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"There is a better you in you": Promises and Ideologies of Self-Tracking Technologies

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Abstract: Self-tracking describes capturing and analysing the body and life using digital technologies. Its popularity is propelled by the widespread availability of enabling technologies like smartwatches or fitness-trackers. However, given the broad consensus on the co-productive relationship between technologies and social realities, reducing this phenomenon to technological feasibility alone would be inappropriate. This paper explores self-tracking by investigating its enculturated meanings, focusing on Western Europe. For this purpose, we analysed promises behind self-tracking technologies articulated in TV-commercials considering their relation to the late-modern socio-material constitution. The findings suggest that self-tracking addresses several ideal-typical late-modern problems, like the contingency of everyday living. Self-tracking technologies promise to counteract these problems by employing number-based rationalisation strategies. They aim to increase and condense performance capacities and activate the users. Thereby, they turn out to be technologies of an instrumental reason attempting to counter collective issues by optimising the individual.

Keywords: self-tracking, lifelogging, wearable technology, promises, ideologies, visual semiotics

1. Introduction

Self-tracking, i.e., logging various aspects of daily life using digital technologies, has evolved from an experimental practice to a widespread phenomenon in Western countries (Lupton 2016, 9-13). The enabling Self-Tracking-Technology (STT), consisting of various sensors that measure physiological and environmental data, is steadily evolving and can easily be worn on the wrist. However, attributing STT's popularity solely to technological feasibility overlooks the co-productive nature of knowledge, its material manifestations, and the sociocultural surrounding (Jasanoff 2004). As Lupton (2014) points out, self-tracking is a *"social practice, both in terms of the enculturated meanings* [...] *and the social encounters and social institutions that are part of* [it]*"* (Lupton 2014, 3). Such a conception inspired multifaceted insights into the motivations behind the use and interpretations of STT. Striking in the relevant body of literature are the different viewpoints on the phenomenon, which can be roughly divided into four perspectives. Some authors approach it from a *structural* perspective (e.g., Ajana 2017; Catlaw and Sandberg 2018; Sanders 2017), like King and Gerisch (2018), who suggest that STT responds to a demand for self-economisation. Others focus on a *personal* perspective, placing acting subjects at the centre of the analysis (e.g., Maturo, Moretti and Mori 2016; Moore and Robinson 2016). Noji and Vormbusch (2018), for instance, elaborate on how STT satisfies the desire to maintain an authentic identity despite volatile biographical trajectories. Some interpretations take a *nature*-centred perspective (e.g.,

Lupton 2015; Berg 2017), such as Schulz (2016), who describes the use of STT as an alienated reaction to the dissolution of boundaries between different forms of Fordist reification and the accompanying autonomy loss. Finally, a *cultural* perspective emerges in other works (e.g., Ruckenstein and Pantzar 2017). For example, Schaupp (2016) connects the use of STT to self-rationalisation in the spirit of cybernetic capitalism.

This paper focuses on common promises and resulting narratives surrounding the purpose and utility of STTs, which underlie their use and capability for hegemony. Based on the observation of the different perspectives taken on the phenomena, we frame this research within Van der Loo and van Reijen's (1992) modernisation theory which describes modernity along four perspectives via ideal-typical developmental dynamics. We thereby aim to build a multi-perspective analysis abstracting from individual meaning attributions to STT and focusing on its hegemonic interpretations as they circulate in public discourses around the practice of self-tracking, with a special focus on the Western European context. To achieve this, we applied the modernisation theory to frame a visual semiotic study of four TV-commercials of smartwatches and fitness-trackers focusing on the promises and ideological myths (Barthes 1957/1991) articulated therein. The study embraces Haug's (1986) conception of advertisements creating a "second surface" of commodities through use-value promises by addressing customer needs, fears, and desires and connecting them to the product. Advertising thereby holds out the prospect of imagined sociotechnical realities reflecting contemporary ideologies, i.e., the mental frameworks which members of the society "deploy in order to make sense of, figure out and render intelligible the way society works" (Hall 1986, 29). The comprehensive multi-perspective approach enables us to discern interconnections between the use-value promises and their underlying narratives that cannot be drawn from single-perspective diagnoses.

Results show that the reality of life and problems portrayed in the commercials and the supposed benefits and solutions touted through STT must be understood as expressions and constituents of late-modernity. They suggest that STT combines the idea of rationalisation as a panacea with the neoliberal narrative of individual responsibility to supposedly counteract several ideal-typical pathologies of late-modern living conditions. Regarding how they can accomplish this, the commercials remain vague and only point out their rationalising and activating potential, exposing STT as technologies of an instrumental reason. The contribution of our paper lies in the multi-perspective examination of common use-value promises behind STT. This broad analysis inspired by the modernisation theory allows us to gain insight into the nature and ideology of a more coherent overall narrative about the purpose and utility of these technologies spun across their promises. We thereby contribute to a more holistic critical discourse on self-tracking as a practice of human enhancement in the name of supposed emancipation. By tracing the problems self-tracking aims to solve to their socio-material origins, we liberate the concept of human enhancement from anthropological conditionality and emphasise the potential for alternative sociotechnical arrangements beyond the prevailing one. Moreover, the theoretical corpus presented in this paper, guided by the modernisation dimensions and developed gradually through hermeneutic analysis, provides a theoretical starting point for a more holistic exploration of the complexities of the self-tracking phenomenon.

