Introduction

The Quantified Self and Statistical Bodies

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'And now,' the doctor said, tapping Mae's wrist monitor, 'now it's active. It'll collect data on your heart rate, blood pressure, cholesterol, heat flux, caloric intake, sleep duration, sleep quality, digestive efficiency, on and on. [...] When we see non-normative rates of stress in a Circler or a department, we can make adjustments to workload, for example. It measures the pH level of your sweat, so you can tell when you need to hydrate with alkaline water. It detects your posture, so you know when you need to reposition yourself. Blood and tissue oxygen, your red blood cell count, and things like step count.'

DAVE EGGERS "THE CIRCLE", 2013, 154-155

Just like her colleagues at *The Circle* – the fictional IT company in David Eggers' eponymous novel – new entrant Mae is asked to swallow a tiny sensor, which is able to monitor important vital functions in real-time, visualising the results on a wristlet's display and reporting the data to the company's medical centre. While in Egger's fictional work the idea of a fully quantified and numerical body presages a dystopian society of control, contemporary quantified self enthusiasts are tempted by the possibilities of the surveyed body. Thus, joggers can keep track of their accomplishments, snorers can monitor their sleep, and chronically ill patients can readjust their medication. "Self-knowledge through numbers" became the mantra of the emerging communities of self-trackers (cf. Lupton 2014), and quantified self, lifelogging, and personal informatics are the terms used to describe the use of digital technology to track physical activity, quantify bodily processes, and monitor one's own conduct of life.

Not completely dissimilar to *The Circle*, a non-fictional association that calls themselves "Quantified Self" and "a network" was set up in the San Francisco Bay area in 2007 by Gary Wolf and Kevin Kelly. With a background in editing for *Wired* magazine and the *Whole Earth Review*, both founders were hippyish enough to promote technology as a means for "personal evolution", "self-improvement" and "self-awareness" (Wolf 2010), and straightforward enough to understand that "self-knowledge through numbers" can be big business. No wonder that the global brand of QS has a centralised organisational structure and that, briefly, after the phase of "looking 10,000 years

into the future" (Kelly 2015), the team was expanded to seek assistance from *McKinsey* consultant Joshua Kauffman and former *eBay* executive producer Kate Farnady. With application areas such as sports, finance, health, productivity and the military/surveillance complex, and with the declared goal to become "globally active", it seems likely that profitmaking will not have to wait for 10,000 years.

It might, however, be useful to change the direction and scale of the observation: forget about the distant future for a moment and have a close look at the near past instead. Individual attempts to measure, digitise and document personal information can be found in various forms of household books, handwritten budget diaries, body size measurements on door frames, gardening notes and hiking diaries.

One of the more systematic and large-scale projects on quantified selves was the British "Mass Observation" movement that started in the 1930s, or what has been described as "direct observations" by Schütz (1964) and others. These shared efforts to quantify aspects of everyday life can be seen as pre-digital precursors that have anticipated what now has become a digitally enhanced practice of self-observation. Mass observation was conceived as a programme for the scientific study of social behaviour in Great Britain via observers and diarists who wrote down what they experienced and measured. In a letter to the *New Statesman* on January 30, 1937, Tom Harrison, Humphrey Jennings and Charles Madge announced a new form of "anthropology of ourselves" (Harrison/Jennings/Madge 1937). The idea was to motivate citizens to create notes based on their own observations of eating habits, alcohol consumption, housing, fashion, sports, wartime activities, media consumption and any other conceivable aspect of daily life. In the late 1930s, it was reported to be not an unusual sight in Bolton or Blackpool to see diarists monitor their drinking habits in the local pubs. Mass observation records report that the average pub-goer in Bolton drank 3.45 pints of beer in the evening (Smart 2013). Other observations report activities of the "Working Man's Hair Specialist" at Bolton Open Market, love at the beach in Blackpool and other fascinating details of everyday life.

