is the only possible form of reference to an artistic activity that cannot be represented in any other way.[82]

The categories of representation make no sense within bioart due to the character of the living medium that it works with. While the biotechnological practices of manipulation of life and living bodies render any essentialist understanding of life, nature and the natural meaningless, the practice of bioart makes a double redefinition. What happens when you make artificially alive something that was neither artificial, nor living? For Groys, bioart's capacity to bring to life what has never been in the context of living bodies makes it intrinsically caught up within biopolitics.[83] I will argue, however, that bioart's transformative approach to living matter overcomes even the biopolitical struggle to categorize the natural

[82] Boris Groys, *Art Power* (Cambridge, MA: MIT Press, 2008), 54.

[83] "Art becomes a life form, whereas the artwork becomes non-art, a mere documentation of this life form. One could also say that art becomes biopolitical, because it begins to use artistic means to produce and document life as a pure activity. Indeed, art documentation as an art form could only develop under the conditions of today's biopolitical age, in which life itself has become the object of technical and artistic intervention"; "Art

and artificial. These transformative capacities seem to be one of the conditions of thinking with affect and, indeed, what it actually means to think with affect.

Moreover, I start from the presupposition of the epistemic notion of art, which allows me to take particular contaminants as being reliable and insightful practices of the generation of meaning regarding living matters today. Ultimately, this will lead my study of bodies within affect to the outline of art's epistemic character, which, in turn, provides an answer to the question: how should we act when we start to examine and take seriously the affective, contaminating nature of our bodies? By studying the processes of how bioart deals with these contaminations in this way, I will map the multiple matters of affect for thinking with affect.

1.8 Chapters

The main concern of this book is to study the conditions of how to think and practice bodies within affect. My research employs the notion of contamination as a way of studying and analysing relations of multiple trajectories between fields and perspectives in order to avoid linearity of the argument and method. Nevertheless, two entry points can be distinguished that shape the structure of this book: firstly, the study of bioart's practice of conditioning contaminations allows us to map ways of practicing bodies within affect. The second entry point is thought incarnation of that mapping within new material thought. For this reason, the subsequent chapters are constructed according to the aforementioned new material characteristics, namely:

- a need for a human and non-human egalitarian reciprocity (chapter 2);
- an openness to the non-linguistic forms of meaning generation (chapter 3);
- the notion of agency and subjectivity outside the human dominion (chapter 4);
- the responsibility resulting from a "material contamination" that shapes thought and practice (chapter 5).

Chapter 2, *Animal Relations*, includes a discussion of the notion of affect as human and non-human reciprocity. In particular, it examines how bioart's experimentations with human-non-human body relationality determines our understanding of what this relation is and what it does. As already argued, thinking in terms of relations of contamination of affect implies thinking with the new material focus on onto-epistemologies, where relations generate the possibility of creativity and novelty. In simpler terms, I will discuss how something like a new body can emerge within the multiple relations of transformations.

Chapter 2 tells the story of Marion Laval-Jeantet and Benoît Mangin, an artistic duo called *Art Orienté Objet* (AOO). They performed "Que le cheval vive en moi" ("May

documentation is thus the art of making living things out of artificial ones, a living activity out of technical practice: it is a bio-art that is simultaneously biopolitics." Ibid., 54, 57.

the Horse Live in Me" 2011) in which the artist injected horse's blood into her body. By analysing how they used an experiment as an event of multispecies relationality and contamination, we gain a more vivid understanding of the implications and conditions of relations within affect. This involves, first, rethinking what we should take as a relation within art's production and, second, how this reflects the notion of affect, in order to finally discuss: how affect may be seen as a relation that can generate bodies and what kind of bodies emerge as a result of this relation.

There are various traditions and strains of explaining what affect is and how it can be applied to contemporary thinking about living matters. However, the differences between these various implementations of affect are not without major consequences and significance for the actual validity of affect for a non-anthropocentric, situated and material understanding of bodies. Chapter 2 thus seeks to clarify the misuse and misreading of affect.

The implications of taking affect seriously, that is, of acknowledging and acting upon the relational nature of our bodies, force us to be open to the non-linguistic forms of meaning generation. In Chapter 3, *Tasting Meaning*, I therefore discuss the new material semiotics, where the significance of the a-signified in the encountered and experienced, but not yet named, is exercised in bioart's approach to living matter as food.

The notion of affect, as discussed in the Chapter 2, suggests that the material production and happening of what emerges is important for our encounters with bodies. It seems, however, that an understanding of how such material meaning is generated is only possible in the actual, bodily experience. Importantly, such writings about the experience that produces unique meanings does not imply that we must make choices about what to exclude, i.e. between what makes sense and what does not. There are multiple levels of meaningful living, which, when considered equally, pose radical changes for what we take as living bodies. By mapping what is happening within bodily relations, we can grasp how meanings become significant.

