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Квиринг долголетия: (не)стареющие животные и репро-гетеро-антивозрастное будущее

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Резюме:
В фокусе статьи находится анализ современных научных исследований долголетия как поиска «ключа» к продлению человеческой жизни в природе. Она поднимает вопрос о том, как материальные тела (не) стареющих животных и их образы в популярной культуре используются для формирования представления о будущем человечества, которое «победит» старение. В статье анализируется дискурс о научных исследованиях долголетия как одного из примеров отношений между человеком и животными, в которых пересекаются дискриминация по возрасту, виду и сексуальности. В центре анализа — два случая такого использования животных в исследованиях и дискуссиях о долголетии: это лобстер, для которого характерно «пренебрежимое старение», и генетически модифицированная мышь. Концептуальная модель исследования основана на работах, выполненных в парадигме критической геронтологии и квир-экологии, и теоретических дискуссиях о гетеронормативной темпоральности, хрононормативности, и репродуктивном футуризме. Ключевые работы авторов этих направлений помогают критически осмыслить нормативное представление о жизненном цикле, которое поддерживается современными футуристическими репрезентациями долголетия в будущем. В заключение предлагается открыть обсуждение способов экспериментального мышления *вместе* с нечеловеческими организмами, которые могли бы привести к более инклюзивному представлению о старении в будущем, бросающим вызов эйджизму, антропоцентризму и (гетеро)нормативности.

Ключевые слова: квир-экология, квир-теория, долголетие, гетеронормативная темпоральность, эйджизм, антропоцентризм

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Queering Longevity: (Non)ageing Nonhumans and the Repro-hetero-youthful Future

Abstract:
This paper focuses on the analysis of contemporary longevity research as a quest for "the key" to the extension of the human lifespan in nature. It questions the ways in which the cultural images and the material bodies of the (non)ageing animals have so far been used to shape the imaginary future of a humankind that has "defeated" ageing. Two cases of such a treatment are examined: the negligibly senescent lobster, and the genetically altered mouse. This paper seeks to engage critical gerontology and queer ecological thinking in order to analyze the discourse on longevity research as a site of human-nonhuman entanglement in which heterosexism, ageism, and speciesism intersect. The theoretical discussions of heteronormative temporality, chrononormativity, and reproductive futurism further inform the critical understanding of the normative representation of the life course supported through the current futurist imagining of longevity. In conclusion, the article calls for a discussion of the ways in which the experimental thinking *with* the nonhuman creatures could encourage a more inclusive understanding of ageing in a future which challenges ageism, anthropocentrism, and (hetero)normativity.

Keywords: queer ecology, queer theory, longevity, heteronormative temporality, ageism, anthropocentrism

1. Introduction

While some animals threaten human lives, others are saving it by providing not only food, shelter, and company, but also a hope for better future. Negligible senescence of certain animals, as the form of ageing that lacks the display of deterioration of the body, increase in age-related mortality, or decrease in bodily functions including reproductivity, has been considered extremely inspiring for biological research and experimenting on the human life extension. Moreover, due to the difficulties of experimentation on the actual human beings, the search of tools for regulation of the human ageing has to rely entirely on the transgenic experiments on other creatures [Hayflick 2000]. Crustaceans, mice and rats, primates, fish, dogs, whales, cats, birds, and other species has become the "animal models" used for the purpose of studying

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ageing as a biological process which could potentially be slowed down or eliminated [Mitchell et al. 2015].

The anti-ageing research based on the experiments on the so-called "longevity mutants" has been extensively discussed by biogerontologists and bioethicists, being criticized for its invalid results and ambiguous ethical ground [Ferrari 2015, Holliday and Rattan 2010, Chan 2009]. However, in this article I am not trying to make an argument against the unethicality of the technoscientific research on animals for the purpose of human enhancement [1]. Rather, I aim to engage with queer ecological thinking for navigating between the political implications of this discourse. I suggest that we can see this discourse as a material-discursive entanglement between humans and nonhumans which is imbued with multiple meanings that affect the process of intra-action in which the imaginary of future is being co-constituted [Barad 2003]. I argue that the hope for an extended human longevity advertised in mainstream discourse is grounded in heteronormative, ageist, and anthropocentric understanding of temporality, connected to the broader structure of oppression. The question of longevity is just one of its many grounds in which the speciesism, heterosexism, and ageism intersect.