The founders of mass observation must have appeared to be equally hip and out-of-the box in those days as Kelly and Wolf seem to be now. Harrison was an ornithologist and self-taught anthropologist who published on "cannibals" for the *Left Book Club* edition. Jennings was a documentary filmmaker, painter and surrealist, and a friend of André Breton. The communist poet Madge wrote for the *Daily Mirror* and for the *Left Review,* during those days a journal that would easily compete in popularity and cult-status with what the *Whole Earth Review* represented in the 1980s. But, different to Wolf and Kelly's "self-knowledge", the results of mass observation were thought to create a social asset that would help to analyse and change society, rather than the individual. Starting with the self-observation of the Bolton-based working class diarists, the work-town and common (wo)man's problems were reflected as problems of humans in a specific political situation. This is quite different to what the contemporary Quantified Self (QS) movement intends to achieve. James Hinton (2010: 6) points out that

mass observation was a "discipline and a context which transcended the purely private, meeting a need to frame individual quests in relation to larger public purposes."

It has to be mentioned here that the ambitious goals the mass observation movement had in 1937 have not always been achieved. Very much in a similar way that contemporary quantified self-observation might become the target of interest for observers beyond ourselves, the mass observation movement of the 1940s became instrumentalised by the interests of the Ministry of Information, the secret services and the commercial sector. It was not only "The Pub and the People" that became a topic for directive replies by the volunteer diarists, but also "War begins at Home" (Harrisson/Madge 1940). After the war, mass observation, or what was left of it, worked mainly for market analysis and consumer studies; a transformation that might well happen to today's idealistic goal of "personal evolution", as proclaimed by QS.

Today we find an abundance of hard- and software for the quantification of data that stems from individual metabolisms, emotions and affective states: *Mindbloom* for the measurement of feelings, *Stresscheck* for anxiety awareness *Moodscope* for mood tracking, *Livescan* for glucose levels, *MealSnap* for food intake, *DigIFit* for the heart rate, *My Monthly Cycles* for the menstrual period, and many more. The goal of apps like these is to facilitate body management and control through monitoring and feedback, with the ambition to transform the body and its activities into numeric representations of what can be measured, monitored, evaluated and transmitted. Digitisation and connectivity are therefore at the core of quantified selves and the QS ideology. We have become accustomed to the assumption that digitisation and connectivity have been made available by digital technology, but both, the process of turning measurement data into discrete numbers and the pervasiveness of communication technology can be achieved without digital computers.

The concept artist On Kawara works on issues of the quantification of personal data and does so by using manual quantification and the postal system for his art pieces. His multiannual experiment of measuring, monitoring and communicating the time when he gets up was conducted from 1968 to 1979. *I GOT UP* is a continuous piece in which the artist sends picture postcards to two different addressees, each stamped with the exact time he arose that day and the addresses of both sender and recipient.

On July 9, 1970 he sent a picture postcard from the Triborough Bridge, New York to his friend Richard Kostelanetz, who lives in New York as well, with the rubber stamp "I GOT UP AT 1.18 P.M." imprinted on the card. On March 29, 1974, another standard tourist picture postcard from an Orlando Travelodge was sent to On Kawara's gallerist Roger Mazarguil in Paris' 17th district: "I GOT UP AT 7.38 A.M."

Image 1: Two copies of postcards (front and back) from the On Kawara postcard series *I GOT UP*. 29 March 1974 (left) and 25 March 1974 (right).

The seemingly banal messages contain more meaning for On Kawara than just the simple fact of when he got out of bed. Kawara's postcards do not record the time of his waking up, as an Apple watch or any other contemporary quantified self device would do, but his "getting up", with its ambiguous conflation of bodily and existential implications (getting up as opposed to not getting up). For a long time he made a map of his daily walks and cab rides. He created and stored lists of the people he met. He sent postcards, letters and telegrams to friends and colleagues around the world, telling them that he was still alive: "I am still alive – On Kawara". For the artist, self-observation is therefore not a tool for the optimisation of his health or lifestyle. Obviously waking up at 7 is as good as waking up at 8 in the morning. On Kawara's concern was about quantification of an aspect of his self as a statement confirming his existence. The numerical value of his statement "I GOT UP AT …" is actually completely irrelevant. The numbers contain no meaning. "Self-knowledge through numbers" would be the opposite of what On Kawara has in mind. The numbers are just distracting from what is at stake. The artist exemplifies what David Hume investigates in his *Treatise of Human Nature* (1738). Hume states: "though we commonly be able to distinguish pretty exactly betwixt numerical and specific identity, yet it sometimes happens, that we confound them, and in our thinking and reasoning employ the one for the other" (Hume 1738). Hume's numerical identity can only hold between a thing and itself. It requires absolute qualitative and quantitative sameness and can only be applied to values that can be counted. The "quantified self" mingles two concepts that are otherwise disconnected: numerical identity and the unquantifiable self. It might be that the inconsistent notion of a "quantified self" is so seductive to many because it promises that the self and quantifi-

cation could go together well. On Kawara's work demonstrates in an ironic way that numerical identities do not constitute specific personal identities. The QS movement tries to suggest the opposite.