The paper is articulated in four sections: Section 1 introduces the modernisation theory as the study's framework. Section 2 outlines the method of semiotic analysis and the sampled commercials. Section 3 discusses the results from four modernisation perspectives. Section 4 synthesises the findings.

2. Theoretical Framing

Van der Loo and van Reijen (1992) describe the four perspectives on modernisation and modernity – structure, person, nature, and culture – along four ideal-typical developmental dynamics – differentiation, individualisation, domestication, and rationalisation. Below, these dynamics are shortly outlined in their original form and extended in terms of substance for our purpose. This theoretical corpus originates from a hermeneutic analysis between the empirical material discussed later and the theory used to interpret it. Accordingly, the following represents a pragmatic collection of various (late-)modern time diagnoses which can be used to analyse the origins of the promises of self-tracking. It should be noted that the dynamics identified by Van der Loo and Van Reijen only provide an analytical accentuation on the same matter and should not be considered independent developments.

2.1. Structure: Differentiation

The differentiation diagnosis describes a structural change in modern societies characterised by the disintegration of a "homogeneous whole" into differentiated and specialised functional spheres with unique institutional characters, rules, and logics (Van der Loo and Van Reijen 1992, 31). Classic examples are labour division, peaking in the Fordist assembly lines and extending to current global production chains or the differentiation of life domains, such as the separation of "work" and "life" (Jürgens 2010). Through this horizontal differentiation, late-modern subjects synchronously and diachronically belong to many milieus and life contexts, all associated with different normative requirements (famously in Bourdieu 1979/2010).

Beyond horizontal differentiation, modernity reflects the historical legacy of vertical differentiation in the form of the stratification of societies in hierarchical super- and subordination between individuals, albeit under different auspices. One of the most influential diagnoses of modern vertical differentiation is still Marx's (1890/1981) class theory dealing with the misery of the doubly free wage-labourers. Liberated from the constraints of feudalism and thrown into the forceful process of primitive accumulation, they are ultimately left with nothing but their labour-power, which they must bring to market. Rooted in analysing capitalist commodity circulation and capital movement, Marx's diagnosis lost little actuality (e.g., Fuchs 2021).

While the trend toward functional differentiation was a modern characteristic until the second half of the 20th century, late-modernity witnessed a break. An example is the increasing reintegration of functions into one person in wage-labour. Pongratz and Voß (2003) attribute these changes to the crisis of Fordism. Its rigid, hierarchically structured organisational and control mechanisms of production proved unprofitably scalable in the face of ever-increasing production demands. The response involved flattening hierarchical structures, flexibilising work arrangements, and reuniting functions previously allocated to different individuals. Following this trend, employees are discovered in their subjectivity and no longer seen as mere functional executors. People's versatile skills are incorporated into the company's productive resources while individuals increasingly align their skills towards gainful employment. Consequently, the *entreployees* emerge as a new ideal-typical figure of late-modernity (Pongratz and Voß 2003), managing (controlling, spending, reproducing, and increasing) their labour-power along the market demands but apparently without external control.

The poststructuralist theory can illuminate some mechanisms of these new forms of labour. According to Foucault (1975/1995), social regulation in developed modernity relied on disciplinary principles, as implemented in Fordist work organisations. Late-modernity shifts towards pervasive network-like control, expanding beyond spatial and

temporal boundaries (Deleuze 1992; Hardt and Negri 2000). Whereas previously, power was enforced through external disciplinary measures in different institutions, it would now pass into social relations themselves, unfolding through *"free-floating"* (Deleuze 1992, 4) internalised self-control. In these *societies of control* (Deleuze 1992), power mechanisms are realised by expanding individual agency while maintaining control through accompanying barriers. The resolution of the supposed paradox of control enforced through freedom manifests in the entreployee: They are not subjected to strict working times, places, or means but face control through precarious working conditions or deadline-driven task completion.

2.2. Person: Individualisation

The notion of individualisation amalgamates various contemporary diagnoses pointing to the increasing independence of the individual at the expense of social relations. The modern human moved away from traditional collectives of immediate vicinity (family, neighbourhood) and integrated themself into numerically more and geographically widespread social units (factory, milieus) characterised by weaker bonds. As the individuals gain importance, unifying values like solidarity recede into the background (Van der Loo and Van Reijen 1992, 32). The outcomes of this process are manifold. Rosa (2013, 231-250), for example, identifies a link with the specific forms of late-modern identity construction. While identity drew from stable social ties and predictable normative biographies in developed modernity, late-modernity brings extensive dissolution, leading to flexible and unpredictable life paths. Following on from this classic individualisation thesis (Beck 1992), Rosa sees a new form of situational identity emerging:

> "[I]t is no longer the case that one is a baker, conservative, or Catholic per se. Instead one is such 'for the moment' and for tendentially shrinking periods […]. One was something different and (possibly) will be something else" (Rosa 2013, 233).

This activation of situational identities hampers long-term planning. As biographies become diverse and reversible, evaluating decisions for lasting impact becomes harder, making the personal life path appear contingent (Rosa 2013, 231-33). While situational identities are not necessarily problematic from an anthropological perspective, they conflict with the late-modern ideal of authenticity (Noji and Vormbusch 2018). These only contextually retrieved and articulated self-conceptions undermine the experience of an authentic, cross-situational identity core.