To support this argument, in the first section of this paper I produce a mapping of the nonhuman creatures whose cultural images and the material bodies have become central to the future-oriented discussions of human life expectancy. To understand the political implications of this maintained promise of human enhancement, the paper adopts the analytical approach theoretically grounded in a queer ecological approach connected with critical gerontology. The last section focuses on the critique of the normative lifespan logic that lies behind this imaginary of longer human futures. It draws on the diligent work of queer theoretical scholars which deal with normative temporalities and reproductive futurism [Freeman 2010, Halberstam 2005, Edelman 2004]. In the final part, I elaborate on the queer potential in the experimental thinking *with* the (non)ageing creatures rather than experimenting *on* them. Through this we could disrupt the normative futuristic imaginary of human enhancement, extending this vision until it includes the diverse and more-than-human modes of being [see Sandberg and Marshall 2017].

2. "Animal models" in search for human longevity in science and culture

Longevity is a prominent topic that has inspired multiple discussions and practices built on hope that one day the humankind will postpone the deterioration of body and mind, age-related illnesses, and even the death itself. As a form of human enhancement, the longevity became an industry thriving on its own promise. It is centralized in some coun-

tries' social welfare agenda, and even marketized as a lifestyle that can be achieved through a special training in a luxurious hotel on the Mediterranean coast [Longevity Academy 2019]. But most importantly for our focus, it attracts large flows of capital to the biomedical research [Lorenzetti 2016].

Due to this excitement around the possibility to live and thrive forever, some animals, or rather their figurative representation, gained a very important status in Western cultures. For instance, if we look up the lobster online, alongside the recipes we will find the multiple mainstream and pop-scientific articles arguing that the lobsters *"hold the key to eternal life"* [Derbyshire 2013; Krulwich 2007]. Their biological quality becomes central for the cultural references as something that gives the humankind a dream: one day, we will become immortal, just like the lobster. By questioning if one would "be so willing to chow down on these crustaceans if you knew that they might one day allow humans to live forever", media reveals the logic behind such upgrade of the lobsters' symbolic "status": from that of "food" to the golden ticket to a brighter future [Phillips 2014]. Either way, the value of the nonhuman subject depends on its potential of being useful for the humankind. The last quote implies some kind of elevation that is being attached to the idea of enhancement: the figure of the animal becomes imbued with a dignified "moral obligation" rather than simply a fulfilling of the human's basic needs.

If we keep following the figure of the lobster, we must discuss its another most prominent appearance in popular culture. The absurdist dystopian film "The Lobster" [directed by Yorgos Lanthimos, 2015] has been recognized for its queer-esque agenda due to its compelling critique of contemporary idealization of the bourgeois hetero/homonormative coupledom [Boucher 2016; Cooper 2016]. In the plot, the human characters are coerced in finding a romantic partner in 45 days after a break-up. If they fail to do so, they shall be transformed into an animal of their choice, which, within that universe, is considered a "second chance to find a companion" [Lanthimos and Filippou 2013: 12]. The main character, David, chooses to become a lobster, because it "lives to be over 100 years old, has blue blood just like an aristocrat and stays fertile all its life" [Ibid.]. Sarah Cooper, a film studies scholar, stresses the anthropomorphizing aspect of the human-nonhuman relationship in "The Lobster", as the humans read the animals' mating habits through a *humane* desire of finding their "other half" which is presumed to be universal [Cooper 2016: 169]. She argues that the system that controls the transition process represses the liberating potential of such interspecies transformation [168]. Another implied reason might be that of the trope that imagines lobsters as monogamous creatures "mating for life" which has been contested by marine zoologists [Altman 2017].

