



Mirror, mirror. . . disco ball? On dancing with algorithmic doubles-goers

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Abstract

Algorithmic media proliferates. Alongside such proliferation, the familiar doubles of pre-digital daily life – the specters, phantoms, and apparitions found in folklore, novels, film, and music – are maturing into new kinds of fluid and apparently agentic Others. Such Others – data-driven doppelgangers, literally “double-goers” – increasingly co-constitute their primaries across space and time, entangling erstwhile *human* users into a more-than-human assemblage. Yet such an assemblage is contentious: the promise of double-goers is mired in surveillance capitalism. Despite being so mired, double-goers emerge as aspirational co-inheritors of yesterday’s tomorrows. As such, they are part of the affective conditions into which we – artists formerly known as human – are now thrown. We are tasked with learning to live with our double-goers. By reassembling the doppelganger in relation to algorithmic media, we provide foundations for a playful choreography: a dance with the new double-goer that moves beyond critical and affective revulsion.

Keywords

Algorithmic media, algorithms, doppelgangers, doubles, double-goers, mediation

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Introduction

Throughout their digital daily life, individual users – *people* – regularly interact with data-driven reflections of themselves. Indeed, there is evidence to suggest that such interactions have become wholly normalized among younger generations (McDonald et al., 2024) even as the affective discomfort of app culture is also normalized more broadly (Seberger et al., 2022). The reflections with which users interact appear in the form of personalized recommendations. Such recommendations are generally born of algorithmic analysis applied to online behavioral data that is collected by things like web-trackers. We will refer to that which provides personalized recommendations as “algorithmic media” hereafter. We contend that algorithmic media are like mirrors in a basic sense: they reflect. Yet they are also *not* like mirrors in that they are subtly active interlocutors.

The reflectivity of algorithmic media forms the backdrop of our essay: the broad site of interaction among users, algorithms, and personalized content.¹ We argue that interactions arising from this triad evolve an age-old figure of revulsion, despair, and simple Manichaeic dichotomies of “good” and “bad” into something new, something hopeful: an aspirational double-goer, which we introduce here as a kind of savvy and mindful descendant of another historical figure, the *flâneur* (Benjamin, 2023 [1973]). The double-goer we introduce represents a new kind of double or doppelgänger that does more than serve as a metaphorical palate from which to paint revulsion about a contemporary sociotechnical ecology dominated by surveillance capitalism. Our job here is to help clear a line of sight toward the aspirational double-goer and to understand the importance of developing a choreography for daily life alongside the double-goers of algorithmic media.

We are interested in wresting our data-driven reflections from the criticality of revulsion (e.g. Watson, 2014) – when doubles are pervasive, defaulting to a position in which they are ineluctably revolting is counter-productive. We provide an interdisciplinary re-framing of such data-driven reflections as the broadly familiar “data double” (Haggerty and Ericson, 2000) and the “data doppelgänger” as defined by Watson (2014). In doing so, and through analysis that spans analytical and discursive modes variously familiar to scholars in media studies, critical data studies, and infrastructure studies, we introduce a vision of a hopeful character: a double-goer that transcends its separation into the category of the Other and merges, shadow-like, with its primary.

Today’s double-goers, which emerge through interactions with algorithmic media, are spectral (Derrida, 1996). Their mode of being is a presence-through-absence. They are beyond (but born of) the phenomenology of human embodiment, breaching every so often to afford a fleeting, inferential encounter mediated by screens. In and through the doppelgänger’s digital descendants, we see ourselves being seen – being predictively reduced – through the logics of data-driven recommendations. We infer the condition of *having been* seen. Such a condition is affective: *being partially seen* by Others dizzyingly inseparable from us, living rent-free in the protracted imaginary of fledgling cyborgs (Haraway, 1991). This is the view of the spectral doppelgänger from the perspective of the human user – the individual person.

Yet what we have described here is only one side of the coin. Doubles and doppelgangers both require primaries: they are always already (at least) dyadic. So, there are (at least) two sides to the existence of double-goers in the present ecology of algorithmic media. From the other side of the mirrored screen, we (people) tromp through the technological niche of the double-goer. We do so in the form of clicks and taps strewn upon screens like sweat upon a construction worker's shoe – our digital footprints bound the proto-phenomenology of the digital Other; our footprints perform their niche and constitute the entirety of the Other's acquaintance with us – an acquaintance that, for all of its alien features in relation to human phenomenology, is made profoundly sensitive through the aggregation of data sets. The Other knows us indirectly in so many ways outside of our datafied agency (reports that we were in a car accident, of a marriage, and so forth). Its "senses" are as numerous and sensitive as those with which we experience reality – but they are different. Data cannot account for the experience of *being informed* by data. We, in turn, are sensible to today's doppelgangers through and by means of our datafiable activities. We are seen *partially* because we are only *partially* datafiable (and, reflexively, our doppelgangers only feedback part of their inferences about us).

