

Engaging Opacity: Spotify and the Poiesis of Algorithmic Backends

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The music streaming platform Spotify is, on the face of it, an exemplary case study for investigating the relationship between backend technologies and processes, and everyday experiences of sociality and subjectification, for three reasons. First, its curation algorithm displaces more serendipitous or thoughtful practices of musical discovery, casting doubt on the authenticity and ownership of a user's taste. Second, given that music is an important social resource, bonding friends, lovers and fan communities alike, Spotify appears to illustrate evocatively the data colonialism thesis (Couldry and Mejias, 2019), which warns of the very basis of sociality being reshaped in accordance with interests at odds with those of digital audiences. And third, it shines a light on the lack of awareness of backend materiality, its experiential weightlessness obscuring complex media infrastructures, massive energy consumption and an extractive financial model undermining career viability for the majority of recording artists. Spotify can hardly be described as an uncanny technology that knows us better than we know ourselves: listeners frequently voice their frustration that the platform misrecognizes them (Snickars, 2019);, while others have argued that the exclusions Spotify makes from playlists are sociopolitically implicated (Reuter, 2019; Werner, 2020). But this raises the question of whether a better cognitive fit could emerge from more transparency around how Spotify creates tailored playlists, and whether less opacity could also afford better understanding of how individual and collective tastes evolve, as well as the inner workings and social and environmental impact of streaming services more generally.

Music promotion has always been a murky business, and concerns about the manipulative or degraded kinds of popular content directed at young consumers have historically come to be seen as reactionary in hindsight, especially given the emphasis in cultural studies research into fan communities and the social affordances of pop culture consumption. However, perceptions of commercial recommendation algorithms as black box technologies give rise to fears around the implications of constant user profiling and datafication. Digital literacy campaigners worry about the lack of awareness of (or informed consent for) how data is mined and used, while scholars

highlight consumer ignorance about how that which is served up to them by streaming platforms constrains their individual and collective sense of identity. But while all of this would seem to make the case for greater backend transparency, this chapter takes its lead from the phenomenological tradition, as well as more recent interventions regarding accountability, to argue that Spotify's opacity is precisely the precondition for an ethical relationship with its users. It then goes on to argue that its purportedly inauthentic cultures of listenership are just as poetic – that is, ontologically disclosive – as any others, and as sturdy a foundation for subjectification and sociality.

Poiesis is used in the Aristotelean sense of 'that which brings into being', and is distinct from 'affordance' in that it refers not just to particular possibilities for creating and acting, but replete ways of being in the world. This follows others in the media phenomenological tradition like Paul Frosh (2018) who foreground the worlding possibility of digital technologies beyond their design and content. Media backends are similarly conceived as poetic in that full world-disclosing sense, irreducible to their technical specifications or the service they were developed to deliver. Spotify emerged as a music streaming platform in the wake of the demise of 'pirate' sharing sites and apps such as Napster, and has since diversified into podcasting and much else besides. But it has also brought into being new ways of listening and thus new kinds of mediated places produced through novel cultures of practice – think of commuting, or going to the gym, or hanging out with friends, for all of which Spotify is not just a fresh backdrop but a constitutive ontological force in producing distinct ways of being. Researching Spotify presents acute challenges in that the platform guards the design and operation of its algorithms jealously. Recent attempts to investigate Spotify (see especially Eriksson et al, (2019) have been praised on the one hand for developing creative experimental methods, but also criticized for reading nefarious intent into what is presented as the black box at the heart of the corporate streaming giant.

Backends are the aspects of mediated life that fly under the radar but underpin poesis as a usually seamless experience, and include the Spotify algorithm that curates playlists and makes recommendations but also its data servers, its financial relations with music artists, communications corporations and national governments, the infrastructural networks that circulate data and the energy sources that keep the whole show on the road. Media phenomenology resists reducing the meaning of backends to their coding, business model, materiality or original conception; in philosophical terms this is because the phenomenological tradition rejects the whole idea of origins, and in the present context it means thinking of backends as self-contained sources of mediated experience but indispensable elements of unfolding assemblages of objects, actors

human and non-human, and processes – an unfolding that always proceeds from the present in which all these elements are always already in the thick of it. This is why a phenomenological approach rejects framing an algorithmic backend as a black box, because this would suggest that its teleology is discoverable in its programming, or maybe in the mind of its creator. As will become clear, the opacity of commercially-protected code, like the opacity of the origin of our subjectivity, is not an obstacle to understanding the lived experience each gives rise to and what is at stake ethically in our mutual thrownness. And there are real ethical issues at stake: whether data mining constitutes a breach of privacy, or recommendation algorithms undermine personal autonomy, or commercial motives undermine social practices of sharing music, or musical artists (not to mention infrastructural labourers) are exploited. But the ethics of media backends are not reducible to awareness of their technical, material or economic makeup; what is at stake ethically in music-streaming platforms is understood only by acting with and amongst them.