I employ this example because it illustrates the oppressive logic of speciesism that persists in discussions of nonhuman longevity. The figure of the lobster in the film further reinforces this unequal connection through the longevity and reproductive potential of the actual animal. Indeed, as the biological research has shown, the lobster *Homarus americanus* continues growing throughout its life, and yet its body shows little evidence of ageing, by the virtue of an extremely high telomerase activity in their DNA, lobster's cells are constantly renewed [Klapper et al. 1998]. David's reasoning behind his choice of the lobster by such features as immortality and fertility extends his humane past into the nonhuman future by implying that they are something which will remain crucial for him in his after-human life.

However, I should emphasize, the ability to renovate one's deteriorating body does not simply imply a *longer* life. First and foremost, negligible senescence is a promise of living longer without diseases and visible changes in the outward appearance indicating one's age. The seeming youthfulness and timelessness are the two key categories in anti-ageing marketing campaigns promoting a "postmodern life course" as an achievable way of living a "youthful" life in the older age through the consumption of certain goods [Katz 2001: 29]. Another category overpowering the current discussions of ageing is the alarmist perspective on global ageing combined with high rates of age-related diseases which supposedly will lead to the rapid increasing of the healthcare and social welfare costs [see Mitchell et al. 2015: 284]. This sociopolitical context produces the demand to boost the search for a technoscientific solution for the "ageing problem", be that in a form a pharmaceutical drug or an alteration of genome. For the analysis of this context, I would like to outline the second figure whose materiality has been produced by, and is crucial for understanding of, this technovisionary perspective on longevity research. It is the "Methuselah mouse", one of the world's' most famous "longevity mutants".

In 2003, Aubrey de Grey, a biomedical gerontologist, and David Gobel, a philanthropist, founded the Methuselah Mouse Prize to stimulate scientific research on longevity and attract public attention to the anti-ageing inquiry. The foundation has offered two awards. First of them, The Postponement Prize, has been set for exceeding the record of creating the longest living mouse *Mus musculus* used in the laboratory trials. Later, this competition has been complemented with the The Reversal Prize that encourages interventions for the rejuvenation of an adult specimen. It has been argued on the website that *"the most important end goal is to promote the development of interventions to restore youthful physiology, not merely to extend life"* [MPrize Website, sited in Love 2007]. In 2012-2015, the same foundation sponsored the research of another nonhuman-driven longevity study: the genome of the bowhead whale,

Balaena mysticetus, which is considered to be one of the longest-living mammals [Keane et al. 2015].

The embodied evidence of the multiple creatures exploited for the longevity research demonstrates that the nonhuman does not simply become a discursive symbol of the hope for a "better" human future. Their bodies, going through genetic transformations, caloric restriction, tissue and organ transplantation, and clinical trials, materially contribute in this formation of this technovisionary humankind futurity. To understand what is exactly considered a "better" life in this case, we should "go back" into the cultural domain, and follow the logic of the futurist framing of longevity research for the general public as an important and well-timed form of human enhancement, and analyse how the nonhuman animals have been employed in it. One of such examples is how the transgenic mouse appears in a national bestseller on later life and futurity, "Ending Aging" [de Grey and Rae 2007]:

> "Make no mistake: Once the War on Aging begins, it must end in victory, and the future of indefinite health will be ours. But whether that process begins in time to save our parents, or only ourselves, or only our children, or even their children depends entirely on when the first bomb of that war—the achievement of robust mouse rejuvenation (RMR)—is finally dropped." [335]

I provide this quote because its military rhetoric draws an obvious connection between the process of ageing as the nation's enemy, and the role of the "longevity mutant" mouse employed in this scientific research. The nation's safety is "secured" with the help of the animal that, nevertheless, becomes nothing more than a sheath hiding the real "weapon": the rejuvenation mechanism. Another world-famous futurologist and physicist Michio Kaku [2018] takes this militaristic agenda beyond our planet it his discussion of technoscientific advances, including those developed through the research on animals, suggested for "coloniz[ing] the galaxy" [188].

