"Know Thyself": Self-Surveillance and Securing the Self in an Age of Digital Biocapitalism

> Es gibt kein richtiges Leben im falschen.
> *Theodor W. Adorno*

The philosophical idea to "know thyself," or γνῶθι σεαυτόν as the inscription in the ancient Greek Temple of Apollo at Delphi reads, has been central to the idea of what constitutes a "good life." It has inspired thinkers across the centuries, each articulating their own interpretation of this iconic phrase.[1] This maxim has come a long way from ancient Greek philosophy to our current biosecurity culture. Today, knowledge of self does not refer only to a romantic vision of introspection as search for truth, nor does it express the mandate to know one's place, as Aeschylus understood it in *Prometheus Bound*.[2] It more exclusively conveys the desire to improve oneself by self-knowledge gained through self-observation, which also Benjamin Franklin made a principal task to reach the 13 virtues necessary for the "bold and arduous project of arriving at moral perfection" (*Autobiography* 39) and becoming a self-made man. In our own age this self-knowledge includes knowing one's biological body and its potentials. The preceding chapters have shown how much the understanding of self and good life relies on the messianic narrative of medical and scientific salvation whose importance grew in step with the increasing medicalization and biomedicalization of health and life itself during the 19th and 20th century. The biologically inflected knowledge of the self, including the biological make-up of one's body, is crucial for the biosecurity individual and their understanding of self. What ought to be known today is therefore one's future biological security as a necessary precondition to leading a "good life" in the precarious normality dominated by pre-emptive security logics.

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1   The inscription is the first of the three Delphic maxims in the entrance of the Oracle. Know thyself is the most famous and expresses most prominently the Socratic principle that knowledge must be sought within. In Ralph Waldo Emerson's eponymous poem which expresses his vision of the transcendental self this knowledge is described as the God that is to be found within each person themselves.

2   It expresses the balance between improving oneself and not trespassing set boundaries, which today bioethics committees are concerned with.

The previous chapters have shown that biological security has indeed become a leading paradigm in U.S. American culture, structuring society and decisively influencing individual as well as collective identity formation. Especially Alice Wexler's memoir and the previvor testimonies exemplified how central preventive and pre-emptive security logics, that are usually associated with national security, have become for the understanding of biological security also in non-contagious disease contexts. They showed that health has not been simply redefined in the process of biomedicalization and its shift of focus toward risks, but that this turn has made security concerns rather than health the leading paradigm of understanding the body, life, and identity. The risk of having Huntington's disease or developing breast cancer represent in that context a cessation that marks and redefines life and identity in the same way as actual disease onset. The risk prompted the individuals to reevaluate and retell their life narratives and to establish security narratives to make the ambiguous experiential situation tangible and to fully understand it.

The importance of biomedical risk assessments for the individual indicated how deeply the normative power of experts reaches into people's private lives. The case studies have disclosed how the understanding of security, majorly influenced by the promises of techno-scientific developments, changes our understanding of life, body and self. And the preventive and pre-emptive security logics influence the way the body is understood and encountered, producing new relations between the individual and their body. The possibilities for intervening in the body, from superficial treatments to changes in its make-up have contributed to the rise of a powerful security narrative of radical self-empowerment, which makes health, life and the body appear not as a fateful given fact but as controllable processes. Bodily security becomes in this complex a potential that needs to be managed and pursued actively. Accordingly, the biosecurity individuals produced by biotechnological possibilities and the security logics of pre-emption were represented as self-reliant subjects that fulfilled their responsibility by exercising their citizen rights and duties by choosing the proper way to biological security. This connection of biological security and citizen rights also played an important role at the end of life when the original security promise of survival and cure had failed as exemplified by the representation of physician assisted dying. Rather than a responsibility that individuals are obliged to assume, biosecurity is framed as a "right to choose," a personal freedom the government ought to protect but not intervene in. Individual biosecurity, thus, represents "freedom and liberty" in the analyzed texts and a civil right that is essential for the ability to lead a good life and partake in the promise of the American Dream. This connection was also critically reflected in Shteyngart's dystopian tale, in which biosecurity was a precondition to any form of upward mobility and happiness.

But the new relations forged by the prevalence of biosecurity, especially in its pre-emptive logic, cannot and should not be reduced to the responsibilization of the individual but extend to the intimate ways of knowing one's body and its security status. Especially the logic of pre-emption produces a perpetual state of insecurity as the breeding ground for potential threat. Security practices have therefore proven to be essential for the individual to experience at least a sense of security. And this sense of security is in all four analyses clearly situated beyond the individual experience and outside of the indi-

vidual body. The understanding of individual risk relies not only on expert reading but on reiterative security practices that fix security temporarily for the present moment of the security performance of, for instance, testing. And the diagnosis, or established official biosecurity narrative is not based on the reading of the body and the feeling of the individual but on risk assessment, on statistics, and on their narrativization.