Quantified Self Care

When we follow the enthusiasts and listen to the communities' and industries' claims on personal evolution, self-improvement and self-awareness, the quantified self purports to be a modern means to fulfil the Greek tenets of "knowing yourself" *(gnōthi seautón)* and "taking care of yourself" *(epimelēsthai sautou)*, through which one gains access to the truth concerning oneself in order to reflect on the limits of knowledge of the world (Foucault 1993: 204). These principles allow for a kind of introspection (Foucault 2005: 11), which is necessary, broadly speaking, to be at peace with the world and oneself (Hellenistic and Roman philosophy), or to find salvation in the eyes of God (Christianity) with purification of the consciousness and the soul as a common denominator (Foucault 1988: 33, 40). According to Foucault, these transformations of the self are achieved by applying various techniques (ibid; 1993):

"[T]echniques which permit individuals to effect, by their own means, a certain number of operations on their own bodies, on their own souls, on their own thoughts, on their own conduct, and this in a manner so as to transform themselves, modify themselves, and to attain a certain state of perfection, of happiness, of purity, of supernatural power, and so on." (Foucault 1993: 203)

As Mark Butler observes in his book subtitled *Popular Technologies of the Self at the Beginning of the 21st Century* (2014), Foucault's techniques of the self have a history that involves a changing mode of how we take care of and engineer ourselves. Antiquity was characterised by the need to care for ourselves, which involved "actions exercised on the self by the self" (Foucault 2005: 11), including techniques of meditation, memorisation of the past, examination of conscience, and checking mental representations. In medieval Christianity, the dominant technique of the self took the form of the verbal confession, which became a ubiquitous and permanent activity. According to Butler, modernity focuses on an economically driven work on the self as a way of productive self-engineering, and for the contemporary and postmodern phase, he identifies actions that involve an aesthetic play with the notion of the self and identity. There is some evidence that the quantified self contains aspects of each of these phases: caretaking, working, and playing with our mental and physical selves. QS technologies encompass techniques of the self that reflect practices from antiquity, modernity and postmodernity. The very same technologies can be applied to take care, work or play – depending on the context and attitude of the users. An Apple watch that is in the hands (or on the wrist) of a meditative mind can well lead to relaxation and contemplation. The same device can, on the contrary, induce stress-generating exercises and agonistic competition with

others. A third group of users might not take the device seriously and play with it, mock it, misuse it or deconstruct it creatively. Butler's observation of a convergence of recreational drugs, fashion and techniques of the self finds a match in the repurposing of QS technology for cannabis consumers in Oregon, USA. The substance consumers use modern technologies to optimise the effect of cannabis. This is the optimisation of a particular health and wellness practice – if one wants to see it that way – but it is also a subversive way of dealing with mainstream technology from Silicon Valley. Amelia Abreu reports: "Quantified stoners wear FitBit and Jawbone wristbands to track their daily activity, log their runs and bike rides ... and now optimize their buzzes with high grade weed and a range of data-enriched gadgets to go with it." (Abreu 2015) In a cultural climate that favours quantity before quality any activity has to be quantified. No wonder that cannabis consumption has to follow such guiding principles: "A schoolteacher showed me a homemade vaporizer he'd made out of a gas mask in his garage workshop. He rattled off data points: energy efficiency, growth conditions, and of course, the THC levels in the White Widow and Obama Kush clones." (ibid)

Such burlesque and possibly naïve deconstructions of QS technology perform a mode of excessive play that crosses borderlines of intended territorialisation of an apparatus like QS and opens up spaces for experimentation. Through the tinkering with technology and data the community develops an ethics which can scrutinize socio-technological moral frames. It does so by using the very same technologies and principles in place to territorialise the space of QS which are otherwise authoritative in nature when implemented by technology companies and policy makers. Nafus and Sherman (2014) have identified practices emerging within the QS community, they categorise under the term "soft-resistance" (ibid). Soft resistance means that even within authoritative data structures, practices emerge that challenge the basic building blocks of the structure not by introducing alternatives but by playfully engaging with the technology in ways unintended by the industry and policy makers.