Seeing ourselves being partially seen, we – artists formerly known as human – may fear disappearance into those Others that see us. Such is the site of alienating revulsion: the confrontation with a powerful Other whose power derives from the rhetorical value of *data* and the very real epistemic power of Big Tech. Yet such possible disappearance is resolved through reaction to the Other's recommendation – one taps/clicks on the next cat video and resolves (again) into a "cat-person" (see Seberger and Gupta, 2025); one scrolls past personalized content derived from a one-off search about "carpet cleaning," distancing themselves from the amorphous, but implicit, category associated with the use of ASMR videos.² Through the outcomes of interaction, reflective multiples snap back into the one – the user – with each passing moment: the human and the double are entangled even as they are present to each other through incomplete accessibility: they are *mutually* spectral; each extant as a potentiality to the other. In such a condition of mutual spectrality – a condition in which neither the user nor the doppelganger exists fully as present to each other, but rather asserts its presence through (at least partial) absence – our data sweat (Gregg, 2015) constitutes a kind of more-than-human lifeblood.

How might we fold the double into ourselves without unduly perpetuating the cruel optimism (Berlant, 2011) of surveillance capitalism or merely "going along to get along" through the provision of knee-jerk criticism?³ We trace aspirational skeins in the web of doubled futurity.

Introducing the double-goer

How do today's double-goers differ from their historical antecedents? Unlike their forebears – the literary doubles and doppelgangers of the 19th century, for example – today's double-goers are data-driven. They are created through a mutation of empiricism: its spread beyond the lab via the Internet of Things into a state of ubiquitous sensing. In being so created, today's double-goers are reactive to the point of being agential.⁴ They effect a kind of digital exo-digestion, a worldly composting (Barad, 2007) of behavioral data traces. As primaries to myriad doubles, we become microbes in the gut of a great digital

world, held together by something like an “electronic skin” (Gross, 1999). Furthermore, today’s double-goer is real insofar as the pragmatist Thomas theorem allows: that which is perceived to be real is real in its consequences (Thomas and Thomas, 1932).

We explore dancing with and passing through spectralities – spectral worlds, spectral selves. We show how the emergence and proliferation of algorithmic media are opportunities to revitalize the flâneur (Benjamin, 2023 [1973]) as a witting detective of the digital. Such recommendations and nudges as comprise the half-seen phantasmagoria of specters take three forms, each of which demonstrate confounding conceptual overlap: the double, the doppelganger, and what we will refer to as “the double-goer.” We use the latter to signify the descendant of the two formers: a double-goer that is fluid and mobile because of its reliance on networked data.

Have we met? (And have you met your double-goers?)

We make a few assumptions about you, the reader. We do so to clarify and ground. We assume that you engage in some kind of e-commerce (say, purchasing goods through Amazon), you use or have used one social media platform or another (TikTok, Facebook, LinkedIn), and you stream content on platforms such as Netflix or YouTube. We also assume a general familiarity with common theoretical elements from several disciplines. We make use of: an historical understanding of the 19th Century as the period that birthed *statistics* (Foucault, 1991; Hacking, 1990) and thus a suitable historical vantage form which to re-survey the conceptual terrain of the double, doppelganger, and today’s double-goer; a little musicology to situate the roots of the contemporary double-goer’s temporal evolution within the 19th Century; and Walter Benjamin’s (2023 [1973]) concept of the flâneur through which we envision the aspirational possibilities of the double-goer *despite* its obvious relation to surveillance capitalism (Zuboff, 2019).

Despite the pervasiveness of data-driven recommendations, we do not encounter doppelgangers directly. We infer them, see *evidence* of them – in advertisements and the personalized content of the endless scroll – but we cannot act on them in a transitive mode without considerable effort. (A constant refrain from Big Tech is that you could change our recommendations if you want – delete searches categorized by Amazon, say – but it’s technically difficult and time consuming, which means it largely does not happen). Further, evidence suggests that younger generations *expect* highly personalized recommendations and are less inclined to game algorithms or otherwise act on them (McDonald et al., 2024).

Our *data* informs our double-goers; yet we do so only through the intransitive mode. We may shape our data through action, but we do not have transitive access to the double-goer: it is always separated from its primary by the surface upon which it projects itself (say, the chassis of the smartphone, itself shaped by arcane infrastructures of datafication and data-brokering). We cannot touch a phantom any more than you might touch the future or past directly, yet we may, like pasts and futures, act in relation to them: clicking buttons, toggling settings, curating histories; creating dummy accounts and engaging in all manner of obfuscation tactics (Brunton and Nissenbaum, 2015).

Indeed, doppelgangers do not encounter *us* directly, either. (One of the authors lies consistently to Google search by using Duck Duck Go search and Mozilla Firefox for “delicate” searches, being careful to purge Mozilla cookies but never really Google ones

since they present themselves to Google as they want to be seen by them.) We walk among our digital Others; they walk among us. Both are ever only abstractions available as fodder for the other's inference and interpretation – *n* applied theories of mind passing in the algorithmic night.