Opacity and accountability

Louise Amoore's (2020) defense of an ethicopolitics grounded in opacity takes its inspiration from Judith Butler's lectures *Giving an Account of Oneself* (2005), which in turn derive from a Spinozan ethics of accountability that is always-already acting in the world, rather than something argued from first principles. Amoore begins by rejecting an understanding of algorithms as a series of discrete rules in favor of an 'arrangement of propositions' generative of what comes to matter in the world. This phrasing takes its cue from Alan Turing's description of how mathematical architectures make intuition and ingenuity possible. Amoore does not doubt that algorithms are reductive, but they are also devices that sustain worldings – apertures that enact closures as well as openings onto the world. That as cultural artefacts they cannot give an account of their origins and development is neither here nor there, since none of us can either. Butler's ethics, which Amoore draws on, hinges on the claim that ethical relations – among people, but equally institutions and technologies – are entirely predicated on the groundlessness of origins. The upshot is that we cannot go looking for a foundation for algorithmic ethics in their code, nor in the mind of the coder. And besides, while it is futile to expect transparency to lead to full accountability with respect to how algorithms come to matter, they do give partial, oblique accounts of themselves all the time – and users call Spotify out for it when it gets the next song choice so gratingly wrong.

Data profiling as interpellation

The implication is that an ethical relationship between Spotify's users and its algorithmic backends cannot proceed from the claim that an *absence* of recommendation algorithms represents the moral high ground in digitally-mediated worlds. This is certainly borne out in user studies, and it is also of a piece with Butler's (1993) model of interpellation. While it is tempting to assume that all user profiling inflicts subjective violence insofar as it entails the incitement of subjectification – that is, the calling forth of selves according to schema not of one's choosing (or knowing) – it pays to revisit Butler's reading of Louis Althusser in relation to stop and search. Being rendered algorithmically necessarily involves subjection, since profiling is not something done to discrete individuals but is tessellated in the very process of becoming a subject. But it also accords recognition, however imperfectly, as the individual "attains as well a certain order of social existence, in being transferred from an outer region of indifferent, questionable, or impossible being to the discursive or social domain of the subject" (Butler, 1993: 82). This leads Butler to question whether there are ways of disarticulating punishment from recognition, and the same logic applies to profiling algorithms: while it is true that they have the performative capacity to subjectivate users as mechanistic taste templates, or as consumers complicit in an arguably unsustainable streaming industry, it is at least possible that they could do recognition better. Commonly understood as corrosive to human subjectivity, it remains plausible that the affordances of datafication might exceed their necessary reductiveness, maybe holding out the prospect of "a certain order of social existence" that is ethically defensible and gratifying for the user.

Listeners feeling aggrieved about Spotify's failure to get them is not trivial seen from this perspective, and, by the same token, we need not condemn as bathetic pleasurable experiences of algorithmic recognition. That which recommendation algorithms address are not otherwise rational, autonomous individuals subsequently laid low by datafication, but rather a pre-individual realm of subjectivation. It is common in the literature to find critiques of *any* interaction between media backends and this protean subjectivity as exploitative (see, for instance, Bucher, 2013; Lazzarato, 2014; Andrejevic, 2020), but it is important to recognize that the pre-individual is not a discrete and innocent space or time that would be better left alone by technology. Just as for Spinoza there is no prior ethical realm that can be abstracted from the compromised, demanding realities of temporal existence, for Althusser as for Butler there is no un-interpellated self, only selves constantly being brought forward to fruition by forces beyond intelligibility.