"Soft resistance happens when participants assume multiple roles as project designers, data collectors, and critical sense-makers, rapidly assessing and often changing what data they collect and why in response to idiosyncratically shifting sets of priorities and objectives. Such plasticity fragments data sets and disrupts current algorithmic logics, and thus creates both material and social resistance to traditional modes of data aggregation." (ibid: 1785)

The example mentioned above together with the notion of soft-resistance illustrates that the data of QS is a good example for what Latour calls a "factish". A "factish" mediates between scientific knowledge as absolute truth and the putative naïve believe in a thing which is "nothing in itself" (Latour 1999: 270) but merely a projection surface. The compound neologism of the terms fact and fetish indicates that both are at the same time fabricated, constructed, invented, devised, real and also powerful (ibid: 273). Therefore, truth is neither accessible by looking at so-called facts alone, nor can the fetish be dismissed of being a

purely illusionary projection. The meaning and ramification of the "factish" can only be accessed by looking at the actions involved in its production, circulation and usage, and the way "arguments and actions are everywhere facilitated, permitted, and afforded by factishes" (ibid: 274). Seen as "factishes", data about the body obtained by QS can be put into action in ever unknown ways. It can even be used as connection into the afterlife, as in the example from the QS conference in Amsterdam:

"Dana has been using lifelogging to process her grief and maintain a connection to her memories of her mother. She keeps track of "mom sightings" [...] along with her location, comments (micro journal), and her mood or affect at that moment. She noted that her mood is usually multifaceted, with sometimes incongruent feelings co-existing. [...] This process has made her realize that she wishes she had done something like this while her mother was still alive. She'd love to have a record of what she was thinking and feeling each time her mother gave her a porcelain figurine (which she never appreciated at the time, but now they are like a collection of moments when her mom was still alive)."

While there are numerous examples of this kind of playful appropriation by the user, for the most part, QS is marketed as a productive method of self-engineering, in Butler's sense a very modern form of technocratic self-optimisation. The tracking and quantifying of bodily functions precedes the assumption of a body that can be changed and shaped in reconciliation with the results obtained from measurement. In advertisements for wearables, not only self-knowledge but also self-improvement is promised, ranging from "Tools to help you get your best rest" (Fitbit) over "A better brain in 3 minutes a day" (Muse Headband) to "Your path to a better you" (Jawbone). These ads can make these claims because the self of the quantified self is malleable and deficient, improvable only by technologically driven introspection. Necessary to this end, media technologies provide mirrors that point inwards and help to look into the body, as Gary Wolf states in a TED-talk on QS (2010): "The self is just our operation centre, our consciousness, our moral compass. So if we want to act more efficiently in the world, we have to get to know ourselves better." (ibid) Even though Wolf grants the self the ultimate agency over the direction of thought, the self as operation centre is reduced to its function to operate and react according to incoming data. From this position it has to initiate sustainable operations on the body, like behaviour modifications through the adjustment of one's own conduct according to the advice given by the technology. Perhaps the most unconcealed illustration of this underlying behaviourist concept of self-control and ultimately behavioural change through sensor feedback is the wristband called Pavlok by a company called the Behavioural Technology Group. The device sends out weak power surges ("zaps") to the wearer whenever a bad habit is detected by its sensors.

In this sense, the quantified self lines up with a novel understanding of the self, which evolves from the use of digital technology by ourselves on ourselves. This emphasis on the tracking of movement and activities with the help of technology hints to certain transformations of the original concept of techniques of the self.

First of all, self-tracking and methods of the quantified self signify a shift away from the examination of the consciousness and soul towards the examination of the body. In Greek and Christian terms, the self mainly consisted of the soul and the consciousness; in the present, however, the quantified self is concerned with the body and the mind as its control room. Quantifying the self encourages a somatisation of the self, which is well in line with modern "techniques of the body" described by Marcel Mauss in the 1930s. Techniques of the body is the term for activities that adjust the body to its purpose, and this purpose is predefined by the social (cf. Schüttpelz 2010: 7). In contrast to Foucault's techniques of the self, Mauss' techniques of the body are a subset of cultural techniques that put emphasis on the gestures, postures and daily activities that are both effective and traditional (Mauss 1973: 75).