This trope results not only in this instrumentalization of the material body of the mouse to the future-oriented dream of eternity: it also contributes to the negative image of ageing as one of our greatest enemies that has to be eliminated. In light of potentiality to alter the lifespan of a mouse, old age — both human and nonhuman — becomes a "technical failure" of the scientific control over the "natural" biological process [Vincent 2006: 691-2, 694]. However, failure, as we know from queer theorists, retains a subversive potential "as a way of refusing to acquiesce to dominant logics of power and discipline and as a form of critique" [Halberstam 2011: 88]. This complicated entanglement between nature and culture; humans and material-semiotic animals such as the lobster and

the mouse; the "immortal" future and the "queerness" of ageing will be disclosed in the following part.

3. Queer ageing nature

Catriona Mortimer-Sandilands and Bruce Erikson describe queer ecology as a line of thought in environmental humanities which deals with the intersectional "ongoing relationship between sex and nature that exists institutionally, discursively, scientifically, spatially, politically, poetically, and ethically" [Mortimer-Sandilands and Erikson 2010: 5]. First of all, sensibility towards this perspective implies a critical consideration of what is presented as "nature" and "(un)natural" regarding the human and nonhuman sexuality, and the message to the general public that it conveys, with a particular attention towards the heterosexist logic at work in its argumentation [Mortimer-Sandilands 2005: 7-8]. The limiting character of the imaginary constructed around the exuberant sexual diversity of the human and nonhuman animals has been extensively criticized for its normativity which results in our restricted understanding of queerness [Alaimo 2016; Halberstam 2008; Hird 2004]. In the context of discussions of Anthropocene as the era that has led to extinction of multiple species, queer theory can be employed as a way of reconfigurative thinking about intimacy, reproduction, and kinship in the context of nonnormative nonhuman lives such as of pathogenic yeast *Candida albicans* [Bates 2019]. Neel Ahuja even suggests that "queer theory has always been a theory of extinctions" because it has been arguing against the logic of compulsory reproduction, cementing the connection between the "queer" and "ecological" [Ahuja 2015: 365-6, 373].

However, as Alaimo warns us, we must see nonhumans "not as genetically driven machines but as creatures embedded within and creating other "worlds" or naturecultures" [Alaimo 2016: 55-6]. She describes the exuberance of animal pleasures that is neither genetically ("biologically") driven, nor a culturally manipulated tool [64]. Being dynamic, abundant, and performative, it exceeds the frames of gender, sexuality, and "other fundamental categories" — even those proposed by queer theory and feminist thought [59, 65]. On the basis of this account of the animalistic natureculture developed by this "queer-green" approach, the figure of the lobster in the context of longevity can be contested in several ways.

First of all, it challenges the cultural construction of the lobster's preferred way of living and mating as one which is supposed to imitate an ideal of coupledom that confirms that this order is the Nature's intend, the natural way of life. The structure of this imitation, and its implication, is, in itself, of a performative character, as it is a cultural im-

age of a human which imitates the seemingly natural way of life of an animal which, again, is constructed in culture. Second, the "material", "genetic" mating behaviour of lobsters also cannot be seen as static and ahistorical. For instance, it is suggested that the practices of fisheries that targets the large lobsters has been affecting the behaviour of the female lobsters, thus changing the seemingly unchangeable process of sexual selection. This example can be read as confirming Alaimo's point on the "genetic" being "inextricably interwoven with organism and environment" [59].

Another point of the queer ecological critique is related to what Timothy Morton has named the "environmental humiliation": the decentralization of the human's position in the environment that for a long time has been considered superior to the rest of nature [Morton 2010: 278]. The implications of queer theory challenge the strict binary distinction between the human and the nonhuman by questioning the standpoint from which such boundary is painted [Ibid.: 277]. Such thinking further unsettles the anthropocentrism behind the decisions made from this viewpoint, for they are based on the belief in human exceptionalism which justifies the human's "ostensibly privileged place set apart from all other beings" [Morton 2016: 24]. If we look back at the fate of the transgenic mouse and its discussions in the transhumanist literature on longevity, then we can easily reveal such exceptionalism. Indeed, it might seem unthinkable to even imagine that an "animal model" which is caught, bred, experimented on, and dissected for the purpose of human enhancement can share a place with its creator. In the same way, in this context the technically constructed longevity is seen as a human right, currently living and those who will *potentially* be living in future, and not a right of other species [Kennedy 2009: 24, 28]. Therefore, the "Methuselah" mouse does not endure experimentation for its own good, because the results will belong to the human as the higher species.