Next, if it is hardly controversial to assert that agency is not endogenous to the Cartesian subject, it is also productive to move beyond the consensus around the agency of non-human technologies to Karen Barad's (2007) understanding that agency is the unfolding of the world itself. This pulls into focus the role that *measurement* plays as an agential force, whether that be user profiling by platform algorithms or reflective assessments on continuity, change and possibility. Measurements never represent measurement-independent states of being; they are always active rather than passive, or more precisely they enact agential cuts (in distinction to Cartesian cuts) that disclose what matters as well as what is intelligible about it (see also Cheney-Lippold, 2018; Bowker and Star, 2000). Barad is writing more specifically about scientific measurement, but the analogy transfers well to user profiling. "Intervening in the world's becoming" is possible because the agential cut of measurement effects the local separability of effect and cause. "If, then..." chains may be clumsy, but they have the capacity for poesis; they are disclosive of the world and not a faint facsimile of reality. Barad is entirely relaxed about whether we prefer to use instrumentalist conceptions of measurement, or instead of "the universe making itself intelligible to another part in its ongoing differentiating intelligibility and materialization" (2003: 824). Either way, she concludes, marks are left on bodies; and objectivity means being accountable to those marks.

This then begs the question of what kinds of measuring Spotify enacts, and what should be held to account as a result. Lury and Day (2019) distinguish between personalization algorithms that accumulate as much data about individual users as possible in order to produce recommendations, and those that operate at the level of the population, termed collaborative filtering algorithms, that seek to maximize patterns of between different users. Spotify does the latter (Snickars, 2017), and what is significant is not that it seeks to place you in a targeted profile box as efficiently as possible and then keep you there, but rather that it operates by constantly comparing you to other users. This process of recursive induction operates by way of endless, iterative de-aggregation and re-aggregation, and the profiles it produces on the basis of your data are strictly provisional. This ongoing shuffling of the deck leaves the Spotify user in a suspended state of subjectification, always becoming a subject but always at the same time being remade. However, rather than this being held in limbo effecting the real subjective damage, the incessant refraction of users into multiple partial orderings inflicts its marks by feeding the development of pathways whose own agency generates "new ways of configuring relations between participation and proportion, sharing, ownership and use" (2019: 31-2). The iterative cycles of algorithms cannot but produce and

entrench criteria for comparison and interactional norms distinct from those which had evolved in cultures of music discovery and sharing.

There is something of a zero-sum argument to this claim, as though the accrual of agency by repetitive algorithmic chains necessarily saps human users of the same. This cannot be quite right – firstly, since the recognition afforded by a platform such as Spotify is hardly what anyone looks to for affirmation of their identity and group membership, but also because the partial rendering of selves by profiling algorithms does not represent a fracturing of the self. This is an important point that brings into sharper relief the way that interpellation is used to frame the constitution of subjectivities by institutions and technologies. We should not think of backend profiling as a chipping away at an integral self, nor as the summoning into existence of whole selves without our consent and according to regimes of truth beyond our intelligibility, as we are derivative of them. No institution has a monopoly on interpellation, and the truth is that we are partially, multiply interpellated all the time. What remains resonant is the notion that norms of selfhood – how other institutions, technologies and cultures invoke it – are being rewritten below the radar, such that even the way we think of our own identity and our relation towards loved ones is being rewired in ways we cannot apprehend (see also Dhaenens and Burgess, 2019). Think back to Butler’s dissection of stop and search: the damage is not done in the act of calling you into existence as a legal subject, but in the entrenching of unspoken norms connecting skin color, clothing, accent and body language to suspect subjectivities.

The fact remains that we find ourselves always already acting *as* selves before we have had a chance to think about what kind of selves we are; we grasp for whatever subjectifying resources we find at hand to make sense of our identities and that of others, and it can be taken as given that these resources are impure, compromised and complicit, being very much of the world. Two friends bond over a newly-discovered song, unaware that what was experienced as serendipity was in fact the result of relentless profiling that will have categorized them according to criteria they would be uncomfortable with – or more precisely, they will have been sorted into the same group as others sharing attributes they may well not regard as meaningful. It sounds deleterious that a backend technology geared towards generating profits might make an attribution of white American female teenager in pushing a Spotify user towards a new release, and that this might form the basis of an intimate interaction and ongoing sorority. But, for Butler at least, those murky origins are what do the bonding in the relationship, far more than the suspect affect exchanged. Amoore is clear that algorithms are knowable in the sense that in practice they are giving accounts

of themselves all the time, and as such their implicatedness in exploitation, extraction and injustice can be scrutinized – but in the here and now, not in an algorithm’s conception or design. Amoore would resist the understandable urge to pull back the curtain to expose the core of this algorithm, as its origins, too, are unknowable – to us, to its coder, to itself. It is likely that such an algorithm would not ‘know’ that the attributes it generates correspond to ethnicity or gender, for instance.

