On the Quantified Self and Data-fied Body:
A Philosophic Reflection

Kirk M. Besmer

Introduction

By now, you are likely familiar with self-tracking devices such as pedometers, fitness trackers (Fitbit, etc.), sleep monitors, heart rate and blood pressure monitors, and other gadgets that monitor biometric information. Although such monitors, whether smartphone apps or appliances, have gone mainstream, they are part of what has come to be known as the "Quantified Self" movement (QS).[1] QS refers to a heterogenous group of individuals who engage in various kinds of self-tracking activities – from casual Fitbit users trying to optimize exercise performance to devoted individuals engaged in serious self-tracking projects that resemble methods of modern scientific research, such as positing hypotheses, data collection, data analysis, etc. Despite this heterogeneity, self-trackers appear united on a central belief, namely that one can gain "self-knowledge through numbers," which can be taken as the motto of the QS movement.[2]

There has been a wide body of excellent research on the QS movement over the past decade. Much of the research has been undertaken by scholars in Sociology, Anthropology, Science and Technology Studies (STS), Medicine, and others; however, philosophers have dedicated little attention to this emerging and expanding social phenomenon. In this paper, I will examine the QS movement from a philosophical perspective – one that is broadly phenomenological and postphenomenological. I will concentrate my analysis on issues that arise in bio-metric self-tracking because although QS initiatives can involve various aspects of one's self-experience – mental, physical, psychological, emotional – much of the activity involves phenomena related to the body and its wellbeing. I believe, moreover, that my conclusions about QS configurations of embodiment can be generalized to the broader goals and aspirations of the QS movement.

Although a little more than a decade old, the central idea of the Quantified Self movement (QS) – self-knowledge through numbers – has been several centuries in the making. The

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[1] I will use the formulations, the "Quantified Self movement" and the "Quantified Self community" interchangeably.

[2] The Quantified Self movement describes itself as "an international community of users and makers of self-tracking tools who share an interest in 'self-knowledge through numbers.'" Quantified Self *What is Quantified Self?*)

hallmarks of modern science, which distinguishes it from pre-modern science, is twofold: Its insights are based on empirical observations, usually generated from experiments, coupled with what Edmund Husserl calls the 'mathematization of nature.' For Galileo and more so for subsequent early modern thinkers, as Husserl points out, "nature itself becomes… a mathematical manifold" (Husserl 1970, 23). That is, nature comes to be known through a multi-step process of measurement, quantification, and mathematical analysis.[3] Based on the immense success of modern science, in the late nineteenth and early twentieth-centuries, the social sciences emerged as a distinct research approach with a similar method – empirical observations coupled with mathematization – but this time it was 'the social' that was to be measured, quantified, and mathematically understood. The Quantified Self community – whether consciously or not — locates itself in this trajectory, but it takes the 'self' as the locus of measurement, experimentation, and mathematization as a means of generating self-knowledge. Previously, self-knowledge was arrived at through reflective, meditative, and/or literary practices (such as diary keeping). For QS practitioners, however, such methods are inadequate to generate genuine self-knowledge, especially knowledge about the body. But what is the nature and tenor of this knowledge?

Part I: Technological mediation of the Leib/Körper distinction

At the heart of biometric self-tracking resides an ambiguity that is rarely noted, namely, that the agent initiating and maintaining the tracking activity cannot be absolutely identical to that which is tracked. In other words, the quantifying self cannot be absolutely identified with the quantified self – there must be a difference – even though one and the same embodied self is involved. This ambiguity is evident in all attempts at self-knowledge, weather quantified or not, and it is often overlooked by QS practitioners. How can this ambiguity most clearly be understood philosophically?

One might seek to account for it by appealing to a mind-body dualism, whether of a Cartesian or some other sort. Indeed, given the prevailing ethos of the QS Movement which

[3] It is not an accident that Descartes developed analytic geometry and Newton along with Leibniz developed trigonometry and calculus. Developing mathematics was central to the modern philosophic vision insofar as it provided a means to express deeper realities of nature – realities of nature beyond sensible appearances, that is. In the modern era, mechanistic nature became just that which was measurable, quantifiable, and mathematizable.

considers technologically gathered data 'objective,' when compared to 'subjective' sensations, perceptions, and memories, a mind-body dualism appears to be at least a tacit assumption, if not an explicit belief held by self-trackers. Whether one tacitly or explicitly adheres to a mind-body dualism when conceptualizing self-tracking, however, such a belief does not appear to be supported by actual self-tracking practices, which are much more holistic and integrative. Moreover, modern mind-body dualisms and the ontological assumptions they contain have a nest of well-known philosophic problems. Rather than appeal to an ontological mind-body dualism, I believe that the ambiguity inherent in biometric self-tracking can be more adequately understood by appealing to the phenomenological distinction between Leib and Körper.