However, we still have to answer the question: what ageism has got to do with it?

It has been noted that the perceptions of the old age common to Western society are not completely dissimilar to the ones connected in the popular discourse to the modes of being that are considered queer. For instance, when arguing for the usefulness of queer theory to ageing studies in her pioneering work, Linn Sandberg suggests "thinking of old age as abject and imbued with negativity, and thus open to subversion and change" [Sandberg 2008, 118]. Disease, death, and decay, associated with the cultural perception of late life reduced to the "dysfunctional" bodily matters, connects it with shame, disgust, and embarrassment [Sandberg 2008: 126-7]. As Cynthia Port critically reflects, the normative culture links ageing with the suppressed and feared "knowledge of eventual bodily failure and mortality" [Port 2012: 3]. Therefore, ageing

itself, with some limitations, can be considered as a category sharing some features with "queer" [119]. Even more so when it refuses to support the normative ideal of what the old age should look like, or should aspire to be, or becomes a living and breathing representation of "failed future" [Sanberg, Marshall 2017: 7]. The queer failure of the "unappealing", "repugnant" old age embodied in the form of transgenic mice and the negligibly senescent lobster, and the success of the achievements of youthfulness implied in the longevity awards, together build a hope of futuristic imaginary that contains its own defeat used for the maintaining of this distinction.

This entangled connection demonstrates how the lives of the "queerly" ageing animals, just like the lives of "queer" penguins in *The March of the Penguins* documentary [Halberstam 2008], are involved in the presentation of the prepared narration on the superiority of youth in contrast with the deteriorated, ill, abject state of being in later life. In the next part, I will further delve into the concept of queer temporality as a way of subversive thinking that might disrupt this thinking, and suggest an alternative to the technovisionary perspective on later life and old age. They indicate the directions in which considering more-than-human ageing through the queer lens could, instead, illuminate the political potential of the transhumanist discussion to build a more diverse and inclusive perception of the human and nonhuman life course.

4. Queer-green lifespan and technoscientific normativity

The queer theorists have repeatedly contested the hegemonic vision of the heteronormative temporal mode of existence which has been presented as the "natural" order. This line of thought illuminates the connection between the normative understanding of sexuality and temporality of a human and nonhuman life course. In this section, I will try to demonstrate how the technovisionary futurism of the longevity research corresponds with this critique.

Halberstam delineates the way in which the common Western understanding of the "normal" human life is connected with the image of longevity as "the most desirable future", and reinforced through the "middle-class" logic of reproduction, child rearing, intergenerational inheritance, and the insurance of the nation's stable future [Halberstam 2005: 4]. This argumentation that draws attention to the entangled relationship between the concepts of future, reproduction, nation, and longevity, can be further supported by Lee Edelman's analysis of the politics behind "the figure of the Child" [Edelman 2004]. His work denounces the construction of reproductivity as an integral element for guaranteeing the heteronormative futurity for deeming those who do not contribute

to that futurity to be seen as abject, dangerous for the general public, and disruptive of the social order [Edelman 2004: 3].