Now, there is a significant difference between a lack of awareness of Spotify’s code and its economic model, or indeed its carbon footprint, and a lack of awareness of how a platform environment might over time come to shift one’s senses of self and sociality. If Amoore has pointed out that the latter can be addressed by directing to our attention that which eludes (or does not interest) algorithms, other thinkers identify the key issue as a *temporal* one: that it is beyond the realm of human perception to be aware of what digital technologies are capable of doing in short bursts of time such as the milliseconds between a skip or a like and the profile recalibration made accordingly, and in concert with simultaneous datafications of other users. How important is this ‘missing half second’ (Hayles, 2014) between perception and conscious awareness? The pace of computational processes mean that this time lag is something we are impotent to defend from data extraction, and in the literature it is a gap frequently characterized as vulnerable to exploitation, specifically to invasions of privacy and commodification. That in turn means that our own black box emerges as a particularly human frailty, even innocence, that we are compelled to protect as though it is an essence of human nature. Parisi and Goodman (2011), for instance, have popularized the term “affective capitalism” to capture the parasitic tendencies of technologies tracking “feelings, movements and becomings of bodies” and making bets on their futurity in much the same way that high-frequency trading algorithms do in stock markets. The effect of this is to “abduct” the user from the present, leaving them again in a suspended state between a past made unreal by the sensuous experience of technology and a future that remains just over the horizon and always unintelligible.

The missing half-second

The accelerationism thesis is hardly new, with Heidegger setting out in *The Problem Concerning Technology* (2013 [1954]) the likely consequences of exponential technological evolution far outpacing our ability as humans to make sense of it all. This is not just a matter of accountability or oversight, since media are poeitic, world-disclosing technologies: they determine what it is possible to grasp about the world into which we find ourselves constantly thrown. The import is

ontological and not merely epistemological, not about the extent to which our understanding of our radical contingency is constrained, but what counts as that which it is possible to have knowledge about in the first place. The bracketing out of existential depth is of course the signature phenomenological gambit, but it is also useful here insofar as it pushes back against the deep mediatization diagnosis, which pivots on there being something unprecedented in the extent to which digital backend technologies are baked into the conditions of possibility of being human. For Heidegger the problem is not our obscure origins but how we are brought forward in time by technology and what that reveals about our being in the world. Now, the condition of thrownness is all about us flailing around trying to make sense of a world that always exceeds our grasp: conceptual failure is a given. But taking responsibility for oneself demands that we do what we can to understand the world and the selves we find ourselves thrown into, and this is made infinitely more challenging when both are continually made and remade at breakneck pace before our eyes.

For contemporary technology scholars such as N. Katherine Hayles (2014) and Mark B. N. Hansen (2015) what is germane is not really velocity over historic time, but that simple temporal gap between the capacity of digital technologies to process and act on incoming data, and our own fleshy abilities to do likewise. What precisely is going on in that aperture? Recommendation algorithms are an apt microcosm of Hayles' nonconscious cognition: they are subject to evolutionary dynamics insofar as they apply criteria of fitness for selection and filtering out; they are adaptive, changing those criteria as they proceed; they involve multiple recursive feedback loops that constitute complex systems of processing, and they are constraint-driven, assuming that what users expect of a platform like Spotify is instinctive and fairly simple. The last factor is what given an algorithm its "intention towards"; distinct from open-ended forms of artificial intelligence designed to generate their own goals that may or may not be known and understood by human agents, for recommendation algorithms it really is about maximizing the time that users spend on a platform, and extracting and modelling a maximal amount of data in order to entice others to do the same, a strategy known in the industry as 'engagement'. And yet, there is always the possibility that unseen tweaks to the parameters of music discovery will come to have far-reaching implications beyond our apprehension, given how deeply music, like all culture, is embedded in our understanding of identity and sociality.