Identity construction requires cultural self-reflection and self-articulation techniques (Foucault 1988). Burkart (2006) traces the origins of these *institutions of self-thematisation* from Christian confession to psychotherapy, group therapy, and counselling. Historically, they have evolved from externally guided to self-guided and from moral and cognitive-rational to expressive and performance-oriented approaches. Straub (2019) argues that in this evolution, the hegemonic understanding of autonomy changed from a Kantian sense (self-legislation and coexistence under general reason) to an individualistic sense. Individualistic autonomy regards detaching individuals from ties and obligations and unrestricted freedom of disposition as the highest aspirations. However, late-modern subjects would still resort to various external counselling practices, thus establishing new dependencies, often mediated by technology. The *Auteronomous Subject* (Straub 2019) embeds this contradiction of heteronomous guided self-thematisation under the sign of individualistic autonomy.

Fordism proved incompatible with the labour forces' individualisation (Dörre 2015, 51). Simultaneously, companies shifted from production-centred to capital-market-oriented economics. Dörre (2015, 55-62) links this reorientation to the increasing relevance of the financial sector, fostering the *New Economy.* In contrast to early theorists of this economic strategy, capital concentration persisted — this time, however, in the hands of the investment sector instead of production. Their generated surplus flows into production through investments driven by future dividends expectations, thereby reversing the relationship between production and profit. Targeted profits determine the work invested instead of vice versa. This ex-ante expectation promotes a *competition-based regulatory dispositif* in companies (Dörre 2015, 46-48): autonomous sub-units are formed; hierarchical structures are flattened; responsibilities are pushed "downwards", ultimately to the workers who become the planning and executing force. Control mechanisms such as performance scores and benchmarks emerged, facilitating comparisons between sub-units and individuals. Companies focused on core services, outsourcing secondary production (Dörre 2015, 43-46). Organisational actors compete internally and externally, while scores and objectives generate perpetual pressure to perform. This pressure is passed on to the employees through relaxations of labour law, dissolutions of collective agreement regulations, and the dismantling of the welfare state. For Lessenich (2015, 119-31), the state enacted these measures to activate dormant labour potentials, leading to the so-called Active Society.

The Active Society offers individuals autonomy through part-time work, flexible hours, or fixed-term employment, but it also brings growing precariousness (Dörre 2015, 48-51). In this insecure socio-economic climate, precarious workforces discipline the core workforce, aiming to avoid becoming labour nomads themselves. The *competition-based regulation* pushes workers into even more tense antagonistic positions. Their labour-power becomes the commodity traded for potential security. As individuals find themselves exposed to this competition, they search for self-optimisation strategies (Spreen 2015, 113). Proto-normalistic schemes of action (present under stable institutional framings) and forms of solidarity (communities or classes) are eroding and replaced by systems of comparison. Rosa (2013, 117) uses the metaphor of slippery slopes to describe the situation where the performance expectations are constantly being revised upwards: Those not improving automatically fall back.

2.3. Nature: Domestication

Domestication, i.e., the cultivation and appropriation of nature to decouple human action boundaries from natural ones, is a characteristic feature of human history (Van der Loo and Van Reijen 1992, 32-33). However, specifically modern is the intensification of external nature domestication and the control of inner human nature. In late-modernity, human life appears detached from external natural conditions and is characterised by domesticating the animal within us (Van der Loo and Van Reijen 1992, 33). This tendency is evident in medical care and can reach as far as consciously manipulating the body or psyche. Domestication is often perceived as emancipation without side effects. However, the detachment of humans from physical and biological forces is accompanied by new dependencies. Besides technologies taming natural forces (e.g., dams) and other individuals (e.g., farmers for foodstuffs), modern living requires disciplining affective behaviour to guarantee connectivity in an ever-increasing individualised and differentiated society (Van der Loo and Van Reijen 1992; Elias 1939/2000).

As Horkheimer and Adorno (1944/2002, 6) point out, mastery over nature is accompanied by alienation from nature, hindering reflection on the controlled object. This also applies to the Self and the body when they become the object of domestication.

For example, in her genealogical study on healthcare technology, Riha (2004, 27) reports on common exchanges between physicians and patients; physician: *"How are you feeling today?"*; patient: *"I don't know; the lab results aren't back yet."* The patient's response here reflects the perception of the body as foreign objectivity requiring external evidence to be comprehended. For Horkheimer and Adorno (1944/2002), this perception makes mastery over nature and alienation a vicious circle. The dialectic of Enlightenment resides in the paradoxical dynamic wherein the exertion of mastery over nature through objectification increases, and not reduces, the power nature exercises over societies and individuals. Nature can be controlled but never wholly overcome; it merely recedes into the background. The subjugation of nature is also self-subjugation since humankind itself is nature. This, in turn, increases self-alienation. The more objectified knowledge is brought into experience, the more the individuals become estranged from themselves, and the more challenging experiences of "being someone", "acting correctly", or "feeling somehow" become, which in turn calls for more objectified knowledge to compensate.

As foreign objectivity, the body can be subordinated to the consciousness and thus understood as a deliberately malleable and transformable object (Liebsch 2017). Anders (1956/2001, 21-95) argues that the urge to shape oneself and one's body stems from feeling ashamed compared to human-made technologies considered flawless. More abstractly, Anders diagnosed that the desire for self-transformation results from the perception that in a domesticated, artificially crafted world, the only interfering factors are human beings. This would bring forward self-perceptions as *faulty constructions*, a particular form of self-reflexive thinking perceiving the human not as biologically predefined but manufactured and consequently transformable creature. This notion underlines that humans' "default construction" is deficient compared to technological achievements. Anders sees the response in *human engineers*: Individuals experimentally exploring and shaping "amorphous" and "deficient" parts of the Self and body to align them with cultural ideals. Anders emphasises that this exploration aims at transcendence, not self-knowledge. (Anders 1956/2001, 21-95).