Yet while the trope of the doppelganger has been invoked as a figure of revulsion (Watson, 2014) in relation to what would later be named surveillance capitalism (Zuboff, 2019) – and, indeed, there are reasons to relate the doppelganger to the experience of creepiness (Seberger et al., 2022; Seberger and Gupta, 2025) – today's data-driven double-goers are fundamentally sites of *aspiration*. Even in an age of dread, we should not concede that the financial-epistemological conditions from which the double-goer emerges arose purely out of malice. Goods and services such as double-goers are designed to be sold; their market viability is predicated (albeit only partially) on some basic recognition of the joy of consumerism. Indeed, the consumerist joy of the double-goer may provide an opportunity to revitalize the flâneur (Benjamin, 2023 [1973]).

We are challenged to separate the double-goer from the discursive muck of surveillance capitalism. Today's double-goers are integrally oppressive *and* hopeful, whether their hopefulness is grounded in the logics of optimization or self-reflective interpretation – hope abides in the double-goer. By interacting with them, we go through a second “mirror stage” (Lacan, 2014 [1949]) – in the first we learn that the mirror image is indeed the person; in the second, we learn that the mirror-person *is more than the person – it is not a reflection but is partly constitutive of us – not a passive reflection but an active interlocutor*. There may be more to us than meets the unmediated eye. Just as one might aspire to be the person who actually read all the books on their bookshelves, we can aspire to be the best version of the set of possible doubles resident within the metaphorical archive of our abundant data traces (Seberger, 2022). Given the ubiquity of networked computing, it would be impractical to deny consideration of the doppelganger as a legitimate site of aspiration. They walk among us; we are obliged to attempt an affectively sustainable choreography. Why shoulder and stub your way through the crowd when you can dance?

Our question and structure

The rhetorical question above founds the discursive research question that motivates this article: how might we, as *people*, abide alongside and in harmony with the data-driven representations of ourselves that we encounter? Put differently, how might we flourish (Vallor, 2016) *through* enfolding the digital Other into ourselves? We ask such questions to counter the doom-and-gloom of our present digital dream in relation to the break-neck deployment of idiomatic “AI” and other novelties.

We will frame our thinking through futuristic images produced in 1899, which situate yesterday's tomorrows within the post-Enlightenment socio-scientific imaginary. When one understands the 19th Century as the century of statistics (Foucault, 1991; Hacking, 1990), it becomes possible to understand the same century as the century in which today's data-driven double-goer was first potentiated, when the double first emerged as a prototype of today's ubiquitously spectral double-goers. We then expand upon the metaphorical nature of the image through discussions of the longer history of doubles, as well as the point in which the doppelganger is situated as lively – situated specifically

within the long present tense of human embodiment, not as a supernatural omen, but as an enactive entity across time.

We conclude by considering such an enactive double-goer in relation to different scales of sociality, identifying a source of power and responsibility derived from enfold-ing our digital Others into ourselves. We contend that the inherent interpretivism of the double-goer roots such a digital Other in hopefulness: a hopefulness of grassroots empowerment that first requires enrollment into dubious futures. Such enrollment is the site of the dance with the doppelganger; the analysis that follows will, we hope, provide an initial opportunity to *lead* such a dance. Through argumentation, we seek to strip the data-driven double-goer of its scientific authority: to re-place the experiential human – not an exceptionalist human, but a human coming to understand itself as more-than-human even as it maintains interest in its own experience – as an interpreter and experiencer rather than a finalized (or finalizable) by-product of data and the double-goers such data create.

Yesterday's today

Historical futures (Koselleck, 2004) often present as *kinds* of doubles, themselves: aspirations of brighter, more controlled, more *known* futures. We provide a metaphorical reading of the illustration below in order to highlight the role of three major players in the production of members belonging to the contemporary set, “double-goers”: scientists, instruments, and objects of study. The long history of science is one of producing doubles: representations of phenomena through and by means of data, where “data” inherits a kind of fatalistic positivism (Daston, 2017): a sense that the world will, one fine day, be wholly known across scales; and that such a world might be *meaningfully* separate and separable from the gauche tendencies of humans (biases, inconsistencies and so forth).

It's a bird! It's a plane!

In 1899, a Frenchman commissioned a series of illustrations to drum up excitement for the 1900 *Exposition Universelle*. Collectively titled, “*En L'An 2000*,” most were drawn by the artist, Jean-Marc Côté.⁵ The images depict what might retrojectively be called sociotechnical futures: glimpses into the late Victorian imaginary in which the dawn of the 21st century was to be colored by profound scientific and technological “progress.” Why do these pictures suit our purpose? The answer is at base Foucauldian: in any given historical period there are a limited set of possible énoncés; the issue is to choose the most perspicuous for any given purpose. Each is not so much representative of a set as indicative of what is possible within that set (Deleuze, 1988; Foucault, 1994). At any given point, the present teems with “adjacent” possible futures (Kauffman, 2002) – things not yet inevitable but which may be realized. Examining an adjacent future from the past which has been somewhat realized is a window both to the trajectory between the imaginary then and the imaginary now. It often throws into relief causal connections which might otherwise be lost (so much history of information believes it starts with computers; but computers are the outcomes of a significantly longer process).