Feeding-forward

Hansen acknowledges the extent to which algorithmic thinking has outpaced human cognition, and also “capital’s advance” in the former. More important still, however, is the symbolic interpretation that is co-relational with and inseparable from algorithmic perception. By this he means the ability to re-represent and not simply document; an algorithm proceeds by way of constant comparing, sorting and profiling, and it cannot do this iterative re-representing without being able, more fundamentally, to represent. Put more simply this amounts to the claim that algorithms are not just dumb flowcharts but capable of symbolic figuration and abstraction, which leads Hansen to posit that they mediate mediation itself. This can sound a little gnomic, so it is worth setting aside a couple of red herrings: Hansen does not mean by this either the tautologous impossibility of understanding the contingencies of our existence because the shifting sands which generate intelligibility are by definition beyond our grasp, or the crude commodification of subjectivity by what amounts to subliminal messaging by algorithms. Temporality is the key to his argument, the way that representations “feed forward”. As for Barad, each representation made by an algorithm is a closure, even a death if we cleave as Hansen does to Whitehead’s ontology, but one that brings the future to bear. Human subjectivity is only a subset of this feeding forward, but one that Hansen is at pains to insist we have a stake in understanding and responding to thoughtfully, so it matters if we are fed forward in time in ways that entrench particular subjectivities while excluding others.

This should also have a familiar ring following on from the account of interpellation: importantly, Hansen is not talking about the corruption of some vulnerable proto-self – in the same way that Heidegger through most of *Being and Time* (1962 [1927]) is not fixated on Dasein as a pure kind of being that has been sullied by the exigencies of worldly existence and which must be restored – but the forward movement of subjectification in and of itself. It is all about what is brought into existence in the unfolding of time rather than what time does to that which already exists. In any case it remains apposite that feeding forward is not simply about movement from one data point to the next; it is the endless symbolic reconfigurations that ongoinglyprehend entities in the world, ending (or killing) their becoming but making future becomings possible. In a very real sense, no one and nothing truly understands the parameters by which this all proceeds algorithmically or otherwise, and indeed understanding is beside the point. Hansen sides with Amoore in swatting aside the call (Bucher, 2018) to expose the true nature of algorithms while insisting that their ethicopolitical situatedness and complicity can be probed. In the same way that phenomenologists

bristle at the obsession to excavate reality to reveal its essence, instead redirecting their focus to what is revealed of the world by our experience of it, he wants to direct our gaze from the temporal origins to the relentless presentness of how they operate in the world. There is not space here to delve into the rich historical research undertaken by Orit Halpern (2014) and others into the emergence of how ever-evolving representation came to displace empiricism in post-war systems thinking, but the read-across to Hansen is clear enough: if we want to understand our imbrication in algorithmic processes then we should do so not by trying to extricate ourselves from them but in collaboration with them.

Pivotaly, the object of Hansen's intention-towards, which can be read as analogous to Heidegger's conception of care, does not entail its teleological essence: what matters for both intention and care is temporality above all else, not the intended destination. The upshot is that even if Spotify exists primarily to generate profits for its shareholders, that which it feeds forward through user experience of the platform is not capitalism, still less neoliberalism. It is certainly true that commercial music streaming services are implicated in political economy, and that as platforms take center stage in an increasingly mundane fashion they will normalize commercially-inflected practices and relations in ways that tend towards unintelligibility. But for Hansen, the present "is both "neutral" regarding its future and always excessive" in relation to specific instances of the present (Hansen, 2015: 125), meaning that it is simplistic to think of datafication as hardwired to diminish or shackle the richness of the human experience of music, though it remains imperative to track the exclusions from everyday experience that recommendation algorithms enact. It follows logically from the twin premises that care is primarily temporal and that backend technologies are increasingly fundamental in disclosing the world as world, that what is technically possible and how we think of being are co-determinate. We can and should call Spotify out for its energy dependence and the risibly iniquitous way it pays artists, but there is no reason to assume a conspiracy to commodify identity and sociality. Feeding forward is whatever brings the past to culmination in microscopic instances and allows the future to become; we cannot infer from this that something is being smuggled in under cover. There is space after all for Haraway's "argument for pleasure in the confusion of boundaries and for responsibility in their construction" (1991: 150). The exclusions and injustices enacted by platforms are not inferable from their genesis from within a corporate, capitalist economic context; their ethical status as technologies is not there to be discovered in their backends. It is worth bearing in mind the possibility that the backend technology that moves from one data point to the next is just that – temporal momentum – rather than datafication in microcosm.