"The techniques of the body can be classified according to their efficiency, i.e. according to the results of training. Training, like the assembly of a machine, is the search for, the acquisition of an efficiency. Here it is a human efficiency. These techniques are thus human norms of human training. These procedures that we apply to animals men voluntarily apply to themselves and to their children. The latter are probably the first beings to have been trained in this way, before all the animals, which first had to be tamed. As a result I could to a certain extent compare these techniques, them and their transmission, to training systems, and rank them in the order of their effectiveness." (Mauss 1973: 77-78)

The mode and method of the training as well as the form of the activity are historically contingent and determined by the social context. The techniques of sleep, rest or movement (e.g. the human gait) vary in different societies according to the different conditions and understandings of efficiency. The term "technique" is used by Mauss in the sense of the Greek *techné*, which refers to all kinds of useful activities of daily living that are taught and learned with the help of instructions, exercises or imitation of role models (cf. Schüttpelz 2010). This definition shares certain attributes with Foucault's techniques of the self and both authors describe the involvement of (media) technologies that accompany subject centred techniques (e.g. mnemonic devices).

Seen in this light, self-tracking, personal informatics and other practices of the quantified self portend a shift from subject centred techniques (e.g. meditation, keeping a diary) to the use of digital technology (e.g. live-logging, self-tracking and tracing). Due to this shift, the practice of introspection by means of temporal exercises gives way to constant automated monitoring and feedback. While subject centred techniques were bound to an iterating search for partial truths, the practice of quantifying the self and the data it generates are framed as direct access to a truth about the self. This entails the promise that acting according to the data, interpreting data, and comparing the data leads us towards accessing our true self.

This kind of permanent feedback is a step away from introspection and spontaneous human action towards a life that is permanently evaluated by others. Foucault reminds us that "governing people is not a way to force people to do what the governor wants; it is always a versatile equilibrium, with complemen-

tarity and conflicts between techniques which assure coercion and processes through which the self is constructed or modified by himself" (Foucault 1993: 204). Besides the tangible threat of direct surveillance through sensor technologies, life-logs can become a means of "sousveillance", not in the sense of corrective counter-surveillance to "surveil the surveillers" (Mann/Nolan/Wellman 2003: 348), but as a complement to techniques of panoptic data collection (cf. Dodge/Kitchin 2005). Thus, quantified bodies can become a resource for liberal governmental technologies, which seem predestined for a breed of biopolitics using digital behaviour control technologies within a normalising society (cf. Foucault 1978). Nikolas Rose calls this "the politics of Life itself".

"As human beings come to experience themselves in new ways as biological creatures, as biological selves, their vital existence becomes a focus of government, the target of novel forms of authority and expertise, a highly cathected field for knowledge, an expanding territory for bioeconomic exploitation, an organizing principle of ethics, and the stake in a molecular vital politics." (Rose 2007: 4)

But Foucault also reminds us that in the classical texts the practices of self-care are connoted positively throughout and do not have any negative meaning at all: "Thus we have the paradox of a precept of care of the self which signifies for us either egoism or withdrawal, but which for centuries was rather a positive principle that was the matrix for extremely strict moralities" (Foucault 2005: 13). Power is at the same time repressive and productive and the truth obtained about the self can be used in many ways.

Circulating Quantified Selves

Since data is at the same time a precondition of our access to the truth, the process of mapping the body is simultaneously a process of inscription, of giving form to a "myriad fluxes and flows" (Pickles 2004: 145) by creating numerical abstractions. Even if we reject the idea of a self that is expressed as a set of quantified data about the body and mind (as its operation system), this does not mean that the data obtained is not reacting with identity construction through an alteration of the techniques of the body and the self on a micro level. Data precedes the body and develops a productive agency, where the representation renders the abstract forms real once it starts its circulation in various data economies (cf. Nafus 2013). Sharing quantified self data becomes a common practice, with users of wearables leading the way by posting small maps with jogging tracks and lap times on social networking sites in order to compete with others. Health insurance companies are also offering discounts and premiums to those who track themselves and hand over their data. If we accept that, in the process of circulation, representations can develop a productive agency, we have to ask the question: What kind of subjects does a society produce when its members translate their bodies into discrete numerical objects? The salient point here seems to be the transformation of the quantified self as a "Technology of the