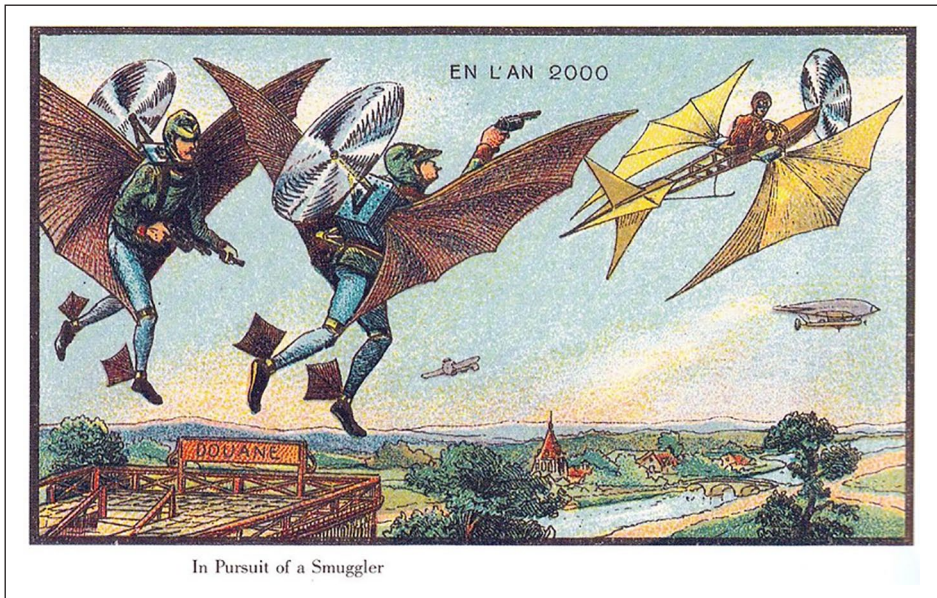


Figure 1. An illustration from “En L’An 2000” entitled, “À la Pursuite d’un Passuer,” depicting airborne (armed) police chasing an airborne smuggler.

In addition to scenes of mechanized domesticity, culture, and education, viewers of the images comprising, “*En L’An 2000*,” encounter depictions of rich human sociality occurring in conquered biological niches: generally underwater or in the sky, all with the help of various forms of technology. One encounters equivalents of horse racing, lawn games, and labor underwater; one similarly encounters the mundanity of Enlightenment-era postal systems unfolding in the skies (now a dream of Amazon), along with traveling, and hunting. Notably, however, the human social life depicted in such biologically unfriendly arenas does not appear as explicitly utopian in Côté’s illustrations. Nor is it dystopian. In Côté’s illustration, technologies are as vesicles for human sociality: they are apparently neutral, containing and expressing the ethics and isms of the societies in which they are deployed.

In Figure 1 we see winged men of arms chase a similarly winged smuggler through the skies. In Côté’s futures, the Manichaeon forces of good and evil possess equal access to technology. That is, technology amplifies intent rather than changing the nature of its users for better or worse. If we might superimpose the structure of the double – in this instance, a riff on Stevenson’s Dr. Jekyll and Mr. Hyde – onto Manichaeon ethics, we will find in Côté’s illustrations a set of futures equally predisposed to good as to evil. This duplicity reveals itself at the site of technology: it is through technology that possible good and possible evil might be enacted. In the illustration, technology is as bivalent as its human users. The valence of action in relation to technology, however, becomes more interesting – indeed, less dichotomous – when one considers a particularly *scientific* illustration from the set.



Figure 2. An illustration from “En L’An 2000” entitled, “La Chasse aux Microbes,” depicting scientists interacting with projected images of stylized germs.

The sweet foretaste of microbes. (Is that a syringe in your chassis?)

In Côté’s illustration, “*La Chasse aux Microbes*,” (Figure 2), the viewer encounters a depiction of two gentlemen-scientists – an elder and his apprentice. These men are engaged in a curious act involving a projector, a projected image, and a syringe. The senior scientist appears to be siphoning microbes from an image that is being projected onto a screen by a machine controlled by the junior scientist. That is, he is interacting with microbes through and by means of their technologically-mediated representations – projected abstractions produced through scientific apparatuses: empirical doubles. Whatever they might be doing, it is safe to say that the scientists are practicing *science*.⁶ The virtual (i.e. the abstracted, datafied) becomes the real *through* the laboratory and its technologies.⁷

“*La Chasse au Microbes*” (the hunt for microbes) is an accurate – and unexpectedly sweet – foretaste of digitally mediated daily life in 2025. Humans have, spatially and temporally, attained the scale of the microbe in relation to science and contemporary data-driven scientism. We have done so first as the gut faunae of the digital earth. We have done so second through the invention and deployment of ever more nuanced and powerful technologies of bio-medical science. The instruments of science have rendered us ever more observable, ever more, unfortunately, reducible (Latour, 1993a).