The different case studies have, however, also shown that this sense of security cannot be simply equated with an idea of perfect health but is a construct which is in need of narrative construction. More importantly than verifying the importance of biosecurity for the understanding of the individual and their position in the biosecurity hierarchy of the United States, all four analyses exemplify the importance of this narrative construction to make a particular understanding of security pervasive and appealing for people to act accordingly to them. All four chapters showed the normative power of the messianic narrative of medical salvation. But they also stressed the importance of individual narrative construction in negotiating the understanding of biological security and individualizing the understanding of biosecurity produced by risk assessment. The analyzed narratives revealed that the individual is held responsible for their biosecurity status as well as for "writing" their own biosecurity narratives negotiating and establishing individual choices of security. They proved not only to be fictions of biosecurity but necessary biosecurity fictions of self which were crucial to understand the "true" self both in corporeal as well as in terms of identity.

While Wexler's memoir exemplified the necessity of the individual to establish her own security narrative to understand her own position and identity, it also revealed how the narrative of security represents not a stable object but a desire, an imaginary that is marked by deferral, receding every time it seems graspable. The previvor testimonies further showed that this imaginary of security depends on performative structures and performances to create a sense of security and self. The security practices performatively make present both risk and security, and the positionality of the individual within this structure. But rather than acknowledging the uncertainty and ambiguity of risk and biological security, the pervasive security scripts in the context of hereditary breast and ovarian cancer omit the uncertainty, which is overwritten by the performance of biosecurity. The testimonies stage a stable image of security which hinges on the ability to perform normalcy and able-bodied femininity as a choice of the responsible self-reliant subject. This emphasis on the body surface and its performance of security is also central in physician-assisted dying. The dominant security narrative of medical salvation, which stresses survival, fails in this context. The documentary represents the negotiation and reconstruction of a new security narrative; one in which survival symbolizes threat while death is turned into the desired security. Besides the necessity of narrative to construct security, the narrative of dying well showed even more clearly the normative understanding of corporeality that underlies the understanding of security. This enforces the dominant biosecurity narrative rather than representing an escape from it: it reiterates total control, the able body, and the absence of suffering. It further revealed the importance of performative structures to establish these meanings, which are contingent on the gaze of the other emphasizing the relationality of security.

The focus on security and its need for narrative thus showed that security is indeed a term that literally slides and shifts. In all analyses, to differing degrees, security narra-

tives represent first and foremost promises whose object – security – continuously recedes and is deferred. The appeal of the promise is not purely based on scientific facts but is based on affective attachment (hope, desire, fear, threat). Sociologists describe the relation of biomedicine and affects as an "economy of hope," which is most obvious in the context of diagnostics, drugs, and pharmaceuticals as exemplified in all cases studied. It is an economy that "sutures together hopeful beliefs that one can recover" (Rose and Novas, "Citizenship" 448). But affects are more fundamental for the security narratives than just representing the hope for survival. Rather, affects are crucial in the "surfacing of bodies" (Ahmed, "Affective" 117) heavily influencing the meaning "recognized" in the materiality of the body. In all analyzed security narratives affects were the most essential constituent in making (in)security felt and real often representing the only form of relating to the techno-scientifically produced futures. Affects make the future tangible *as if* it is present. Genetic disease or dispositions, but also the risk of dehumanizing suffering in dying, or ageing and not meeting standards of bodily perfection were established and made experientially present first and foremost affectively in the interplay of fear and hope. In a perpetual state of becoming the biosecurity individuals are represented as suspended in the ambiguity between feeling secure, healthy and hopeful and the fear, anxiety and shame associated with the non-normative bodily matter. This was crucial in all case studies but especially the literary texts revealed how central the affective attachments are to construct a meaningful narrative and establish the meaning of security and to maintain it. The different discursive formations discussed in the analyses have shown that this dynamic is not exclusive to fiction, nor to a specific perspective on biosecurity but is pertinent in any construction of security. The analyses thus emphasize that biosecurity relies on affective attachments and the creation of "affective fact" rather than objective factual diagnoses. Embedded in a messianic narrative of scientific and medical salvation which claims to "secure the human" they therefore represent narratives of belief and faith.

The biosecurity identities studied in the context of Huntington's disease, hereditary breast cancer risk, and dying as well as in the fictional world of Hawthorne and Shteyngart emphasize that technoscientific innovations aim to facilitate a life that individuals could otherwise not live or participate in. In all chapters the described interventions promised the security necessary to enjoy happiness, and in all instances it was referring to a happy family life where nothing is out of the norm(al). The belief in the promise of "total control" stands in stark contrast to the fearful warnings expressed by dystopian fiction. It also contrasts fields such as disability/CRIP studies (Shakespeare), scholars such as Jürgen Habermas (*Future*), or the parts of posthumanisms warning of a post-human age (Fukuyama, Burfoot). All of these scholars argue for the need to control biotechnological developments and its promise of all-encompassing control.