Dieter and Gauthier (2019) make a helpful distinction between Althusserian interpellation and *captivation*, with the latter (following in the tradition of anthropologist Alfred Gell) evading both the idea of an innocent, vulnerable self under siege from exogenous forces and the summoning of ideologically replete and coherent subjectivities. For them, the site of contestation around backend technologies is not subjectification conceived in autonomous, rational terms – it is outside that idea of the whole, self-contained self and all the ethical baggage that carries. By implication this paints interpellation with a large brush, bearing in mind Butler’s own compelling critique (1997) of any supposed interiority and exteriority of subjectivity. It does, however, allow for thinking in terms other than incitement when we try to understand what happens when an algorithm reads and re-presents us as notional selves, provisionally at least. Instead, if there is algorithmic exploitation, it is of a self that is suspended. Captivation emphasizes the *de-coherence* of identity, not the enforced cookie-cutter shapes that critics of platformization point to. The result is that “rather than culminating in identity conforming to a structure of domination, captivation takes the form of an abandonment or losing of the self” (2019: 69). Reading datafication against the Foucauldian grain, they posit that the process is non-productive, revealing a politics that owes more to anarchy than governance. They are in no doubt that exploitation takes place, and as such that backend technologies should be subject to ethical inquiry, but the space they shine a light on is one of liminal temporality. Instead of pushing back against what media backends “do” to us, the starting point has to be working with what they are always-already instantiating.

We return then to the critical “missing half second” and how nefarious we should regard what happens there under the radar. Dieter and Gauthier do not follow Hansen’s postulation that whatever constraints are imposed in these moments of temporal closure may yet be exceeded by the futures that become of them. They do, however, make a productive distinction with Amoore on the question of intelligibility – or attributability. Whereas Amoore rightly emphasizes the ineffable aspects of subjectivity that elude algorithms, Dieter and Gauthier have in their sights the interim between the present and a moment always beyond the horizon of intelligibility, a potential forever about to be fulfilled. Captivation may steer clear of ideological enforcement, but in its place it evokes a space subject to midnight raids, a limbo sustained by affective capitalism where the not-yet self is ripe for abduction and seduction. The picture this paints is redolent, and indeed cinematic – which makes sense given Hayles’ evocation of subliminal cues inserted into movie screenings in 1950s America. It is also of a piece with Serres’ (1982) model of parasitic relations (see also Seaver, 2019, on captivation), as well as Flusser’s (1999) design-as-trapping thesis.

Ultimately, all of these perspectives fall back on an imagined self to which things can be done, the thought experiment involving subjectivity beset by external forces as the departure point for ethical deliberation. Hayles goes out of her way to assert that, in psychological terms at least, the self does not exist – at most, it is a myth of continuity and order. But the question remains whether when we seek to hold backend technologies to account we can do so on terms that presuppose that it does.

Ethics on the fly through inauthentic worlds

There is a rich tradition of thought extending back through Baudrillard and Debord that argues that contemporary consumer culture has left us bathing in surface experiences, incapable of escaping the affective dispositifs we find ourselves inhabiting and thus unable to plumb the depths of the political implications of our relationship with technologies whose workings we do not understand and whose motives we do not give much thought to. This chimes with Barad, whose aforementioned agential cuts – snapshots that reveal their own relationalities and attached ethics – are just moments in the world's ongoing unfolding, not revelations about how things really are if we could only see them from the right perspective. Following human geographers like Tim Ingold (2000), it is how we move through the environments sustained by digital backends that reveal their ethical stakes, not stopping to get a handle on how things really are. Sarah Pink (2012) has adapted Ingold's work to the way that we move through digital environments, demonstrating that to grasp their meaning and concomitant ethics means tracing the rhythms and rituals of mediated experience. The idea again is that there is little point in pausing to reflect carefully on the meaning of this or that encountered object, still less to pursue an excavation of the determinants of experience to get at its ultimate source. This is a fairly radical departure from structuralist accounts of base and superstructure, for two reasons. First, it rejects thinking of mediated experiences as expressions of media architectures and economies: the design of backend infrastructure and the business models of streaming platforms certainly constrain user experience, but in no real sense do they set in train an anticipatable causal chain resulting in a culture of streaming. Second, the phenomenological model refuses to consider mundane everyday experiences of media as corrupted or degraded modes of existence alienated from their origins and less mediated, purer being in the world. It is unhelpful to imagine some abstracted self moving through a digital environment, perhaps oriented by a certain disposition or habitus, always anticipating that which comes next and in so doing reinforcing the underlying disposition. Instead, it is only through movement that the self becomes manifest. To put it another way, there is no

transtemporal self, only ways of selfing, that we find ourselves in the midst of enacting before we have given it a second thought.