Pervasive observation and (monetized) reduction render us doubly microbial in a metaphorical sense: as the producers of data lining and characterizing massive digital

exo-digestive tracts and as the objects of scientific study – digital selves in the former, bodies in the latter. Thus we read the illustration presented in Figure 2 metaphorically: the projected microbes represent those aspects of the world we discover and seek to control through science (up to and including ourselves and the various ontologies to which any given understanding of “self” might belong); the scientists represent the cultural techniques (Siegert, 2013, 2015) through which cultures and societies manifest themselves; the projector and projection represent the field of abstraction through which the world is mapped to become a new territory (Siegert, 2011).

Yet, as with the spectrality of today’s double-goers, the microbes in Côté’s illustration exist as projections. They are brought into existence for a purpose – a specific use. These are microbes without dignity. They are, in the language of Heidegger (1977), a kind of standing-reserve; in being so, they are not themselves, *per se*, but exist in an anthropocentric ontology as *in relation to* humans. Microbes cease to be *sui generis* once they are enrolled into the ecology of scientific-human knowledge. Thus, they are and are not what they appear to be but become defined in relation to their entanglement with the complexity of the human discourse.

A kind of physical alchemy would be required to understand the projection of microbes as *microbes per se* in the absence of an ontology that accounts for the transformative effects of systematic observation. (*Ceci n’est pas une pipe!*) These are not the microbes of illness or mitosis; of cholera in 1848 London or food-poisoning in 2016 Los Angeles. They are, rather, signifiers of a techno-scientific imaginary in which humans – with a level of anthropocentrism – tame the world into ever more fine-grained categories.

Bittersweet interactions. Yet in Côté’s illustration, the projection *is* what potentiates interaction with microbes (in a controlled way – one needed no projector to develop bronchitis or cholera, after all). The dyad of projector and projection becomes the site of knowledge production: the exertion of control over the external world of microbes so as to exert a secondary form of control within the biologically *human* niche.⁸ People (the scientists in the illustration) exert agency (*enact knowledge*) over those novel aspects of the world their instruments allow them to perceive.

The means by which the scientists create microbes as interactive is the very means by which they render them as separate and separable from the world, thereby demonstrating that objects recede permanently: sciences divorce the world from itself so as to know the world through the abstraction of objects (Heidegger, 1971). Such creation is ontologically bittersweet: it produces knowledge through disintegration; it archives through creation that disguises itself as mere representation (Derrida, 1996). In the illustration, the viewer encounters microbes *through and by means of* instrumentation; the self-same microbes are enrolled into the world of human knowledge as Others (even to themselves) through the processes of observation-turned-manipulation.⁹ Today, we – people cast into the set *Users* – have become microbial.

Earlier, we claimed that we are like gut faunae to a great digital exo-digestion. We did so to play with scale and division, singularity and plurality. This bears direct relevance to prior literature. Data, it has been argued extend the self (Lupton, 2019). Acting upon a person’s data is equivalent to acting upon that person. Unlike the projected images of microbes in the illustration, *we* are touched by the metaphorical

syringe. We are produced as abstractions for ourselves to out- or under-perform (or merely to perform alongside) – if, that is, one assumes that we have no agency in determining what content we might consume after being faced with a litany of personalized recommendations.

In the contemporary sociotechnical ecology of the 21st Century – an ecology in which algorithmic media proliferate – the knowledge-producing assemblage of scientists, instruments, and objects of study maps onto the scientism of economically-motivated empiricism: today's syringe is an algorithm. The algorithm replaces the great equine syringe that interacts with the projection: it is the agential component of the erstwhile scientific assemblage represented in the Côté illustration by the projector, the projection, and the material on the slide.

The scientific assemblage represented by *the* syringe becomes *the* algorithm: the empirical becomes the enacted (regardless of the quality of the underlying empiricism). We, like the projected microbes 125 years ago, represent an emergent ontology. Yet the ontology we represent in considering ourselves alongside our double-goers is one that effaces familiar aspects of our history: the exceptionalism of the human – the possibility that we are somehow special *for being as* humans. We are challenged to understand and recognize ourselves in a more-than-human ontology held together by the lifeblood of data sweat (Gregg, 2015) even as we continue to experience ourselves in the same old humdrum embodiment.