The knowledge-based identities produced by biosecurity narratives can be enabling, in the sense of Rabinow's biosocialities, such as groups that come together in self-help forums or activism that I have described for breast cancer, Huntington's disease, and physician-assisted dying. But they can also create further paradigms of difference and new forms of discrimination. The advances in genetic testing with its focus on susceptibilities and disease markers produce a group of disposable bodies, or "individuals at risk" that are, though symptom free, perceived as sick. Though this biomedicalized sub-

jectivity (Clarke et. al., "Biomedicalization" 165) is framed as enabling, at the same time it is clearly producing a further category of potentially non-normativity, or "disposable populations" (Giroux 186). Rather then abolishing old categories of discrimination, new genetics, or new biology re-inscribes old binaries in the public understanding of body and self. Weinbaum points out how the "recreational genealogy, race-based medicine, and the new fertility medicine" are rooted in "geneticized ideas of race" (208).[3] Furthermore, biosecurity categories and the technology necessary to establish these categories – be it diagnostic tests or medical interventions – are not simply repeating a cultural and social bias inadvertently as a "mistake." They underlie capital structures, which are more interested in using established systems than criticizing and changing them – unless that would be more profitable.

Biosecurity practices, predominantly advanced by for-profit corporations, can therefore not only be understood as empowering but also as establishing more narrow norms of "human" and good life that individuals are responsible for conforming to. "Increasingly, the emphasis in healthcare is on individuals' 'right to know'" (Petersen, "Governmentality" 195) and the question of testing as raised in Wexler's autobiography and the rejection of the prerogative of testing is today called "ostrich effect" (Fortenbury n.p.) and perceived as an evasion and denial that stand in the way of pursuing security. The idea that biological security is and ought to be a choice and the moral responsibility of the individual, ignores the fact that many people do not have this opportunity, given their biological constitution, their socio-economic position, or their low bioliteracy. Though biosecurity is represented as an empowering choice, it also represents an imperative, which is established in relationality to others, as shown in the different contexts of the case studies: the mothers and ill predecessors, the observing family, the society at large.

The biosecurity practices and developments, though undoubtedly beneficial, threaten to leave no room for non-normative bodies. When the "superior" techno-medical culture enhances the body to eradicate nature's mistake, it is instigating a narrower norm rather than broadening the understanding of what is human (Burfoot 69). Deaf culture and the resistance to cochlear implants, which are biotechnological devices that stimulate hearing, is a prime example of this process (Elliott 244). "Many see the widespread use of cochlear implants as a threat to their culture and their collective identity" (ibid. 245).[4] This conflict illustrates the understanding of disability as socially and culturally constructed as proposed in Disability Studies to oppose the purely biomedical model of disability (Linton, Waldschmidt, Davis "Disability," *Disability Studies*). Autism, or Autism Spectrum Disorder, is another example, where the pressure to normalize, and "act" as neurotypicals (Hacking 503), is perceived as an oppression. The claims that a "cure" for autism needs to be found is understood as a violent attack and misconception based on the "situated knowledge" (Haraway) of neurotypicals. To question these norms it is productive and crucial to recognize them as constructions that are established in narrative and performative acts. Because embedded in the sweeping

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3   This "resurrection" of the biologized understanding of race is similarly discussed in Troy Duster's article "A Post-genomic Surprise" and has found expression in art such as in Paul Vanouse's "Relative Velocity Device" exhibited in the UW Henry Art Gallery.

4   For further discussion on language, implants, and the deaf community see Elaine Gale.

messianic narrative of scientific salvation these "side effects" seem to barely filter in, which is hardly surprising when considering the funding invested in these technologies. According to *statista* (Mikulic, "2022") Johnson & Johnson, as the leading biotech and pharmaceutical company of the U.S. "generated over 95 billion U.S. dollars" in 2022..[5] The aim of deconstructing the truth claim established in the biosecurity narratives is thus not simply to show that there is no stable truth, and that nothing and therefore anything can be constructed as security, but to facilitate the possibility and emphasize the responsibility to critically question what is represented as true and good. It aims to highlight the necessity to establish and decide for the "right," or good, as Adorno asserted in *Minima Moralia* quoted in the epigraph above.

This is especially pertinent as all these developments have undoubtedly benevolent and enabling aspects, however they never come for free, nor from a "interest free" philanthropic entity. Rather they are embedded in a neoliberal market economy that has been formative in the development of the field of biomedicine as Cooper among many others asserts (inter alia 19). Definitions, suggestions, and application of practices are corporatized and commodified. Research, products and services belong to a growing industry dominated by venture capital and multi-national corporations. In studies of biocapitalist structures various scholars have described the production of "biovalue" or "biocapital" (Waldby, Cooper, Sunder Rajan *Biocapital*, *Lively*). The health sector represents 13 percent of the annual U.S. Gross National Product (Clarke et al., "Biomedicalization" 163), Americans "spent more than $100 billion on drugs in 2000" (Clarke et al., "Biomedicalization" 167). For 2021 *statista* estimated that the spending on medicine in the U.S. "reached approximately 574 billion U.S. dollars" (Mikulic, "Medicine").