Beyond this general conception of humans as deficient beings, people's characteristics outside the "norm" are seen as flaws or deficits in Western societies, prompting the pursuit of scientific and technological interventions to restore a "normal state" (Nikolow 2020, 403). Nevertheless, an underlying narrative change can be observed, particularly regarding ageing (Cozza, De Angeli and Tonolli 2017). Van Dyk et al. (2013) show how the culturally interpreted deficit "higher age" has undergone a discursive change closely linked to the Active Society. Whereas the dominant dispositif in the 1950s-1970s revolved around "deficiencies" and the "need for help", the current ageing narrative is one of an "active" and "productive" life. However, this shift aims to activate untapped productive forces, not normalise the inevitable. The neoliberal activation dispositif reverses the functional relationship between society and older adults: In return for financial security, people of higher age are encouraged to put their "unused" labour-power into community service, as reflected in the growing call for grandparental childcare, facilitating parents' early return to work. Older adults are being made responsible for not becoming a burden on society and keeping themselves independent. The understanding of impairments as deficits compared to a "norm" persists, and those affected are encouraged to minimise dependence and actively contribute to society.

2.4. Culture: Rationalisation

Rationalisation describes the process of ordering and systematising the world to make it more predictable and controllable. In this context, modernity is characterised by employing calculative practices and reasoned justifications with the primary aim of increasing the efficiency and effectiveness of different life domains (Van der Loo and Van Reijen 1992, 31-32). However, considering Weber's (1921/1978) distinction between value and means-end rationality, one could argue that modern societies only differ in the dominant form of rationality employed rather than being inherently more rational than pre-modern ones. While a primacy of value-rationality characterised pre-modern societies, modern societies exhibit a shift towards means-end rationality. Value-rationality involves deliberations based on norms and moral principles, where actions align with the actor's value system. Means-end rationality considers ends, means, and consequences in decision-making, ensuring that the purpose, methods, and side effects are carefully evaluated to identify suitable solutions.

Horkheimer (1947/2004, 16-72) goes a step further with his thesis of modernity being characterised by a primacy of *instrumental reason*. This form of rational reasoning emphasises evaluating means to achieve ends that are solely subordinated to the value of self-preservation. Deliberation focuses on "how" to achieve something rather than "what" or "why". This does not mean actions are carried out without objectives, but deliberation is narrowed down to achieving them methodically. Ends are defined but rarely reflected upon their sense, making rationality a catalyst for an efficiency-driven, technocratically governed world (Horkheimer 1947/2004). In his media-theoretical approach to the concept of instrumental reason, Habermas (1987) distinguishes between two areas of life that shape different forms of rationality: the *system* (economy/state) and the *lifeworld* (cultural reproduction: art, personal relationships). Instrumental reason is the dominant logic of the system, while the lifeworld would favour value-based deliberation mediated by communication oriented toward mutual understanding. The state's and economy's communication runs via administrative power and money, enabling efficient exchanges without the detour of mutual-reflexive understanding, thereby establishing an instrumental logic. In late-modernity, however, Habermas sees a tendency toward instrumental reason slowly colonising the lifeworld (Habermas 1987, 332-373). This thesis becomes apparent in the monopolisation of culture by a few companies or the shift from education to labour-oriented training.

The primacy of instrumental reason nowadays manifests in the encompassing datafication of everyday life. Houben (2018) views data as another communication medium facilitating the spread of instrumental logic in the lifeworld. Mau (2019, 1-25) traces today's ubiquity and power of data to post-Fordist capitalism and its performance-oriented management style. Performance indicators are used to visualise and control progress, embraced by the private sector and public administration. The state becomes a *"data manager"* (Mau 2019, 17) using socio-demographic indicators like GDP or birth and death rates to make informed decisions (Mau 2019, 17-20). These indicators are either directly or indirectly derived from quantified circumstances. In this context, quantification means creating numerical representations of an arbitrarily narrow or broadly defined thing by translating some of its qualities into the language of mathematics. This enables us to compare, hierarchise, or calculative transform things, thereby removing some complexity and making phenomena eluding our perception more tangible (Mau 2019, 12-14). Like in other application contexts, data can provide orientation for individuals. Numbers about oneself can be related to and compared with others. However, they are not free of socially negotiated values. According to this thesis of a late-modern *Valuation Society* (Mau 2019, 5-6), ubiquitous quantitative

measurement is not only a description but impacts our worldviews, altering conceptions of value based on instrumental efficiency and accelerating competition through comparisons. It creates new forms of social inequality because the previously incomparable can now be placed in hierarchical order.

3. Method

We conducted a visual semiotic (Gallagher 2012) analysis of TV-commercials as one of the arenas where collective visions of sociotechnical futures are performed, negotiated, and solidified (Haug 1986; Jasanoff 2015). Even though TV-advertisements lost lots of their relevance for marketing in recent years, they are ideal for this study. Compared to print or audio formats, commercials enable the portrayal of more complex storylines. They address a dispersed, heterogeneous audience (Janoschka 2004) and, therefore, more collective experiences in condensed form due to standardised time constraints. The analysis followed the proposal by Gallagher (2012), combining Barthes' (1957/1991) myth analysis with film semiotics. We adjusted the method to suit our aim and material. Unlike Gallagher's analysis focussing on contrasting original videos with remixes, we examined the promises embedded in the commercials through the lens of modernisation theory. Each clip underwent analysis using four analytical lenses in hermeneutic cycles. Where the body of theory could not explain a portrayed phenomenon, further literature was consulted and incorporated.