This queer theoretical argument reveals the logic behind the search for a longer, or immortal, youthful living which explains the framing of the longevity research as a "human right", and a moral obligation for the future generations [Kennedy 2009: 24]. I argue that it is particularly important to consider this discussion of virtuousness ascribed to the desire to live long — for, with, and within — your children and your nation. The status of this research is even further elevated when it is presented as a fight with ageing (imbued with negativity) in the name of our descendants, as it is a moral necessity to "protect" this project of the nation's future. Those who seem reluctant to the desire to live long, and endanger "stable" reproductive future, are pathologized, which is one of the main concerns of critical gerontologists in their discussion of anti-ageing campaigns [Katz 2001]. Such behavior might be considered "unnatural", dangerous and irrational, even if it can build a different and more imaginative kind of futurity, collectivity, inheritance, reproduction, and kinship [2]. For instance, some "alternative" life trajectories, such as those of ageing with dementia, also fall victim to that trope, as they might disturb the linear and stable flow of the hetero-reproductive generativity which lies at the core of this "happy" heteronormative future [Sandberg and Marshall 2017: 5]. Considering this queer theoretical perspective, we can imagine how those ways of living, ageing, and dying which exist outside of the normative logic can disrupt and tease out the gaps in the futurist imaginary of longevity, without falling into the same pit of ageism and ableism.

This queer theoretical argument reveals the logic behind the search for a longer, or immortal, youthful living which explains the framing of the longevity research as a "human right", and a moral obligation for the future generations [Kennedy 2009: 24]. I argue that it is particularly important to consider this discussion of virtuousness ascribed to the desire to live long — for, with, and within — your children and your nation. The status of this research is even further elevated when it is presented as a fight with ageing (imbued with negativity) in the name of our descendants, as it is a moral necessity to "protect" this project of the nation's future. Those who seem reluctant to the desire to live long, and endanger "stable" reproductive future, are pathologized, which is one of the main concerns of critical gerontologists in their discussion of anti-ageing campaigns [Katz 2001]. Such behavior might be considered "unnatural", dangerous and irrational, although it might build a different kind of futurity, collectivity, inheritance, reproduction, and kinship [2]. Life with dementia also falls victim to that trope, as it poses a threat to the linear flow of generativity of the "heterohappy ageing futures": the loss of memory disturbs the normative understanding of the old age

as the "time of inheritance" of the familial stories and moral standards [Sandberg and Marshall 2017: 5]. In line of this thought, the queer temporality is something that exists outside, and has potential to disrupt and tease out the gaps in this futurist imaginary, without falling into the same pit of ageism and ableism.

Elisabeth Freeman introduces the concept of *chrononormativity* as a technique of power structures that employs the management of the time for organizing "individual human bodies toward maximum productivity", pointing out that this artificial technique dresses our understanding of such life scheduling as something "ordinary", "normal", and "natural" [Freeman 2010: 3]. Carla Freccero questions the reasoning behind the production of the "normalcy" of the homogeneous linear human time by suggesting that the fault might be in the biological inevitability of the life course as we know it: "...we seem to go from "prematuration" to maturation to aging and decay; concepts like growing, then growing up, then aging, getting old, and dying sketch a predictable, inevitable, irrevocable timeline" [Dinshaw et al. 2007: 193]. If this is the case, would not the anti-ageing imaginary disrupt the idea of the "naturalness" of the life course? If the inevitability of the lifespan and the life course restricts for our vision of temporality, then the outburst of longevity mutant research, or the example of negligibly senescent animals, should have opened the vision and yet somehow it only sediments the values attached to the various stages of life. It still seems to be built onto the same logic, simply extending the "natural" stages of life and marginalising the "last" stage before dying — as if it has not been marginalised enough.

I suggest that this futurist imaginary of the normative life course can be challenged in a way which stems exactly from these embodied, material agencies that elude the perception of "naturalness" of the cycle of life (birth, maturation, reproduction, and death) as monolithic, stable, and universal [Alaimo 2016: 59]. The lives of nonhumans show such great diversity that it proposes to leave more space for thinking about the possibilities for such dissent from the normative time-framing. For instance, a sexually mature jellyfish *Turritopsis nutricula* reproduces through its polyps. It is also able to reverse its metamorphosed body back to its juvenile stage, becoming almost "immortal" due to its rather unlimited ability of repeating this act [Petralia et al. 2014: 9]. Other organisms such as *hydra* can rejuvenate so well that dissociation of its one piece can form a new body [6]. *Protozoa* reproduce through cloning; their clones are, in their turn, believed to be "immortal", as they do not experience senescence for many years [5]. If we are taking plants into our account, the diversity of senescence trajectories becomes even greater: there are species such as the bristlecone pine *(Pinus longaeva)* which is considered to be one of the oldest known living organisms [Flatt, Par-