In a "stakeholder society" (Petersen, "Governmentality" 194) in which the patient is converted into an active consumer, not only health but the normal has become a choice that is understood in terms of security. Most biotechnological developments are supposed to facilitate a more intimate knowledge about oneself allowing for the proper choice of biosecurity practice. However, the biomedical and biotechnological developments that emphasize the "somatic individuality" (Rose and Novas, "Genetics" 487) distance the person from an autonomous "subjective" perception of the self. The felt reality of the individual relies on a network of linkage since this form of self-knowledge is highly mediated through visualization technologies, specialist readings, culture, and the televised mantra of direct to consumer marketing. All those agents that supposedly "help" to know the self are represented as natural fact rather than interpretations negotiated by multiple agents. But more importantly, they are supposed to "help" the individual to make the right choice. This choice, however, is not the choice Enlightenment thinkers had in mind but a consumer choice that disguises the imperative of biosecurity.[6]

Furthermore, health has been commodified to such an extent that diagnostic technology, or the "new medical gaze" of surveillance medicine becomes an integral part of everyday life. Examples of the recreational use of biomedical information are abundant and range from genetic testing and biohacking to biointelligent watches and walking

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5   The NIH invests $37,3 billion annually in medical research (NIH "Budget") at least $6.5 billion of which go directly to biotech research (NIH "Estimates of Funding").

6   I am rephrasing Deborah Lupton's title *Imperative of Health*.

apps.[7] Today, the phrase "know thyself" is the slogan of the "Quantified Self" movement. Their philosophy proposes self-tracking – large parts of it health related – as a necessary and useful way of life.[8] This movement, among other developments, makes clear that biosecurity is fundamental in medical practice and a securitized form of health; but it also epitomizes how deeply the logics of biosecurity pervade everyday life. Pre-emptive logics of biosecurity have moved from the professionalized space of medicine to the private individual life without an explicit relation to medical practice.

Biosecurity logics not only pervade the public in form of medical practice, advertising, media reports, life writing and speculative fiction but enter it in a more intimate manner in everyday performances that are often not necessarily associated with biomedicine, biotechnology, and much less with biosecurity. The hype and widespread use of health-tracking shows that the economy of hope and fear surrounding biosecurity is so strong that its logics have become an integral part of society. Furthermore, the health-monitoring practices reveal that it is not really the possible interventions that represent the 'object' of hope but rather the knowledge of the body (and its promises for a potential future self).

The broad adoption of health surveillance in the private and most intimate spaces of people's lives shows that practices of biosecurity have turned into everyday practices. The digitalization that majorly influences also the process of biomedicalization, which Clarke et al. describe, has infiltrated life by being integrated in it. "In the current technoscientific revolution, 'big science' and 'big technology' can sit on your desk, reside in a pillbox, or inside your body. That is, the shift to biomedicalization is a shift from enhanced control over external nature (i.e., the world around us) to the harnessing and transformation of internal nature (i.e., biological processes of human and nonhuman life forms), often transforming 'life itself'" (Clarke e t al., "Biomedicalization" 164). Health apps and health-trackers play a bigger role in most people's life than genetic tests and represent a more and more normal and normalized understanding of and access to the body. They extend the logic of diagnostics to the everyday and turn cultural and social practices into security practices. These practices show how the logic of biosecurity also pervades many parts of society and culture that are usually not regarded as medical. The biomedical self-surveillance is no longer restricted to a patient-doctor relationship, nor to a designated space but infiltrates all aspects and spaces of life.[9] And this form of health monitoring at every step also counts as what Rose has termed "biological identity practices" ("Politics" 18) or "digital bio-citizenship" (Rose and Novas, "Citizenship" 442).

The field of mobile Health (mHealth) is big and diverse. In its widest sense it describes the use of mobile and digital devices in healthcare. The term also includes devices and applications that have diagnostic functions and can be used as proper diagnostic tools – however, here I will focus on self-quantification in its "recreational" use. This form of health-tracking is not a minor practice of dispersed individuals but a proper movement,

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7   For a discussion of biohacking see *Biohacking, Bodies, and Do it Yourself* by Mirjam Grewe-Salfeld.

8   Gary Wolf titled his first article in Wired "Know Thyself: Tracking Every Facet of Life, from Sleep to Mood to Pain, 24/7/365" (qtd. in Lupton "Your Data" 64).

9   Gísli Pálsson argues in "Decode Me!" that the boundary between "experts and lay persons has blurred and refashioned" (185) in reference to personal genomics such as 23andMe.