Key	Manufacturer	Last Airing	Protagonists
Commercial 1	Samsung (2014)	2015	Single; Woman
Commercial 2	Garmin (2017)	2018	Single; Man
Commercial 3	Fitbit (2017)	2018	Multiple; Men
Commercial 4	Apple (2019)	2020	Single; Man

Table 1: Sampled commercials according to the variation dimensions.

The sample comprised four clips selected through theoretical criterion sampling and subsequent maximum variation (Patton 2002, 234-238). We focused on commercials for fitness-trackers and smartwatches. The commercials should portray actors interacting with the STT and have been broadcast within Western Europe for a culture-dependent coding analysis (Eco 1976, 66-68). Further, we applied a maximum variation sampling to increase heterogeneity: Both women and men actors should be present (individuals with other gender identities did not appear). The sample should include commercials from each major manufacturer at the time of sampling (IDC 2021) to capture not only particular company philosophies. The selected commercials are shown in Table 1. Their content and staging are briefly outlined below. However, watching the commercials to better understand the results is recommended. The links to the videos can be found in the list of sources at the end of the article.

3.1. Commercial 1

A woman in her mid-20s is portrayed in various contexts and activities. First, she is in a forest, exercising on a dirt road in a sporty outfit. These sporting activities are transferred to other contexts, whereby the camera perspective and the character's action remain identical while the scenario changes. E.g., the woman is filmed from the side while running in the forest, followed by a cut and a scene change. She is again seen from the same angle running towards a taxi in a metropolitan setting, wearing casual leisure clothes. The other non-sporting scenes occur at work (business outfit) and a

night club (evening outfit). She always wears the fitness-tracker on her right arm but only interacts with it outside the forest scenes. The commercial is layered with a text, spoken by a female voice: *"Is your body telling you something, or is it your* [STT]*? Pushing you to go faster, telling you when to speed up, and when your goal has been reached. Keeping you connected and run your life exactly how you choose."* The final sentence is spoken as the protagonist leaves the confines of the forest and runs towards the sea under a clear sky (Samsung 2014).

3.2. Commercial 2

A cut marks the transition of a mechanical metronome swinging back and forth at 70 bpm with the movement of a man's legs doing floor exercises next to a pool in the early morning. He wears the smartwatch on his arm while the routines of the roughly 30-year-old black man are portrayed. He goes running at dawn, passing a noisy construction site. He can be seen at his workplace, wearing an elegant suit and interacting with colleagues. He stands on a golf course, hitting balls into an approaching waft of mist. In the next scene, he is at the gym, pushing himself to the limits before showering. The sound of the shower blends into the pouring rain as he waits under a shelter in the mountains. Because the downpour doesn't cease, he continues running in the rain. The sky clears as he reaches a hilltop overlooking mountain scenery in the dusk. Scene change: The protagonist wears casual evening clothes in a metro station. As he walks towards the exit, he faces a crowd entering the station and sovereignly winds his way through it before disappearing. The end features a voiceover: *"Today only comes once. Here's to those who take that as a threat and crush it!"* A text insert appears: *"beat yesterday"*. The metronome's ticking is an acoustic constant of the spot; the staging is gloomy and dark (Garmin 2017).

3.3. Commercial 3

The commercial features five men aged 40-60 in different storylines. Each portrays a specific activity: road cycling, running, gym exercises, dirt running, and triathlon. Despite their different kinds of sports, the storylines are identical: The protagonists prepare professionally, such as shaving their legs (cyclist), chalking their hands (gym), or applying eye black (dirt run). The runner puts headphones on and starts tracking his activities on the smartwatch. Throughout the commercial, we see the protagonists slowly moving into the activity with increasing intensity. Towards the end, they reach their goal with their last ounce of strength, smiling at the smartwatch with faces drawn from the effort. An orchestral version of Happy Birthday plays throughout the clip, starting soft and growing as effort increases. The music fades again towards the end as the dirt runner falls at the muddy finish line, with the smartwatch displaying his activity measurements. A text appears: *"Some numbers mean more than others"* (Fitbit 2017).

3.4. Commercial 4

A man in his thirties sits on a sofa in a baggy outfit, drinking coffee and watching baseball in the morning (protagonist1). Suddenly, a double of himself wearing a less faded shirt and a smartwatch is sitting in the armchair next to the sofa, looking at him with amusement (protagonist2). A notification appears on the STT: *"Time to stand!"*. He immediately obeys, and so does protagonist1. They spot a third doppelganger walking along the street while on the phone (protagonist3) and follow him. As the clip progresses, more doubles appear, each more athletic than the last. The walking character is trumped by a fast-walking one (protagonist4), who is trumped by a running one (protagonist5). All of them try to imitate the "most active" one. Protagonist5 stops as he

arrives at a beach. Smirking, he looks back at his former Self as they arrive, visibly exhausted. Suddenly, a sixth doppelganger wearing swimwear appears. He rushes across the beach towards the rough ocean, jumps headfirst, and swims. After some initial confusion, the other protagonists try to follow. Protagonist6's head dive causes splashing, briefly obstructing the view before the doubles vanish. In the last scene, the protagonist swims towards the horizon, overlayed by the text: *"There's a better you in you"* (Apple 2019).