tridge 2018: 6; Watson, Riha 2011: 130]. However, these trajectories of ageing such as of the reef corals, can also be affected by the changing environment [Bythell et al. 2018: 1198]. This leads to thinking that the ways of senescence should be seen as a part embedded in naturecultures, rather than as a process that is simply biologically driven [Alaimo 2016: 64]. And we certainly see that embeddedness of the ageing in the materiality of the transgenic mice, or the negligibly senescent creatures such as the lobster and the bowhead whale, whose lifespan, life course, and being has been altered — physically or semiotically — under the rule of the imaginary of technovisionary future.

If we consider "queer" to be the category that extends the disruptiveness of nonnormative sexualities to the other aspects of life, including the temporality of the life course, then the nonhumans can be considered ageing "queerly". As Elisabeth Freeman argues, queer temporalities "points of resistance to this temporal order that, in turn, propose other possibilities for living in relation to indeterminately past, present, and future others: that is, of living historically" [Freeman 2012: xxii]. The bodies of nonhumans (animals, bacteria, plants) do not exist to speak of the promise of a longer and youthful life without diseases. Rather, they are the points of resistance, the embodied manifestations of how the life takes an exuberant diversity of forms that are not supported by the heterosexist normativity: they are untied to reproduction, rejuvenating and maturing. The biological exuberance of the lifespan thus cannot be reduced to the narrative of familial/national relationships built on the ideal of reproductive futurism. The irregular chaotic nonhuman lifespan contributes to the understanding of life as irregular and chaotic movement back and forth between the nonlinear stages vaguely and not necessarily connected with the stages of sexual maturity, sexes of the species (including human), their sizes, health state and bodies. This shows that the diversity of the "queer" nonhuman life courses could be considered as a feature that should be brought into scientific and media discussions on future-making biotechnological advances coming from a less human-centred, exceptionalist thinking.

Conclusion

The material and discursive treatment of the "animal models" such as the lobster and *Mus musculus*, demonstrates how the capacity that is inherent to a nonhuman animal can become an evidential factoid for the humankind bravado in the scientific search for possibilities to stay "younger" for a longer period of time. An inspiration that maintains the long harbored hope for humankind's eternity and superiority achieved through human enhancement, and the objects for experimentation sup-

porting an enormous industry of longevity research, the nonhuman is embedded in this entangled relationship that perceives ageing as damaging illness that should be erased from Earth. And yet, they persist in their abundant senescence diversity, and manifesting their material agency in naturecultures.

The anti-ageing futurist aspiration for longer life and younger futurity envisions the human as the conqueror of the Nature who defies old age as a "technical failure", a result of a damaging illness that should be erased from Earth. The Nature is also deemed "conquered" in the laboratory where the nonhuman creatures become incorporated into the research leading to future colonization of even more creatures. The cultural references to the negligibly senescent animals also fail to derive inspiration from the exuberant diversity of forms of life and think *with* other species rather than *about* them, cementing the (hetero)normative ideas of temporality and life course. For now, it seems unlikely that the biological data on the existence of the "queerly" ageing animals alone is enough to contest and disrupt the current popular scientific discourse which endorses human exceptionalism and deems other nonhuman lives to be utilized for our purposes. However, the "queer" modes of nonhuman being leave the door open for considerations of a multi-species future inspired by the shifting boundaries between human and nonhuman living and dying.

Notes

1. While I do not focus on the ethical issues of this topic, I find the notion of "technovisionary paternalism" particularly helpful for understanding longevity research as a project of colonization of nature rather than an apolitical form of human enhancement [Ferrari 2015: 20].
2. See the discussion of viral consanguinity in the bareback community by Tim Dean [Dean 2008], and Dustin Goltz's interpretation of the "It Gets Better" campaign in which generativity takes a non-heteronormative form of passing experience and knowledge to younger generations [Goltz 2013].

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