The move from miasma theory to germ theory had demonstrative benefits to those of us formerly known as humans. The emergence of a matured doppelganger grown into mobility and fluidity – grown from noun to verb – bears the promise of new worlds. Such effects include the possibility for a truly wonderful creepiness (Chun, 2017). As users always already entangled in the historical-sociotechnical conditions into which we have been thrown, we now *become* through our own normalization of the scientific descendants of Côté's projected germs. We become metaphorically germ-like – symbols of empiricism's success in producing a reductively knowable world through measurement and mediation; and we become the microbial residents of the great digital exo-gut. Yet neither of these is obviously appealing. Whence optimism? Can we liberate our positive double-goers – *aspirational double-goers* – from the bondage of the (variously) righteous revulsions demonstrated toward surveillance capitalism? A foray into the longer history of doubles, as well as consideration of a moment in the 19th Century at which the double emerged as an object of analytic gaze, is called for.

Histories of doubles and doppelgangers

Doubles have a long history in human culture. In the early Bronze age, Cypriot potters became entranced by the figure of the double: whether one wore the double on their neck in miniature, bizarrely across their body, or on top of their head was a matter of fashion. Classical Greek, Roman and Judaic mythology developed the theme of the double. The troubled relationship between Narcissus and Echo is canonical for classical Greek culture – though of course the ability of the Gods to assume the shape and gestures of a friend/advisor is more widespread. Romulus and Remus were twins – one good (building Rome), one bad (ridiculing the ramparts). In the Judeo-Christian tradition, the good twin/

bad twin is evidenced best perhaps in Cain and Abel, although one would do well to recall Adam and Eve, too.

All this is to say – with regrettable brevity – that there is long history of fascination with the other who is *alike*; be it in the service of evil or good. This is not the Lacanian absolute Other (which functions as an absolute arbiter; it is more *objet petit a* – the other we project onto the world and are in discourse with [Lacan, 2014 [1949]; Latour, 1993b]). From the works of Jean Paul Richter to Thomas de Quincey, to Heinrich Heine and E. T. A. Hoffman, the doppelganger becomes a major literary theme in the 19th Century. It is no coincidence that the literary doppelganger emerges alongside the rise of statistics (Hacking, 1990) and statistical modes of governance and control (Beniger, 1986; Foucault, 1991) – the double first appears as the forebearer of today's double-goer through and by means of quantified representation: statistics as a mode of control and governance. Thus, the Count of Monte Cristo in Dumas loses his individuality and his name – he becomes a number who is operated on, just like all the other numbers imprisoned with him. (The same might be said of Hugo's Jean Valjean – prisoner 24601.) During the 19th century, the image of your perfect double walking the face of the earth becomes a trope of statistics, of control of social deviance, and of massive population increase. Its current efflorescence is marked by the invention of the digital computer, its networking, and the resultant proliferation of algorithmic media. Yet the separation of the double from the doppelganger is tricky precisely because “doppelganger” has long been translated simply as “double.”

Meet my other half: sorting out conceptual homonymy

The double-goer of today's algorithmic media is a descendant of the longer history of doubles and doppelgangers. What originates as a totemic Other (a double), transforms into a cultural trope of control and Manichean ethics (the doppelganger). This cultural trope proliferates with new media: it maintains residence in novels and films even as it transforms to accommodate the proto-phenomenology of algorithmic agency. Yet such a distinction among doubles, doppelgangers, and today's double-goers is counterintuitive because of the ways in which the language of the doppelganger has been translated into English. “Double” is a woefully flat translation.

In his exploration of the doppelganger trope in German literature, literary scholar Andrew J. Webber highlights several characteristics of doubles (Webber, 1996). We present such characteristics here such that we might arrive at a clearer understanding of today's double-goers. According to Webber (1996), the doubles of the 19th Century existed primarily in relation to sight – they were encountered through the visual pathway in terms of human sensation and perception. When doubles present to the other senses, they do so generally in relation to audition: in the form of echoes. The 19th-Century double's relationship to audition and echo sets up the third characteristic: they mimic and ape, but do not act on their own. Finally, relative to their primaries, the doubles of the 19th Century share the mentality of their primary (thoughts are diegetic to both because the existence of the double is a function of the existence of the primary). Today's double-goers distinguish themselves through the addition of two interrelated characteristics: they are data-driven and demonstrate a propensity to appear as agentic.

Prior to the 19th century, one encountered doubles in the world as hexes or apparitions or omens (Rank, 1919). During the 19th Century, however, the double became, as it were, paginated. It thus came to occupy the same conceptual space as the superset, “the written word.” Through the spread of the printed word and the popularity of the double trope in the 19th century, the doppelgänger came to colonize the space of distancing: the experiential space that emerges between the reader and a text. The double migrated alongside mediation (that is, new forms of media). Through its inscription on the page, the double became somehow less real than virtual: it inhabited the space of the imaginary. The double’s move from printed page to notated musical score – which we will discuss in the next sub-section – constitutes another such mutation: a sociotechnical lurch toward doppelgängerism; one that enrolls the auditory and temporal into itself. Consideration of how the composer Franz Schubert treated a verse by Heinrich Heine presents an unexpected foundation for understanding the linguistic trickery of the conceptual superset to which the concepts of the double, doppelgänger, double-goer belong: it situates the double as a function of change across time. That is, it bounds the doppelgänger to experiential temporality. In doing so, it foretastes the constant, spectral companionship of today’s data-driven double-goer. Such a foretaste is provided in two ways: through a grammatical adjustment (i.e. from Heine’s “doppeltgänger” to the more common “doppelgänger”) and through the deployment of a particular compositional technique.