Fundamental to phenomenological accounts of embodiment, the Leib/Körper distinction was introduced by Edmund Husserl and developed by subsequent phenomenologists, sometimes with substantial differences among them. Since I do not have time to go into these differences here, I shall focus on a version that is inspired by Merleau-Ponty. Accordingly, 'Körper' refers to the body regarded primarily as a physiological object *in* the natural world qua physical object; the body is understood as a bit of physical nature absorbed in a cosmic web of causal connections. As such, it can be decomposed into its constituent parts, whether actually or conceptually. Moreover, when regarding a Körper, whether my own or that of another, it is 'anonymous;' that is, it is seen from third-person perspective. Most succinctly put, Körper is the body as an object of natural scientific investigations. Alternatively, 'Leib' refers to the body as the lived through agent that *has* a surrounding world; this is the body as the locus of all intentional activity, agency, and meaning making. The body as Leib is a holistic unity, not a contingent collection of parts. The body thusly regarded is often called the 'lived body,' and as such, the body as lived is personal. While Körper is located in the physical world like apples in a box, Leib *inhabits* a lifeword, which is an intersubjective context of shared meaning. In other words, a Leib is *personal*, *social*, *cultural*, and *historical*. In sum, the body as Leib is captured in the Merleau-Pontian notion that "I am my body."

Now, in order avoid establishing a new ontological dualism, to replace a Cartesian one, the relationship between Leib and Körper is understood as *ambiguous*. Undoubtedly, Leib depends on Körper, with its organs, brain, bones, nerves, and other tissues, for its very being, but Körper emerges as an object only for a Leib. Thus, there is a mutual intertwining and inter-dependence between Leib and Körper; each depends on the other. As Drew Leder puts it: "These

are not two different bodies. Körper is itself and aspect of *Leib*, one manner in which the lived body shows itself" (Leder 1990, 6). 'Leib' and 'Körper,' thus, are two distinct ways to refer to the same embodied self. The Leib/Körper distinction, thus, is epistemological, not ontological. It emerges most clearly when one seeks to take one's own body in its psycho-physical aspect as a theme of self-reflection, which, fittingly, is precisely the kind of distinction QS practitioners make in their pursuit of self-knowledge. In classical phenomenological descriptions of embodiment, emphasis tends to fall on the Leib, primarily because many aspects of the Körper withdraw from direct phenomenological self-reflection. But it is the Körper and how it has recently come to be understood in the QS community that is my focus here.

Gaining reflective access to the Körper has always posed distinct challenges for phenomenology. For the most part, one is almost completely unaware of the various vital processes, such as circulation, respiration, and digestion (among others) that make continued living possible. If it is true that I live through my Körper, then much of its functioning is absent from self-awareness. This almost total withdraw of Körper is structural, not merely contingent. Following Drew Leder, again, we can characterize this as "the recessive body" (Leder 1990, 36), which can never be *directly presented* to reflection; access to it can only be *indirect*. For classical phenomenologists such indirect access was based on analogical reasoning. For example, I will likely never directly experience my liver, but I can make it reflectively present in an indirect, analogical manner by comparing my body to bodies of others. In this context, Husserl employed a notion of "empathy," while Merleau-Ponty appeals to a vague notion of species typicality. I can understand the functioning of my major bodily organs, by analogy to other human bodies, such as is revealed in examining a cadaver, for example. Implied in such analogical reasoning is an unspoken confidence in causal regulation governing all natural bodies of similar type, including the human body.