as I have noted before. What started as a practice of "computer nerds" has reached main-stream and websites such as MedHelp, which register "30,000 new tracking projects a month" according to Gary Wolf ("Data Driven"). Wolf is the creator of MedHelp and is of-ten represented as the founder of the Quantified Self Movement, which has grown into a global phenomenon. In addition, the use of more casually oriented self-tracking makes health monitoring a mainstream practice. The practices are widely subsumed under the term "lifelogging" (Selke *Lifelogging*, Selke "Introduction")[10] and describe the collecting and analyzing of biometric data, so the monitoring of health and life practices. Though the use of self-surveillance can be all-encompassing, in most cases it is limited to se-lective practices focused on specific health conditions such as blood pressure or oxygen levels, monitoring sleep rhythm or body posture, or geared toward fitness and diet. The list of available products is long, from personal genomics in the form of take-home tests such as 23andMe to activity trackers such as step counter, pulse apps, sleep apps, UV sensor apps, blood sugar apps, diet and weight apps, mood apps. All these apps rep-resent security practices that promise more control and ultimately more security. The difference between these and a normal scale or stopwatch and the like is that apps and trackers are always around and collect personal data at every step for ready comparison, rating, and sharing. The fitness app iBody, just one example of many data monitoring systems, combines the different readings of biometric data and offers fitness and health improvement suggestions. For pregnancy and early parenthood, apps promise security by managing biometric and behavioral data to assure that the unborn child progresses as prescribed by the statistics of biosecurity. And with the iStetoscopePro or BabyScope the parents can even monitor the baby's heartbeat at home, both a practice of security and a performance of personhood of a future biosecurity individual. This self-surveillance for the home turns security practices into normal everyday performances. And as Crawford already pointed out in relation to the movement of healthism, this ritualization of secu-rity practices also emphasizes the responsibility of the individual and "risks fostering the illusion that individual responsibility is sufficient" (Crawford 377).

This extension of biosecurity practice to the everyday can be understood as a further "colonization" of life by biomedical norms, as theories of medicalization would catego-rize it. However, most of the focus in research is, for obvious reasons, directed at the collection and use of personal data, as for instance Deborah Lupton's article "You are your Data" makes clear. The complex dangers of uncontrollable data mining by corpora-tions, breaches of privacy, warnings of further stratification of society, to concerns about individuals controlled by algorithms are especially in the post-Snowden, post-Facebook Analytica times, most prevalent and obvious. The practices and devices are regularly dis-cussed in volumes such as Stefan Selke's anthology *Lifelogging*, which is dedicated to the increasing growth, use and importance of self-surveillance. Similarly, in his 2014 mono-graph Selke warns that these practices enforce social pressure and lead to a loss of es-

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10   Selke differentiates different types of lifelogging according to their aim: "*monitoring health*" (Selke, "Introduction" 5) are practices which "enable preventive lifestyle" (6). Further categories are human tracking, human Digital Memory, Digital Immortality (ibid.).

sential part of understanding human existence (23).[11] And also the project "Probing the Limits of the Quantified Self" at the University of Mannheim investigates the influences on identity and identity construction.

Another obvious point of concern is the embeddedness of the technologies in neoliberal market structures: These products are part of a big market with a stable growth, though Forbes still judged in 2014 that the "hype is a year ahead of the market," and therefore ahead of its promise. Mainstream health trackers are still mainly fitness-based. Nonetheless, already their promises harvested huge investments: "Fitbit raised $43 million in venture funding in August [2014]" (Guglielmo and Olson). Not surprisingly, the leading tech companies have included health-related tools and gadgets in their production portfolio, such as Apple's Healthkit or Google's research on smart contact lenses that can detect glucose levels. According to tech expert Stephen Oesterle, Google spends $8 billion a year on research and development (Farr n.p.). Facebook has also ventured into healthcare already since 2014 (Farr and Oreskovic).

Similar to biomedicine, the practices of self-surveillance and their development are deeply connected and intertwined with the neoliberal market economy. But they are an expression of "bioeconomics" (Rose, "Politics" 15) also in a different way. Sundar Rajan identifies biocapital as "new and particular forms of currency, such as biological material and information" (*Biocapital* 17) mainly focusing on patenting, genomics and the worth of organic material. He stresses, as noted at the beginning, that the symbolic capital of biotechnology is generated by the field's promise to save lives (*Biocapital* 19).[12] Furthermore, this process translates back into symbolic capital based on the promise of biosecurity which is extended to health-tracking as a recreational practice. Technical evangelists represent their technological developments as closely related to the messianic narrative of scientific and medical salvation and its promise of self empowerment and improvement. Selke points out that the leading technical evangelists Gordon Bell, Jim Gemmell, Gary Wolf, and Mark Zuckerberg all represent the belief and faith that digital health-tracking will help to improve the body (*Lifelogging* 33). Though the term technical evangelist has its roots in a more superficial indication of the person responsible for promoting technology, its resonance with religion underlines the structures of belief and hope – of faith – that dominate these promises.

The practices of self-surveillance, as their medical counterparts, show how the promise of healing and cure has been partially replaced by a logic of prevention and preemption in which information becomes the true currency necessary to improve one's own biovalue, as worker, as lover, as friend, as scholar, as parent, as a person. As in the field of biotechnology, the hopes and promises relate to both health improvement and financial growth. In fact, the promises of mHealth and specifically wearables are astonishingly wide-ranging, from improving health to reducing healthcare costs, fixing infrastructural problems of healthcare, empowering and emancipating the users, and facilitating a better and happier life. The promises and hopes attached to the use of

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11   Likewise, Anita L. Allen's article "Dredging up the Past" formulates such privacy concerns and potential dangers of the practice in a legal context.