From static adjective to companionate noun (through song)

In 1828, as the composer Franz Schubert was dying, he was also composing music. He is famed still for his skill in the composition of *lieder*: “there is a way that Schubert has of getting to the core of a poem, of getting past its superficial conceits to some essence” (Kramer, 1994: 102). In his final days, Schubert was busily setting poems by Heinrich Heine and Ludwig Rellstab to music. Such compositions would become part of Schubert’s *Schwanengesang* (D 957). They would come to be some of the composer’s most widely known compositions, including a *lied* entitled, “*Der Doppelgänger*”:

Der Doppelgänger [. . .] find[s] the extremity of despair in a confrontation between the halves of a divided self: the subject who desires, and a double who represents the subject’s worst aspects – anxiety, self-torment, self-contempt (Kramer, 1986: 218).

One might reasonably place “*Der Doppelgänger*” among the most analyzed pieces of 19th-century music – certainly 19th-century *lieder*. Much of the analysis that has been done is relevant to our understanding of the doppelgänger. We focus on two broadly accessible aspects of the composition because they illuminate a little-discussed characteristic of the doppelgänger: its temporality.

As we have already described, the word “doppelgänger” translates directly (if not beautifully) to “double-goer.” That is, it refers to an Other who moves with a person. We refer to that person as the doppelgänger’s “primary.” The primary is the originary space of the doppelgänger: it is the space in which the double appears in either mediated (e.g. reflections) or pre-mediated forms (e.g. ghosts). Yet, the grammatical temporality of the doppelgänger was not as stable in the 19th century as it is today. Richter’s coinage of the

term to represent a person “in whom one sees himself” (Ferris, 2016: 383) introduced the term more or less as we encounter it in contemporary media ranging from books written by public intellectuals (Klein, 2023) to the pages of Marvel’s Spider-Man comics. Yet both Richter’s *Siebenkäs* and Heine’s poem – untitled to facilitate surprise among the reader upon reading the final stanza of the poem – deploy the term “doppeltganger” (i.e. “doubled-goer” as opposed to “double-goer”).

Schubert’s treatment of the poem changes the adjectival quality of Heine and his protagonist’s double to a perpetual present tense in which multiple subjects (nouns) occupy the same experiential space. The doubled goer (a “goer” who is modified by the adjective, “doubled”) becomes the double-goer (a noun fully encapsulated in a present tense – “double” does not describe it as a separate or separable adjective, but is rather assimilated into the subjectival space created by “goer” – the double-goer is a compound noun, not merely a noun [goer/ganger] modified by an adjective [doubled/doppelt]). It is possible to read the compositional technique deployed by Schubert as aligned with an imaginary of the doppelganger that moves in time, that is unstable and changing, but emphatically not a thing of the past.

In addition to effecting a grammatical change on the term “doppeltganger,” Schubert deployed what is known in music theory as “through composition” when setting Heine’s poem to music. Through the deployment of through composition, Schubert highlights the persistent present tense of the doppelganger: a present tense that is not merely described by the adjectival and static presence of one who has been doubled, but which presents as an environment in which the primary (the erstwhile human) and the double-goer walk together. To understand the import of Schubert’s treatment, we provide a short introduction to through composition.

Through composition refers to a mode of structuring a musical composition that does not rely on the patterned repetition of sections. For example, one might normally expect a song containing four stanzas of poetry to contain repetition. Perhaps each verse would repeat the same structure (e.g. A/A/A/A); perhaps alternating verses (A/B/A/B). Contemporary popular music is notorious for its reliance on the A/B/A/B/C/B/B structure (where C represents a bridge).

Yet in Schubert’s “*Der Doppelganger*,” repetition is figural, rather than structural. A four-note melodic motive punctuates the verses; the ambiguity of the piece’s harmony (present from the opening chord, which omits the third [i.e., the tone that would give the chord a major or minor quality]) is largely based around an ostinato figure but mutates from verse to verse. Indeed, the melody that sits upon the harmony of the piano accompaniment – the sung part of the composition – differs substantially from verse to verse. The effect is one of constant, but subtle motion; of familiarities more akin to *déjà vu* (Krapp, 2004) than to memories. In the language of Kramer (1986: 219):

The basic process in *Der Doppelganger* is the steady erosion of Classical harmony as a source of musical meaning, the gradual exchange of a Classical for a Romantic presentation. [. . .] the song unfolds by deconstructing itself, but continuously rather than abruptly.