The value of Spotify as a case study is precisely the fact that using it feels quite banal most of the time: it is something we use as an add-on to commuting or exercising, or to pass the time when alone or hanging out with friends. There are undoubtedly pleasures derived from music that fits the mood or transports us somewhere else, and annoyances at playlists serving up ill-matched or repetitive content, but on the whole the Spotify experience lacks emphatic moments that take us out of our humdrum quotidian bubble or make us sit up and think about why we are here, doing this, at a given time. And that is entirely the point. For a start, having Spotify in one's earbuds while on a treadmill is not a different way of experiencing the space of the gym, but a distinct space that demands to be understood on its own terms. The mood in part enabled by but not derivable from backend technologies from the Spotify algorithm to 4G or 5G or Wi-Fi is not a layer on top of what otherwise would have been a less mediated experience: it is as ontologically constitutive as any other feature of that experience. If the mood of user experience is generally nothing more than distraction, fun or mild frustration, it matters as much as experiences more intensely felt. It is what propels movement in time from one encounter to the next, and that is what discloses the world, on the go and always in the thick of it.

In *Being and Time* Heidegger frets over inauthenticity, that what we talk about when we talk about existence is anything but the thing itself. And yet this is what the work teaches us: that there is no getting at the thing itself, the meaning of existence or any component of it is only to be grasped in finding oneself already busily engaged in enacting it. In the final section of Division One he devotes significant energies to discussing what appear to be fairly trivial aspects of a topic ostensibly more profound than any other: boredom, curiosity and idle talk – and he does so not to reveal them as pale comparisons of the real meaning of life, but as constituent foundations of it. There is, to be sure, an extreme kind of boredom – angst – that registers as terror and has one staring into the void of one's being, but he is also interested in the mode of boredom that is neither one thing or another, just a kind of dissatisfied restlessness that nudges us to turn our attention reflexively, half-heartedly and non-committedly to one object or another – your hand robotically reaching for your phone, tapping on the app or maybe skipping to the next track. The curiosity he has his sights on is not only a journey of wide-eyed discovery of the world and our situation in it; it is also idly wondering what this thing is over here, unthinkingly reaching for it without any serious consideration of what it might be for and what its value is. Distractedly checking out what

one's friends are listening to or what is in that playlist in the corner of the screen fits the bill. The chatter Heidegger explores in this section is the kind that hoovers up every topic from weighty to weightless, deftly turning everything into a conversation piece. This could mean nothing more than liking and sharing a track or commenting on how irritating someone's voice is to a friend, or it could be the more serious implications of Spotify that occasionally do become talking points, dissected endlessly in journalism and social media before we collectively move on to the next thing: its energy usage, the objectification of women in pop lyrics, the viability of recording careers in the streaming age, and perhaps the extent to which it is shaping tastes without our knowing it. The fact that all of these become mere discourse, and inauthentic discourse at that, is beside the point. Insofar as idle chat "passes the world along" it is also ontologically constitutive, it reveals the world as it is.

Technologies leave their marks on bodies (see especially Noble, 2018; Benjamin, 2019), and we need professional scrutineers to hold streaming platforms to account (van Dijck et al., 2018). Digital literacy, however, is another matter. Ultimately, the question of whether it would be a good thing if users knew more about Spotify's algorithmic, infrastructural and commercial backends, and spent more time reflecting on and discussing their ramifications, is off-target. The key is that word "know": grasping the meaning of a streaming environment is not a matter of cognition but action, doing things in and moving through it. This is not to celebrate willful ignorance of the issues highlighted in this chapter: they are part of that world through which we move and they are spoken about, from time to time at least, and literacy about them has to be conceived in environmental terms rather than left to the individual user to stand up and take responsibility for. What is needed is anything that propels and from time to time maps out new paths, the kind of digital agility that requires no more than the thought of "if not this, then what else?" the sort of improvisation that comes from curiosity that does not have to prove its authenticity.

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