With the advent of multiple bodily monitoring and imaging devices of the last fifty years or so, however, indirect, access to the recessive body can now be achieved less analogically and more digitally via technical means. For example, an MRI image of my cervical spine, which is produced with digital technologies, might still give me only indirect access to an aspect of my Körper; nonetheless, it does so with extremely high fidelity. The same goes for a contemporary blood pressure monitor. The advent of digital imaging, measuring, and monitoring technologies, which I shall call 'biometric recording devices,' have been a boon for understanding the Körper

and are the basis of contemporary medicine. Many of the devices used by members of the QS community operate on the same logic — bringing aspects of the recessive body into view through appliances sensitive to measure discrete bodily functions and rendering these functions in visualizations, whether by numbers, graphs, or other means of data visualizations. Now, if we accept that biometric recording technologies provide unprecedented *access* to aspects of the recessive body, then we can see that the ambiguous relationship between Leib and Körper described by classical phenomenology becomes, with the use of biometric recording devices, *technologically mediated* in a new way. By speaking of technological mediation, my further reflections here move from phenomenological to postphenomenological. This technological mediation has an important philosophical consequence.

Part II. Taking the Körper into the "Inforsphere"

Biometric recording and monitoring technologies configure the Körper as an amalgam of distinct parts that can be disaggregated. This disaggregation takes on a distinct tenor, namely, that the recessive body can be 'dissected by data.' One can measure multiple but distinct physiological functions, for example, heart-rate, blood oxygenation, insulin levels, etc. In principle, any biological function can be measured. On this view, the Körper, in its 'natural' homeostatic state, generates measurable data. This principle has been well established in the medical field for decades. But lately, this idea has gone mainstream, especially with personal biometric tracking devices. Taken outside the medical context and integrated into a broader cultural view that is dominant today, the Körper comes to be configured as a functioning element in an economy of information and is susceptible to initiatives of measurement and tracking. Following the terminology of the philosopher, Luciano Floridi, the Körper becomes an element in "the infosohere" (Floridi 2014, 41). Rather than being understood primarily as a bit of corporeal extension integrated in a cosmic causal nexus – which was the understanding of Körper in modernity in general, and hence, in classical phenomenology as well – it now comes to be understood, in terms of data flows and models of information processing. I call this emerging understanding, the 'data-fied Körper,' and I believe it informs the QS community's understanding of the body.

The data-fied Körper is an update, of sorts, to the mathematization of nature that Husserl describes as the central feature of early modern science and philosophy. But here a threat

emerges, namely that rather than merely providing *access* to that which is latent – the recessive body – there is a tendency to *conflate* the information generated by biometric recording devices with reality itself such that the Körper simply becomes an amalgam of data-generating systems. In short, biometric recording technologies present the Körper as abstracted from material nature, dematerialized, and taken into an economy of information such that that which escapes measurement and tracking remains little more than merely invisible: it has questionable ontological status. On this logic, to be an aspect of the Körper is to be measurable, quantifiable, data-fiable. This is the Körper in the infosphere, which, to quote Floridi in this context: "what is informational is real and what is real is informational" (Floridi 2014, 41). Concomitant with this threat of information reductionism of materiality, there is a tendency to invert the ontological valence by privileging the ideal over the material. The data-fied Körper is made present as more ideal than material. This is an idealizing tendency.

If my preceding analysis is correct – that our understanding of the Körper is shifting away from causal accounts towards informational ones – then a subtle epistemological question arises, namely, what is the ultimate truth status of claims and beliefs based on such biometrically-generated information? Here my thoughts become more conjectural. When we seek to make the recessive body present using biometric recording devices, we render it visible in terms of information. Understanding the Körper in these terms, is not the same as discovering causal structures and regularities, which characterized the modern view of the Körper. Put differently, it seems that the governing logic of the infosphere privileges correlations and associations over necessity and sufficiency, which are implied in causal accounts. For example, one measures and monitors one's cholesterol and blood pressure to decrease one's risk of suffering a stroke over the long term – decades, in fact. It's the correlation that counts because "getting one's numbers right" is the goal, even though no causal claim for any particular individual need be implied. A middle-aged person with access to modern medicine, for example, would likely accept such a statistical correlation – lower cholesterol and blood pressure to lower the risk of stroke or heart attack – but since this correlation is based on merging one's 'small data' (that is, one's own daily bodily measurements) with big data that involves thousands of individuals, the correlation is a relative to the group. So even though I might accept this correlation as pragmatically relevant to my Körper and change my behavior accordingly, it does not seem to necessarily imply strictly causal reasoning, in which necessary and possibly sufficient conditions must be met. The pragmatic truth