12   Sunder Rajan stresses Marx's emphasis on the "mystical" or "magical" the "[t]he 'theological' character of the commodity becomes a central symptom of its fetish" (*Biocapital* 18).

wearables and other practices of quantification show that it is not only the actual inter-
ventions but the knowledge of the biological make-up that is seen as the requirement
for the access to security, and therefore "good life."

Most discussions regarding biocapitalism focus on medical knowledge, applications,
and possibilities, all of which are controlled and regulated by the FDA. The field of health-
tracking, however, is not necessarily supervised by the FDA and most devices are not un-
derstood as medical practice as such.[13] They therefore enter the market comparatively
unmonitored and unregulated. Though the FDA theoretically would have oversight over
many applications and devices it wants to direct its oversight to what it terms "mobile
medical apps" ("Mobile" 4). They have put this in practice for now by categorizing apps
as "low risk" and therefore not enforcing their requirements (FDA "Mobile"). Health apps
and wearables are part of the fitness and health movements and are as such part of the
wider trend of healthism that Robert Crawford describes as a movement based on "holis-
tic health" and "self-care" already for the 70s and 80s (366). But even though the devices
cannot be categorized as medical devices the trackers nonetheless normalize a medi-
calized understanding of life. Though these technologies might hide their relation to
diagnostic tools they are still based on the reading and analysis of biometric data and
therefore rely on biomedical knowledge. Cortez et al. point out that mHealth based on
medically developed algorithms is designed to produce a diagnosis and treatment op-
tions (327). And though Nils Heyen rightfully argues that self-trackers should also be
understood as "prosumers," so as people that do not simply consume knowledge, "but
(also) produce their own knowledge" (285), first and foremost they reproduce and reit-
erate biosecurity logics. Every use produces a "self diagnosis" and every "self-diagnosis"
produces a potential patient and consumer. Furthermore, the majority of casual users,
who are not part of the "professionalized" Quantified Selfers, "prefer a rather compre-
hensible and tangible display" over "scientifically valid and precise data" (Meißner 236).

Wearables do not really sell the actual improvement of the body but "just" knowl-
edge about the body. In prepared data graphs security becomes tangible and the body
appears controllable. The self-produced knowledge of one's body represents a calculable,
optimizable, and controllable life that is comparable to a business plan as Sunder Rajan
has pointed out in the context of genetic tests (*Lively* 150). What is primarily marketed is
hope and fear attached to the messianic promise of science echoed in the symbolic cap-
ital of wearables. The devices are possessions that promise better and easier access to
biological security. What is actually purchased, though, is information. The value of the
practice is thus based on the promise that the information represents – the promise of
a material change in reality. The devices are an expression of the mantra that one has to
"know and manage" (Rose and Novas, "Citizenship" 441) one's biological identity. In their
clear reliance on biomedical knowledge production, wearables thus reproduce medical
knowledge and the logic of understanding the body and life.

Health-tracking, as sousveillance in general was conceived as a countermovement to
surveillance. Stephen Mann, a long time self tracker, explains that it is the "logical demo-

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13   "Mobile Medical Applications: Guidance for Industry and Food and Drug Administration Staff" is-
      sued February 2015 is preceded by a warning that the FDA is challenging the definition of "device"
      amended by "the 21st Century Cures Act."

cratic answer to external surveillance: they [the tracker] provide a means for sousveillance or watching from beneath" (qtd. in Ward 48). Lifelogging was conceived as an emancipation against nature as much as against the paternalistic model of medicine. But the knowledge generated by mHealth products is not a counter-knowledge to the dominant narrative but relies on it and therefore reiterates it. The widespread use of health-tracking therefore normalizes biosecurity logics as an additional part of the self, reinforcing biosecurity identities.

The circulation of these digitalized "technologies of the self" and the hope placed in them are not just produced by companies that sell wearables, but are also supported by political, academic, and public institutions (Cortez et al. 372). Many researchers place their hopes in wearables as a way to "reduce the cost . . . and capture more reliable, valid, and responsive ratio-scaled outcome measures" (Dobkin and Dorsch 788). Health monitoring practices thus promise better and more efficient research as well as functioning potentially as "lifestyle behavior change catalyst" (Doherty et al. 323). Furthermore, mHealth is heralded as having the potential to fix infrastructural problems of healthcare, and facilitate easier access to normal forms of healthcare. This belief is also shared by the WHO: "The use of mobile and wireless technologies to support the achievement of health objectives (mHealth) has the potential to transform the face of health service delivery across the globe" (WHO "mHealth"). And ultimately, mHealth promises to improve health. The messianic promise of biotechnological research thus also surrounds these apps and the field of digital health. These hopes set in mHealth products and health monitoring increase the circulation and lend authority to the practices.