Self" or a "Technology of the Body" to a "Technology of the Social" (Lemke 2011): from the mapping of the self as an individual act to the sharing of self-data with others (a functionality afforded by the majority of tracking and tracing technologies). For example, lifelog technologies enable the subject to record and store everyday activities in textual, audio-visual and numerical form with the potential to "replace or complement existing memory preservation practices" (Allen 2008: 52). While these practices remediate traditional mnemonics, they can be turned into a means of surveillance leading to "incivility, emotional blackmail, exploitation, prosecution and social control" (ibid).

Perhaps one of the biggest issues here is the merging of individual measurements into big data and the gamification of the practices attached to self-tracking technologies. While the terms self-tracking as well as personal informatics suggest an individual tracker and that the practice is voluntary, a variety of collectives is emerging. The data obtained and the technologies used in the quantified self do not remain bound to the individual. Knowledge gets shared locally within QS community meetings (in so-called Show & Tells) and data circulates publicly in social and other networks becoming available to the provider of the technology and third-party agents. In addition, self-tracking could be officially advised, promoted, or even required in the future. Socio-economic ramifications arise when data is centrally stored and mined in the server farms. On aggregating platforms, statistical data can change its value and become a commodity when technologies of the self are decontextualised, deterritorialised and disseminated and, thus, the circulation of bodily knowledge is capitalised (cf. Barta/Neff 2016). And, since the technology companies operate worldwide, there is a global attempt to standardise techniques of the body and the self. Here lies the danger of marginalisation through the inscription of moral rules in the technology and infrastructure deployed. As already well observed by the science and technology studies, standards bear the risk of black boxing their underlying parameters, scales and rubrics, while at the same time naturalising the data in question through scientific certification and measurements: "technology freezes inscriptions, knowledge, information, alliances and actions inside black boxes, where they become invisible, transportable, and powerful in hitherto unknown ways as part of socio-technical networks" (Star 1990: 32). Thus, standards, pre-sets and arbitrary scorings in QS technologies can become a means of arrangement and demarcation when physical or psychological weaknesses circulate through the technical and socio-economic infrastructures of the data economy. An ethical issue arises here: the risk that user groups are marginalized by comparing them to a standardised biological self. A person affected with rheumatoid arthritis undergoing an acute exacerbation or a person facing a phase of depression, for example, might not be able to fulfil a specification of several thousand steps per day. But if the levels of insurance contributions are adjusted to these measures, solidary principles within public welfare systems get further eroded – a process though which new concerns arise: On what basis do techniques of the body get standardised and what happens if questionable standards become a norm in parts of the health economy (which overlaps with the public health system and the educational sector)? Who defines the axioms and objectives of this

pedagogy? Who decides what kind of behaviour is prudent and what is not? What is a healthy lifestyle? In short: What are the stories behind the standards? (Lampland/Leigh Star 2009)

The first publicly led discussion about the politics and social ramifications of the quantified self concerned the attempt of a couple of insurance companies offering coupons and deductibles to customers committed to a healthy life according to the companies' norms. The companies electronically verified customers' fitness, nutrition and lifestyle on the basis of regularly submitted data about their bodily condition via special apps. Half a year ago it seemed as if insurance companies, government health services and policy makers all agreed on the usefulness of QS monitoring of parameters like glucose level, blood pressure and heart rhythm. A recent study shows that there is little evidence that the high expectations for self-observation and patient-centred care can be met and that self-observation will not necessarily lead to benefits for patients' physicians, or the insurance sector. As STSI Director Eric Topol reports, "A six-month randomized control trial found no short-term benefit in health costs or outcomes for patients monitoring their health with connected devices" (Comstock 2016). It is, however, too early to make final statements about the benefits of QS technologies under different circumstances and problem scenarios.