4. Results

Analogous to the theory section, the results are broken down along the four ideal-typic developmental dynamics of modernisation and discussed below.

4.1. STT and Differentiation

The analysis from a structural perspective shows both a connection between self-tracking and the late-modern differentiation of social structure into lifestyles, social milieus, and situated roles, and the stratification of social hierarchies. In Commercial 1, the protagonist flexibly navigates multiple life contexts, effortlessly embodying the normative ideal of an energetic sportswoman, ambitious businesswoman, carefree shopper, or exorbitant partygoer. The STT is integrated into each context and charged with the promise to help people to adapt to the norms, values, and interpretive paradigms of the respective milieu, consequently facilitating horizontal mobility. Moreover, technology is presented as an agent of vertical upwards mobility. Commercial 2 portrays a successful, goal-oriented person and a respected member of society, admired at the workplace and living in a luxurious mansion. The fact that the protagonist is black reinforces the point. Despite being exposed to structural discrimination, he could climb the social ladder via self-tracking. The idea is taken up metaphorically in the other commercials by climbing stairs or mountains. Even though not explicitly mentioning it, Commercial 4 discusses acquiring the essential prerequisites for upward mobility. STT would catalyse a transformation from inactivity to dynamism, empowering individuals to set and achieve goals and surpass their limitations.

Like Maturo, Moretti and Mori (2016), we identified a connection between STT and wage-labour, manifested through the dispositif of the entrepreneurial self. This link becomes particularly apparent in Commercial 1, where the editing technique equates sports activities with daily life actions. The message conveyed is that athletic success signifies a workout and proxy for professional success. The protagonists independently enhance their performance using the smartwatch without being subjected to institutionalised and direct disciplinary control dictating how to manage their potential or labour-power. From this perspective, they resemble the entreployee (Pongratz and Voß 2003), which has internalised its dispositif and its constitutive characteristics of self-initiative and responsibility and put their lives at the service of wage-labour. However, this internalised control (Deleuze 1992; Hardt and Negri 2000) is externalised again by delegating it to the STT. In this role, the technology operates according to a disciplinary principle (Foucault 1975/1995). For instance, the smartwatch instructs the protagonist to stand up (Commercial 4). The protagonist in Commercial 1 is told that she reached the daily goal of steps and receives a virtual "achievement". Such instructions, but also the tracking of the steps alone, unfold an imperative power. In the first case, it is explicitly formulated; in the second case, it unfolds through a numerical explication and playful rewards. Accordingly, STT is portrayed as a tool to outsource the control people are supposed to exercise over themselves by delegating self-regulation to the smartwatch.

4.2. STTs and Individualisation

Commercial 4 plays with the temporal category where the metamorphosis follows a pattern. The currently "most active" protagonist - engrossed in his daily doings - encounters his past Selves, symbolising past captured data. These encounters transform him into a more active version of himself that becomes the new main protagonist. The underlying message is that SSTs would enable individuals to reflect on their past, grasp their status quo, and envision their future by following the trajectory. Reading this narrative through the lens of individualisation, several issues related to lack of orientation become evident (Rosa 2013). The smartwatch provides directions through self-referential comparison. This comparison counteracts biographical contingency (Rosa 2013) because possible futures can be imagined by tracing developments. Commercial 2 plays with the desire for confidence despite an unclear future. The protagonist hits golf balls directly into an approaching waft of mist but cannot see where his efforts lead. Nevertheless, he is confident as he watches the balls fly into uncertainty. In Commercial 1, the narrator says that the STT would allow users *"to run* [their] *life exactly how* [they] *choose"*, thereby promising to reduce contingency and uncertainty.

Commercial 1 promises to solve the conflict between fragmented situational identities and the aspiration of authenticity (Noji and Vormbusch 2018). The portrayal suggests that the protagonist does not play these roles but IS herself in each of them. She IS a believable and authentic athlete, businesswoman, or partygoer and can adopt these identities at will. The smartwatch is portrayed as an overarching device, reconciling these different facets. While gestures, facial expressions, and outfits change, the smartwatch creates a unified, context-independent continuum of data about oneself that can be consulted whenever the question of authenticity emerges. Moreover, STT is offered as a new form of self-thematisation, promising a solution to the crisis of subject construction. This thesis suggests itself because the beneficial consequences of STT are attributed to their reflexive character. Commercial 3 exemplifies this reflexivity as the protagonists push their limits but only derive a sense of satisfaction by examining the numerical explanation of their performance. Self-tracking can be regarded as the logical continuity of the evolution of institutionalised practices of self-thematisation (Burkart 2006) since their use is unassisted and the object of reflection is the body and its performance.

Against the backdrop of self-tracking as a seemingly independently accomplishable, performance-oriented, and expressive form of self-thematisation, the portrayal of the commercials' protagonists recalls the ideal-type of the *Auteronomous Subject* (Straub 2019). They support the hypothesis that self-tracking is connected to the idea of realising individualistic autonomy in an externally guided way. The narrator in Commercial 1 provides details about STT's function in this regard: *"pushing you to go faster, telling you when to speed up and when your goal has been reached* […] *to run your life exactly how you choose"*. SST promises to guide individuals towards autonomy. That the goal is individualistic autonomy is evident in the antagonistic relationships between the protagonist and secondary characters. Similarly, in Commercial 2, the protagonist is portrayed as a lone warrior holding his place against the rest of the world with the help of self-thematisation through the smartwatch. The thesis of self-tracking as a means of self-optimisation (Spreen 2015) is implicitly conveyed in all commercials. However, Commercial 4 stands out as its core narrative is the protagonist's transformation from a sedentary lifestyle to a dynamic, performance-oriented character. The transformation's staging, combined with the slogan *"There is a better you in you"*, suggests the existence of a "bad", "good", and "better" Self, supposedly inferred from individual capabilities and determination.