of the correlation is sufficient to motivate altered behaviors. In fact, biometric data recording such as we often see in the QS movement is often part of ethical, or quasi-ethical practices – for example, seeking health, wellness, security, etc. – so data can, indeed, be useful, edifying, etc. without one needing to inquire into their ultimate truth status. If, however, we accept the maximal understanding of the infosphere described above in which reality and information are taken as equivalent terms, we be will facing a thorny epistemological question. How are we to understand the correlations and associations as they might relate to causal relations, which imply necessity and sufficiency? Is one more primary than the other? Or do they augment each other? Or are they simply two different explanatory approaches to physical nature? To return to Husserl, and my main point, these two approaches do appear to be two distinct ways in which we have "mathematized" nature – in this case the Körper – which implies two distinct epistemological strategies in which we seek to provide some cognitive access to the recessive body. Thus, they appear as two distinct strategies to render the Körper more transparent to the Leib. Undoubtedly, biometric recording technologies have given us unprecedented access to the Körper, making it more visible than ever, much more so than Husserl or Merleau-Ponty's 'analogous' route. But I suspect that although the information rendered in such practices may be of local, pragmatic value, the information-based strategy is being taken by many for much more than that. Quoting Floridi again:

> According to the 'it from bit' hypothesis, deep down our bodies too are made of information, not of some ultimate material stuff different from what is immaterial. This is not dualism but a state-based form of monism. Think of the various states in which you may find water, as vapour, liquid, or solid. If the 'it from bit' hypothesis is correct, then minds and selves on the one hand, and brains and bodies on the other, would be more like different states of information, or different informational patterns. (Floridi 2014, 71)

I suspect that many QS practitioners, motivated as they are by personal, pragmatic concerns need not accept the abstract, idealized, and formalized account of the bodily materiality that Floridi suggests here; nonetheless information reduction of the Körper and a shift from causal to statistical reasoning remain a threat, especially in the ways in which biometric recording devices and the information they generate get theorized.

Conclusion

Returning to Husserl's account of the mathematization of nature in the *Crisis*, it is clear that the conceptual move from the concrete perceptual plena of sensory qualities to an idealized, mathematized, and formalized view of nature emerges from lifeworld practices of measurement. The mathematization of nature and concomitant search for quantifiable regularities, which is major hallmark of modern science, are far from the concrete lifeworld practices of measurement that gave rise to them; nonetheless – and here I agree with Ihde's reading of Husserl[4] – it was those very practices and measuring technologies that mediated the move from the perceptual plena to the idealization. My conjecture in this current paper is that something analogous may well be occurring with biometric recording technologies, namely that such technologies are leading us to understand the 'mathematized' Körper more in terms of an information paradigm rather than a causal one. And furthermore, although the information paradigm appears to have primarily pragmatic efficacy for QS activities, its full-blown idealization in terms that Floridi describes above are nearly irresistible.

Let me conclude with yet another analogy. Not too long ago, say around 2006, one could draw a sharp distinction between one's real life (RL) and one's virtual life (VL). This was due to the rudimentary nature of virtual technologies and the absence of social media. But due to newer information and communications technologie of the past decade, this distinction makes less and less sense. One might today hear one say: "I am not my tweets, texts, emails, and Facebook posts," seeking to maintain a sharp distinction between one's virtual self and one's real self. But following Sartre, we might diagnose such a person as being in a kind of technological bad faith. Clearly, a person is more than their online life, be one cannot deny the reality of the online self that emerges on various virtual platforms. The self is becoming more and more data-fied. I contend that the erasure of the distinction between real life and virtual life is not the result of explicit logical or rhetorical argumentation but rather one of concrete technological mediation. In short, our devices and the practices they have instituted have convinced us that our real life is also online. Analogically, I conjecture that biometric recording devices are convincing us more and more to accept that the Körper is best understood as a site of information generation and processing, that materiality is better understood in terms of information than causality, especially

[4] See "Husserl's Galileo Needed a Telescope!" Don Ihde. *Husserl's Mission Technologies*. 2016. Fordham UP. By the way, I agree with Don Ihde that Husserl overlooks both the materiality of measuring technologies and the way they engaged embodied humans in lifeworld practices.

when it comes to pragmatic projects of self-understanding and self-becoming such as can be seen the initiatives of the QS community.