There is also another facet to the discourse surrounding self-tracking and personal informatics that puts an emphasis on the appropriation of expert knowledge and technology by laypeople, which can lead the way towards an emancipatory usage of data. Here the practice of self-tracking poses a challenge rather a then a threat. It is primarily a medical discourse, revolving around consumer health informatics, mobile health (Lupton 2012; 2013), or the figure of the e-patient, which concerns sociologists who investigate the shifting divide between expert knowledge and non-certified expertise (Brüninghaus/Heyen 2014), the changes in health communication (Fiore-Gartland/Neff 2015; Lomborg/Frandsen 2015) and the transformations in doctor patient relationships, possibly leading to collective and resisting practices within "citizen health" (Fox 2015). While there have been several studies and researches within the laboratory, the clinic, and the medical office, with some of them thematising the technicity of the technologies in place, few are concerned with the significance of the technicity of sensors within consumer electronics for our image of the self.

Researching Quantified Selves

Research into phenomena of the quantified self and statistical bodies has just begun and many publications are forthcoming (e.g. Lupton 2016; Neff/Nafus 2016; Duttweiler/Gugutzer/Passoth/Strübing 2016). But the question remains whether the phenomena of the quantified and statistical self will develop a cultural relevance in so far that it becomes a milestone in the history of the modern subject. For now, a lot of open questions remain: What is the reason for the boom in technologies for self-measurement and their dissemination in Social Media, computer games and other entertainment technologies? What

are the explicit and implicit repercussions of the constitution of the subject? What is the cultural significance of statistical bodies? What are the concrete strategies for action and for the conduct of life that are opened up by the quantified self? What is the ratio of subjectification and technology as mediators of normalisation? Some of these questions are the subject matter of the articles in this issue of the *Digital Culture & Society* journal. Our concern is not to give definite answers but to explore a wide range of questions from different angles in order to enter the discourse and start the discussion about the practices of data gathering and quantification.

The first section of this issue *Situating the Quantified Self Phenomenon* takes one step back from the contemporary movement of self-tracking and situates the Quantified Self phenomenon within wider theoretical and historical discourses. Andréa Belliger and David Krieger start off with a discussion of the influence of quantification technologies on the formation of the modern subject. In their experimental piece, a fictional and winking dialogue between Socrates, Kevin Kelly, Gary Wolf and Bruno Latour among others arises. The authors let the protagonists discuss the emergence of an informational self that is constantly caught up in the process of networking and the moral and ethical questions that arise from this development. The growth of affect- and psychotechnologies is the topic of Marie-Luise Angerer and Bernd Bösel's contribution "Total Affect Control. Or: Who's Afraid of a Pleasing Little Sister?" They trace the roots of affect computing back to the 1950s, i.e. to a time when the cybernetisation of psychology joins research into affect sensitive computing and computer-assisted affect detection. After this genealogical derivation of contemporary phenomena of affective computing, a framework for a critical assessment is outlined. The paper "Theorizing the Quantified Self and Posthumanist Agency. Self-Knowledge and Posthumanist Agency in Contemporary US-American Literature" examines the intellectual histories of the quantified self within works of US-American literature. Stefan Danter, Ulfried Reichardt and Regina Schober focus on fictional works and how they reflect and comment on the changes of the human condition through quantification technologies. After a historical examination the current state is reflected using the example of the novel *Super Sad True Love Story* (2010) by Gary Shteyngart. The fictional text becomes a critical system of second-order observation which not only echoes contemporary practices of quantitative self-observation but provides ways to think about the repercussions of technology and even introduces epistemological counter-models to existing logics of technology-supported subjectification.

The second part *Investigations in Quantifying Practices* features two articles that are concerned with specific application scenarios of the quantified self. As distinct to the first part, where quantification is addressed as part of a wider discussion of the modes of modern and postmodern subjectivication. This section allows a closer look on end-user practices of self-measurement and observation. Alex Lambert moves away from body-centred quantifying practices and investigates tracking technologies that promise to assist in managing relationships. In "Bodies, Mood and Excess: Relationship-Tracking and the Tech-

nicity of Intimacy" he looks into the technicity of these applications and how new cultural techniques alter the attitude towards intimacy. By means of the application PplKpr (people keeper), Lambert shows how relationship-tracking produces an excess of meaning through which intimacy remains a continuous mystery. The link between mood and emotion tracking and positive psychology is the topic of Jill Belli's paper "Unhappy? There is an App for That. Tracking Well-Being through the Quantified Self." The article starts with an introduction to the ideology of positive psychology that branded itself "the science of happiness". After this introduction Belli gives a comprehensive overview over so-termed "happiness apps" and works out the influence of ideas originating from positive psychology using various examples.