Another major and not surprising player in the circulation of affects that reinforce the truth value or authority of the security narratives are insurance companies. They are for obvious reasons interested in the biometric data of their clients and therefore also in the further development of technologies. The knowledge of one's own body can now be turned into capital by the individual themselves. It is a trade: Fitbit advertised that using their product would allow customers to "earn up to $1,500 for Healthy Behavior with Fitbit's New Healthcare Integration" (staff, Fitbit et al. n.p.). The commodification of health has thus turned health practices into labor. Their support and user incentives through monetary rewards elevate the health tracker to official biosecurity practices.[14] Every step becomes a security practice. But Fitbit also targets employers and researchers with their promise. Fitbit sells software to companies for their employees with the promise of reducing healthcare costs for their employees (Guglielmo and Olson). An important part of Fitbit health solution (staff, Fitbit et al.) are "challenges" to "generate excitement and drive engagement with a variety of individual and team challenges" to keep employees healthy and efficient, complementing the financial incentive.

The effortless adoption of health-tracking as beneficial security practices might also be explained because the conclusions seem so instinctive, so natural. The person who constantly controls their heart rhythm can hardly be surprised by a heart attack. And if the individual is connected via the internet, as Gordon Bell and Jim Gemmell, the

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14   In the state of West Virginia, the app "Go365," a wellness reward program, was supposed to be made a mandatory program for teachers in order to access health insurance. Strong resistance and a state-wide strike halted the program (Bidgood).

founders of MyLifeBit envision it, help can reach the individual sooner. "Depending on the severity or risk, they will e-mail us alerts to follow up with our doctors as soon as possible, or immediately connect us to our doctor's office, or even dial 911 and send for an ambulance" (Bell and Gemmell, *Total Recall* 104). However, the conclusion that an all-encompassing control of the body automatically leads to better health is questionable as Jennifer Ruth Fosket shows with the example of mammography prevention screenings. In contrast to all these promises of security and enhancements stand the categories which the FDA applies to the devices of self-tracking. Cortez et al. discuss that "Congress created three classes of devices on the basis of their risk" (374) rather than their benefits. The FDA uses these risk categories in their 2014 report (6). It reveals the emancipatory promise of bottom-up knowledge production as yet another fiction of security. The imaginary of this kind of security narrative has reverberated throughout my analyses, pointing out the necessity of narrative and the constructedness of security.

Furthermore, this health-tracking has been marketed as producing a better understanding of the self, improving and thereby further replacing an intimate relation to one's body. I do not wish to imply that this digitized version of the body replaces the actual experience of the body. It does not eradicate or dissolve the body. Though an app can quantify my run and analyze my data producing a shareable reward in a postable graph, it does not replace the feeling of shortness of breath, of heat creeping up the body, of light-headed exhaustion. A concentration app might record my attention span correlating it with my other data, but it obviously does not replace the feeling of desperation when the thought keeps escaping the pen. Nonetheless, the quantifiable data shapes how we understand each of these moments – as surmountable, optimizable processes that are just a question of will. The security practices of lifelogging reveal how deep the logics of biosecurity have pervaded the most intimate spaces of U.S. culture, reiterating and reproducing biosecurity logics in their understanding of the self.

Furthermore, lifelogging and self-quantification do not just promise the creation of a better understanding of body. The Quantified Self Movement makes the claim not just to facilitate the view inwards to monitor and learn about bodily functions but the self. In "The Data Driven Life" Gary Wolf asserts that self-quantification is not just about efficiency. "Trackers are exploring an alternate route. Instead of interrogating their inner worlds through talking and writing, they are using numbers. They are constructing a quantified self." In his Ted Talk "The Quantified Self" he makes this even more clear when he describes tracking as a route to deeper "self knowledge" (4:40). In this understanding the self is represented in numbers instead of writing and reflection. Lifelogging in its more all encompassing recording of everything makes similar claims. It originally describes the recording of an entire life as in the research project MyLifeBits by Gordon Bell and Jim Gemmell. In this self experiment Gordon Bell's entire life since 1998 is recorded. His digitalized memory can be read as an autobiographic text of a paranoid reader. Their vision was published in *Total Recall*, (republished as *Your Life Uploaded*). Though very few people use the comprehensive representation of the self as in lifelogging, the practice indicates nonetheless a new form of self-representation and understanding that becomes increasingly common and may be paradigmatic for our time and the biosecurity individual as the portrait and biography once were. Many scholar such as Pablo Abend and

Matthias Fuchs wonder: "What kind of a subject does a society produce when its members translate their bodies into discrete numerical objects?" (13).

Deborah Lupton asserts that "[c]ontemporary self-tracking tools and records are the latter-day versions of the paper diary or journal, photo album, keepsake and memento box or personal dossier" ("Your Data" 74). Anita L. Allen has compared lifelogging to Andy Warhol's "time capsule." Many other texts seem to find a historic predecessor for the practices in Benjamin Franklin's autobiography and his meticulous collection of his life. However, the self that is produced in this kind of self representation is not akin to the self that emerges out of life writing texts. Traditionally the act of writing life is understood as creating the self in the present of the reflection (so the narrative now) (Bruner 38). Though usually written in a retrospective form, life writing texts are always directed toward the future. This is on the one hand the "known future outcome" of most life writing texts according to Folkenflik ("Self"). On the other hand, it is the represented self that is to shine forth and survive the author as an immortal image. The self represented in the biometric data of self-trackers is similarly a retrospective representation that defines the narrative present, if one can call the moment of analysis that. However, they are future-directed in a different way. They create –numerically – mini individualized utopian tales, producing a future version of an improved self as Lupton asserts. It describes in that sense rather a practice of reading than of writing, a hermeneutic reading that can be linked back to the Puritan understanding of life and security. The temporality echoes a Puritan understanding of predetermination rather then of biological determinism in which the body represents an unchangeable fate. The self is predetermined by the body and its biological constitution, which we need to work on to really know it and be able to facilitate its true potential. If the reading shows that the coffee intake is actually reducing my attention span I cut it out (one of Wolf's examples) determined by biometric data.