The idea of permanent improvement along performance categories resonates with the emergence of the competition-based regulatory dispositif (Dörre 2015) of the Active Society (Lessenich 2015). Under the finance-based regulatory regime, competition has become an all-encompassing control mechanism impacting individual relationships. Consequently and unsurprisingly, interpersonal comparison and competition occupy ample space in the clips. In Commercial 1, the protagonist's walking direction never aligns with secondary characters', highlighting the absence of shared interests. Commercial 2 depicts the protagonist fighting through a crowd, while Commercial 3 celebrates athletic competition rivalry. STT users are portrayed as winners, envied, or admired. Accordingly, the self-tracking data stand for performance capabilities that must be managed and improved for subjectively perceived safety in competition. STT promises its users competitiveness, counteracting the slippery slopes' downward pull. (Rosa 2013, 117). Fascinating about this reading is the methodological analogy between capital-market-oriented governance and STT-driven self-optimisation: Both involve setting goals in advance that determine the effort spent and are guided by performance indicators, as showcased by the smartwatch in Commercial 4 notifying the protagonist of falling *"behind target pace"*.

As Lessenich notes, the post-Fordist restructuring of production is accompanied by a realignment of the Keynesian welfare state from *"'state provision' to self-provision; from public to private responsibility for safety and security, from collective to individual risk management"* (Lessenich 2015, 128). This transformation is established as a moral imperative under the narrative of social responsibility (Lessenich 2015, 124-130). Asserting oneself within competition and the individualisation of social security is presented as a virtue. Those unable to keep up are no longer framed as people needing protection but as a burden for the public. They are encouraged to mobilise, adapt to circumstances, and maintain physical fitness. Here, the dispositif of the Active Society unfolds, equating inactivity with "bad" and activity to "good":

> "In this world […], the degree of activity, the more or less of individual mobility and movement tends to acquire more relevance than all other social distinctions […]. Essentially all other social distinctions tend to become subsumed under the social meta-distinction between activity or inactivity, mobility versus immobility" (Lessenich 2015, 127).

The slogan *"there is a better you in you"* in Commercial 4 summarises this activation dispositif: there is no room for non-performative action. Even older generations are not excluded from this principle, as shown in Commercial 3 and detailed by Van Dyk et al. (2013).

4.3. STT and Domestication

STT unfolds an imperative power on individual action. From the perspective of domestication, this observation can be interpreted as a form of disciplining the Self to keep impulsive and emotionally driven behaviour under control. When the smartwatch points out that one is *"behind target pace"* (Commercial 4), this is a reminder to adapt actions to civilisational demands (Elias 1939/2000).

Commercial 1 questions whether it *"Is your body telling you something, or* […] *your* [STT]*?"*. The question can be interpreted to mean that it is unclear whether the instructions, feedback, or data originate from the STT or the body. However, the question also addresses the credibility of self-perception and reflects a dualistic mind-body conception. The body is presented as something estranged, a foreign objectivity (Horkheimer

and Adorno 1944/2002, 6). Similar to Berg's (2017) findings on the marketing narratives of emotion trackers, the commercial reflects the idea that the human body would only be partially fathomable through perception, but not completely graspable by the human mind. The tracker mediates vague signals from the body, makes them accessible to the mind, and facilitates action. As Horkheimer and Adorno (1944/2002) explained, the mastery of nature is self-mastery. It reinforces the alienated self-relation and therefore requires new means of mastery, promptly offered by STT.

Similarly, Commercial 3 elaborates on the body as a foreign objectivity perceivable through quantitative data. One protagonist finds satisfaction in sports activities exclusively by looking at the fitness tracker. His experience does not run directly through sensory perception. The ideological basis here lies in the dualistic conception of the human as a biological body on the one hand and a conscious Self having power over the former on the other (Liebsch 2017). A remarkable example of this idea is Commercial 2, where the protagonist is compared to a construction site during his workout: He shapes his body according to his will, guided by the STT. Further, the protagonist is equated to a metronome, ticking back and forth with mechanical precision. This comparison is reminiscent of the *human engineer* (Anders 1956/2001, 31-41) exploring and exceeding performance by STT as a prosthesis: The protagonist adjusts to the machine's clocking to function in this culturalised world. He aims to overcome the deficits resulting from comparing cultural achievements with oneself. The idea of supposed deficits to be overcome is also portrayed in Commercial 3, where domesticating the "old" body is a central narrative. The shame of age and self-perception as faulty construction drive the protagonists to adapt their abilities with increasingly sophisticated methods to meet cultural demands. As Van Dyk et al. (2013) point out, one of these demands is activation. Even when people reach retirement age, they have not yet fulfilled their service to society. To conclude, STTs are portrayed as domestication instruments, helping users transcend their natural limitations through disciplinary measures to meet cultural demands.