Section three *Conceptual and Legal Reflections* gathers articles that deal with the practical ramifications of quantifying practices. Alex Gekker looks at quantification by interface design. In an autoethnographic exercise he shows how users of digital mapping applications get pulled into a "machine zone" build on quantified information and gamification strategies while using the application. Gekker uses the term "soft power" to characterize this kind of micro initiative to act in a certain way triggered by the technicity of the interface. While it is widely agreed that QS data somehow belongs to the sphere of personal privacy, neither the status of the data as private data nor the approach to assure this status are clear. Therefore, Argyro Karanasiou and Sharanjit Kang ask in their contribution "My Quantified Self, my FitBit and I: The Polymorphic Concept of Health Data and the Sharer's Dilemma" for a new legal framework to account for the privacy issues involved in personal sensor data. They trace the ambiguous concept of privacy through the history of legal discourse and, considering case studies of the private and public health sector, propose a shift from privacy as a demandable right to an autonomy-based concept.

Entering the Field is an experimental section of the *Digital Culture & Society* journal. It features shorter articles and allows for the presentation of early stage research, case studies, and explorative artistic works. With this section, we aim at providing a platform for researchers to enter discourse and start a discussion concerning their materials and methodological approaches. Barbara L. Marshall and Stephen Katz take a look at "quantified ageing" and how this field of inquiry is faced with fundamental changes when ageing bodies are measured, standardized and treated according to the logic of numerically based functionality. They lay out four fields of the research agenda on ageing and quantified selves: the use of wearables and mobile technology, digital apps, the gamification of ageing and the political economy of data sharing. The article "Games to Live With" by Paolo Ruffino deals with the gamification of life through combining quantification and game logics. Taking a closer look at NikeFuel, Farmville, Cookie Clicker and others, Ruffino shows how we do not use these technologies as tools for a specific purpose but rather as things we carry around and live with. Thus, these game and game-like technologies should be characterised as "parasites" and the question arises, how we can cohabit with these entities. In "Quantified Bodies – A Design Practice" James Dyer focuses on the quantified body as a body that is both read and written: a process which he claims to be ultimately a design task.

Dyer uses the notion of design in order to introduce an alternative reading of quantified self contrary to a critique which is all too often entangled in notions of ideology, social control or fetishisation. Looking on quantified self from the angle of design allows to bring back the agency of the tracker and to gain a more nuanced view on practices related to self-tracking without falling into the "well-trodden path of critique". Mette-Marie Zacher Sørensen presents and analyses contemporary art projects that all involve numerical methods to represent the human face and the identification of these faces, for example by applying DNA technology or software for biometric video analysis. In her article "Quantified Faces – On Surveillance Technologies, Identification and Statistics in Three Contemporary Art Projects" three works are situated in and compared to historical approaches that statistically compress physiognomy using Francis Galton's composite portraits from the 1800s and the author examines the technological agency at play. The contribution "Coupling Quantified Bodies Affective Possibilities of Self-Quantification beyond the Self" reports on a system the authors Robert Cercós, William Goddard, Adam Nash and Jeremy Yuille have designed that introduces a structural coupling of human and non-human bodies. In their work "Dataponics: Human-Vegetal Play", human physical activity measured by a Fitbit is mapped to the amount of light and water fed to a potted plant. The moisture in the growing hydroponic medium that surrounds the plant's roots is measured, and the system plays different internet radio stations accordingly. The authors initiate a discussion on the theoretical lessons that can be learned by looking at this setup.

For the interview section *In Conversation with*, the editors talked with the two artist-engineers Tega Brain and Surya Mattu about the quantified self, astrology, and Google galleries. On their website unfitbits.com the artists introduce ways to "[f]ree your fitness data from yourself", "[e]arn insurance discounts!", and promise "fitness solutions for every lifestyle." The website features audits of various homemade appliances that work with step counters, like a Marcel Duchamp style bicycle wheel, a metronome, and an orderable desktop pendulum.

We hope you enjoy this second issue of the *Digital Culture & Society* journal. The editors would like to thank all contributors, our editorial board members and reviewers for their cooperation, commitment and support. The next issue will be a special issue on *Politics of Big Data*, edited by Mark Coté, Paolo Gerbaudo and Jennifer Pybus. It will be published in September 2016.

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