The biosecurity subject that is represented in all these apps can be seen as paradigmatic for the biosecurity individual. It shows how deeply biosecurity logics have pervaded society. But if "self-tracking data practices can be understood as self-narrative and as performative selfhood" ("Your Data" 68), as Lupton suggests, we are indeed departing from the understanding of the human as a subject with a free will as imparted to us from Enlightenment thought. Stefan Danter, Wilfried Reichert, and Regina Schober suggest that it is not just an identity but a "concept of the human which is based on numerical and statistical models" (55). So what does it mean to understand and intellectually accept numbers and information condensed in security narratives as the main constituents of identity formation? In part this "data driven life" mirrors the identity discourse of certain parts of posthumanisms. The subject is not constructed in language but in numbers embodying the idea of life as a correctable code representing the contemporary posthuman

condition, or posthuman "predicament," as Braidotti identified it.[15] Hayles, who is most closely associated[16] with this disembodied vision of posthumanism writes:

> But the posthuman does not really mean the end of humanity. It signals instead the end of a certain conception of the human, a conception that may have applied, at best, to that fraction of humanity who had the wealth, power, and leisure to conceptualize themselves as autonomous beings exercising their will through individual agency and choice. (Hayles 286)

And Cary Wolfe, too, expresses reservations against this form of humanism urging us to "rethink the underlying models of subjectivity that ground the dominant" (xxx) commenting on Disability Studies as an example of decentering the "human" that has been envisioned and defined by agency and autonomy. In the face of such a forceful biotechnological overdetermination posthuman critique seems both promising as well as dangerous. The theoretical approaches think beyond the narrow confines of "the human" to find a way to include individuals – humans, other than humans, non-humans – that are excluded from the concept of the autonomous subject, such as someone with Alzheimer's Disease. And though this cultural critique of the biosecurity individual is indebted to and based on theories of deconstruction and performativity and shares the critique on normative understandings of the human and what is human, I cautious in sharing the techno-scientific belief underlying the theories and their seeming hostility to "human choice and the power of the human to transform the social world" (533) as Brennan puts it in "Post-Human." Or rather, I do not share their optimism in facilitating new ways of conviviality by relying on technologies developed by neoliberal market interests. This seems impossible and naïve in a time when the possibilities granted by the field of biomedicine bear the threat to facilitate more narrow norm(ativity) instituted by the very same technologies that are perceived as freeing us from those normativities.

Supposedly, the information produced by biotechnological practices as well as trackers should enable us to question what is human and become better humans of a post-anthropocentric world.[17] However, the supposedly neutral information free from cultural biases is, as science itself, based on biases which are reproduced. Simon Schaupp shows that the quantified self movement is with 80% of the participants being men not only representatively more male but that "self-tracking discourses are male-dominated"

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15   Braidotti establishes in *The Posthuman* her theory of post-anthropocentrism and her critique of Cartesian/Kantian subject. She proposes the dissolution of the distinction between animal and human: "the human has exploded under the double pressure of contemporary scientific advances and global economic concerns" (1) emphasizing the need for a new concept of conviviality.

16   She represents the vision that the essence of the human is code, which means it will be replaceable and overcomable. She formulates her vision explicitly against forms of "the antihuman and the apocalyptic" (291).

17   "Although some current versions of the posthuman point toward the antihuman and the apocalyptic, we can craft others that will be conducive to the long-range survival of humans and of the other life-forms, biological and artificial, with whom we share the planet and ourselves" (Hayles 291).

(260). Biases are programmed into algorithms as the dangerous shortcomings of various face recognition technologies have made obvious. The structural racism underlying the production of these practices became clear as the technologies failed to recognize black skin (Lohr). This, like many other examples, not only demonstrates the cultural biases imparted into scientific analysis but also shows how far we are from a post-human future.

The posthuman condition (as methodology and as reality) is very exclusive. And while the media provides circulation and normalization of images of "biomedicalized subjectivities," large parts of the U.S. population (as well as large parts of the world) are barred from access to this form of knowledge of the self. They are positioned outside the force field of the security promise. Though a reconceptualization of what is traditionally understood as "human" seems promising in its attempts to include formerly excluded individuals, it also risks providing a philosophical basis for a further biomedicalization that serves economic and political interests, in line with the neoliberal agenda of individualized responsibilities.