4.4. STT and Rationalisation

Analysing the staging of STTs through Weber's (1921/1978) axes of rational deliberation (means, ends, consequences), they are primarily portrayed as methodical instruments to rationalise means for diverse goals. These goals are presented as individually selectable and thus convey autonomy and self-determination. De facto, they are reduceable to the same core in each advertisement: Increasing performance and efficiency. This observation resonates with the urge for late-modern rational life planning (Van der Loo and Van Reijen 1992, 145-147). In a performance-oriented society, efficiency appears as a guarantor for increasing personal resources, leading to a less troublesome and compulsive life, ultimately fostering more agency.

The attractiveness of STT is a promise of objectivity. Since self-tracking ties in with the primacy of numbers (Mau 2019), it qualifies as a proven means to lead a rationalised life. After all, STT does nothing else on a purely functional level. It collects data, feeding them back as raw numbers, statistics, or instructions. The fact that individuals follow this rationalisation strategy is explained by Houben's (2018) adaption of Habermas' (1987, 332-373) thesis on lifeworld colonisation. In analogy to Schaupp (2016, 82-83), we see the resemblance between the protagonists and the entreployee (Pongratz and Voß 2003) as the link between institutional and individual rationalisation. The late-modern subjects adopt institutional rationalisation practices to maximise benefits. In this way, number-driven rationalisation unfolds in the lifeworld. As noted earlier, it is striking how much self-tracking corresponds to the practice of capital-market-based

management (Dörre 2015). In both cases, activation works by setting goals that determine effort. Likewise, control is implemented through scores and benchmarks. It appears that both, the governance of individuals in the context of wage-labour and over themselves, are conducted through the language of key performance indicators. However, the numbers are not presented as factualities but integrated into value systems (Mau 2019, 6). Commercial 3 suggests a causal link between self-esteem and achievements. The protagonists assure themselves through their data that their lives are "good". This technologically mediated feeling of happiness is coupled with the slogan *"some numbers mean more than others"*, attributing value to the measured numbers. Likewise, the valuation system hinted at in Commercial 4 equates to a performance-oriented lifestyle, where goodness is expressed through numbers.

Interpreting the commercials considering rationalisation was initially challenging due to its pervasive presence but latent discussion. However, this observation reveals the most significant ideological aspect behind self-tracking. As discussed, the clips address some ideal-typical late-modern pathologies. However, when it comes to explaining how STT can counteract them, the commercials remain vague. The supposed cures can ultimately be traced back to a single principle: increasing performance and efficiency through number-based rationalisation. Regardless of origin, nature, or context, rationalising life would make any problem surmountable. Thus, STTs can ultimately be interpreted as material manifestations of instrumental reason (Horkheimer 1947/2004, 16-72). Regarding the question of how these technologies can provide relief for late-modern pathologies, only their objective numerical character is pointed out. Like ancient myths, STTs elude any claim to justify their promises: Value is generated through methodical rationality and the resulting increase in performance.

5. Discussion and Concluding Remarks

The present study delved into an analysis of the use-value promises of self-tracking technology, adopting a holistic approach to offer comprehensive insights into the nature and ideology of narratives behind their use. Guided by the modernisation theory proposed by Van der Loo and Van Reijen (1992), we aimed to transcend the limitations of singular analytical approaches. By synthesising four different analytical perspectives (structure, person, nature, culture), each encompassing an ideal-typical development dynamic of modernity (differentiation, individualisation, domestication, rationalisation), we identified an overarching narrative on the supposed purposes and utility of STT. This synthesis goes beyond the mere synopsis of single-perspective results, as the multi-perspective approach gives us an insight into commonalities, differences, and connections between different diagnoses.

The resulting findings reiterate what the recently deceased Latour observed: Technology is society made durable (Latour 1990). STT appears to address a series of ideal-typical pathologies experienced by late-modern individuals. These pathologies include the loss of a constant normative frame, finding a balance between situational identities and authenticity, the compulsion to perform, the experience of the body as foreign objectivity, the loss of continuity in one's life, and planning uncertainty. Interacting with these individual problems, cultural practices emerged in late-modernity and are reflected in self-tracking. They include the primacy of internalised self-control and discipline, quantification-based forms of economic and bureaucratic governance, performance-oriented and expressive forms of self-thematisation, and the dominance of instrumental reason (Deleuze 1992; Mau 2019; Burkart 2006; Houben 2018). Self-tracking promises a cure through abstract, cross-contextual feedback linking the past

to the present, making futures imaginable, and driving performances to ever-new heights. It describes the Self and the body in numbers and gives implicit and explicit instructions for action, thereby enforcing a disciplinary effect. It enables body-related (expressive) and performance-oriented self-thematisation alongside economic/bureaucratic rationalisation methods. Above all, however, STTs turn out to be artefacts of instrumental reason that conceptualise the "good life" through efficiency and performance. They propose to achieve this goal by activating the individual and rationalising everyday life.

The methodical application of the modernisation theory proved to be an appropriate approach for conducting a holistic examination of self-tracking and its use-value promises. The theoretical corpus, constructed iteratively through hermeneutic analysis and guided by the theory's dimensions, offers an entry point for other researchers to explore self-tracking as a multi-faceted and distinct late-modern phenomenon. To conclude, we identify an ambivalent, if not paradoxical, relationship between the causes of the pathologies to be solved by STT and the cure offered. The causes of the problems addressed in the commercials are closely linked to the late-modern constitution of the prevailing political economy and can be regarded as societal pathologies. Their promises echo Margaret Thatcher's infamous maxim that there would not be such a thing as a society but only individuals looking after themselves first. Self-tracking is offered as an individual solution for collective problems.

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