The encounters between bodies that are the focus of Chapter 3, as in the second chapter, concern multispecies bodies. I engage with human-food contamination, which includes not only animals, but also plants and chemicals. What happens in your mouth when you eat the smog of the city? The artistic research project *The Smog Tasting*, by The Center for Genomic Gastronomy (CGG), run by Zack Denfeld and Cathrine Kramer since 2010, investigates the biotechnologies and biodiversities of the human food system. It provides some answers, but mostly throws up unexpected problems. The understanding of the contaminations of affect necessarily shapes material semiotics, where meaning is entangled with matter.

Thinking about affect and with regard to affect thus changes not only what we understand by those bodies that emerge from within relations, but also what kinds of meanings are produced. In the face of biotechnological practices that render bodies literally, materially multiple, we urgently need to find corresponding material conceptualizations that, in turn, are able to sustain the practice of relational and materially significant bodies. We must be able to capture what it actually means to live, to practice affect in order to

then be able to transform those practices. In Chapter 4, *Living Within Multiplicity*, I ask what the implications of fostering bodies multiple and dynamic relationality are once the anthropocentric conceptualization of bodies' agencies and meanings change.

Rosi Braidotti argues that in order to think about the agency of bodies in an affective way, we must shift our focus from identities that are "egoindexed" into subjectivities that reflect the processual and relational character of bodies.[84] In other words, affect forces us to touch the non-human within the many layers of our all-too-human bodies. Braidotti conceptualizes this understanding of non-unified subjectivities, agencies, selves that are beyond the logic of fixed identities and yet materially important as nomadic. She writes:

> Being nomadic, homeless, an exile, a refugee, a Bosnian rape-in-war victim, an itinerant migrant, an illegal immigrant, is no metaphor. Having no passport or having too many of them is neither equivalent nor is it merely metaphorical [...] These are highly specific geo-political and historical locations – history tattooed on your body.[85]

I follow her understanding of non-unified, yet materially significant subjectivity by focusing on one of the implications of nomadic subjects within the bio(geo)political dimension of biotechnologically manipulated bodies that accumulates in the concept of multiplicity. Deleuze's writings on multiplicity and difference provide a sense of a conceptual path that we could take when grasping the phenomena of multispecies. Yet, even Deleuze could not predict the actual material implications that biotechnological findings have today on the dynamic and relational character of the body. In turn, science alone cannot grasp the conceptual novelty that its 'material' findings foster. In Chapter 4, I therefore confront the inevitably pragmatic question of how thinking about multibodies within affect demands dynamic practices and the politics of the multiple.

Encountering the *Contaminant* of the movie *Przekładaniec* (1968), directed by Andrzej Wajda, which is based on a script written by Stanisław Lem, I will introduce the possibility of thinking in terms of the multiple. I start from the standpoint that this barely known (also in Poland) science fiction movie – nota bene, the only movie made by Wajda in this genre – is a rhetorical move. Besides my personal desire to revitalize the marginalized speculative work of a director who is generally believed to only make movies about Polish history, I want to draw attention to the multiple narratives of the struggle of how to think multiplicity. Although this book is focused on bioart's practice with bodies within affect, bioart's speculative way of thinking can be found in the speculative methods of cinema and

[84] "Whereas identity is a bounded, ego-indexed habit of fixing and capitalizing on one's selfhood, subjectivity is a socially mediated process of relations and negotiations with multiple others and with multilayered social structures." Rosi Braidotti, *Nomadic Theory: The Portable Rosi Braidotti* (New York: Columbia University Press E-book, 2011), chapter: "Introduction".

[85] Rosi Braidotti, *Metamorphoses: Towards a Materialist Theory of Becoming*, 1st edition (Cambridge, UK/ Malden, MA: Polity, 2002), 3.

literature. Thus, when writing about multiplicity in this chapter, I use multiple speculative tools in order to map the struggles and ways of narrating the practice of the multiple. By disrupting the chapter with another *Contaminant*, in this case *Microbiome Security Agency* (2015) I further discuss how, today, facing the realities that Lem could only have imagined, we can create new stories that will shape new tools for practicing the multiple that affect engenders.

The concluding chapter, *Ethics of Contamination*, queries the consequences of thinking within affect for the way we can practice its relational and dynamic character within our multibodies. This question of consequences, which is inseparable from the drive to create and transform, is discussed along two distinct *Contaminants*. The line of flight that guides my thinking about how to practice bodies within affect, becomes here risky because it is contaminating, yet close because it is both urgent and important for our mutual multibodies.