For Schubert, the doppelganger comprises a site of motion – his is the double-goer, not the *doubled-goer*. In Schubert’s compositional structure, the doppelganger becomes a

site of comparison and difference; but one that is fluid. It is an ongoing *event*. The doppelganger evolves across time. Such an imaginary of the doppelganger emerges specifically in relation to the musical form. Not merely the form that music takes when it is noted on the page or performed, but the *form of music*: a temporal art now associated with media formats as much as it is with performance. Just as Schubert's compositional techniques eroded Classical harmony, they can also be interpreted to foreshadow the emergence of today's double-goers: apparently agential doppelgangers *made* apparently agential through their relationship to big data, infrastructures of data production, brokering, manipulation, and the proliferation of algorithmic media in relation to smartphones. Today's doubles go with us, alongside us.¹⁰ We walk together-apart in each other's half-seen worlds. That which was once doubled becomes the double-goer that accompanies us in the form of spectralities.

Schubert's composition places the historical doppelganger in proximity to the contemporary doppelganger. Like Côté's illustration of two scientists, Schubert's composition echoes through the present tense because of the ease with which one might understand contemporary sociotechnical conditions through a metaphorical reading. Where Côté gave the contemporary double-goer its image, Schubert gave it its paradoxical ephemerality: its looming possibility that exists across time in ambiguity. Indeed, through animating affective responses to doppelgangers in the temporal art of music, Schubert's composition marks the first evolutionary step toward the data-driven double-goer. Doubles become doppelgangers when spread out across time; and this temporal spread (rather than the spatial boundedness of the mirror or the compositional rigidity of repetition) opens the world to one where doppelgangers are not objects of horror, but companions in our lives.

Having arrived at an outline of the double-goer as (i) the inheritor of yesterday's technoscientific futures, (ii) driven by scientific faith in online behavioral data, and (iii) an apparently agential actant who resides in the same present tense as its erstwhile human primary, we must now address the elephant in the room: today's double-goers are, indeed, sites of aspiration; but they are also, incontestably, products of surveillance capitalism. The latter risks destroying the aspirations of the double-goer. Because of its relationship to surveillance capitalism, the double-goer risks appearing as fruit of the poison tree. While we are sympathetic to the frustration and alarm that motivates much work about doubles (Haggerty and Ericson, 2000), we believe it necessary to look beyond such frustration and alarm to see the justifiable optimism of the double-goer (Seberger and Gupta, 2025).

The double-goer as aspirational flâneur

There is a certain hedonism in embracing the doppelganger.¹¹ Such hedonism is the joyful embrace of hypomnesia through mediation. But there is also an epistemological hedonism involved in the production of, and encounters with, spectral and data-driven double-goers. We do not know what knowledge may lurk in the wholesale extension of the erstwhile human into more-than-human or posthuman ontology. Yet such epistemic hedonism – the data-wrangling, orgiastic joy of scientific fishing expeditions – comes with the usual normative concerns about hedonic behavior: too much of a good thing isn't good. Yet by leaning into the double-goer as a "good thing," we are presented with

an unexpected opportunity: to revive the ontology of the flâneur in a posthuman mode: to render the datafied world, and we in it, as abstractions of experience ripe for exploration and wonder.

Benjamin (2023 [1973]) decried the death of the flâneur. This death took the form of a metamorphosis of the leisurely, exploratory urban wanderer into the green-eyed visage of the consumer. Such a metamorphic death into the condition of consumerism may presently extend into a rebirth: we are naïve to the experientially positive possibilities that double-goers present because surveillance capitalisms repulses. In such naivety, we (the authors) identify a springboard for exploration: in relation to our data-driven double-goers, we become like the flâneur: enraptured explorers of a new, more-than-human sociality. The temporality of the double-goer, as well as its foundations in the pinnacle of consumerism – a form of capitalism that makes the interpreted outputs of even one's unconscious behaviors consumable in the form of recommendations – may potentiate the conditions for a new flâneur.

For Benjamin, the flâneur was a kind of anthropologist-detective learning the metropolis even as they unlearned themselves *for* the commodified metropolis. The flâneur was a collector and chronicler of sociality, guided by sketches (Benjamin, 2023 [1973]: 24):

[. . .] the modest-looking, paperbound, pocket-size volumes called “physiologies” had pride of place. They investigated types that might be encountered by a person taking a look at the market place. From the itinerant street vendor of the boulevards to the dandy in the foyer of the opera-house, there was not a figure of Paris life that was not sketched by a *physiologue*.

The flâneur stopped wandering in the early 20th century. They ceased to be an idler who “botanize[d] on asphalt” (Benjamin, 2023 [1973]: 25). They became a window shopper, a consumer – indeed, a consumer of social stereotypes (Benjamin, 2023 [1973]: 24): a detective with a particularly refractive magnifying glass, filtered according to the market and social roles of their urban-dwelling counterparts. Yet the apparent devolution of the flâneur into a walking bank book was not permanent. The emergence of the double-goer – a constant companion present through its absence – presents a whole new set of metaphorical city streets in which to linger and loaf and detect: the street is the natural habitat of the flâneur (it's interesting to note here that one of the early social media, Geocities, was predicated on creating a new variety of flâneur). Paris was a phantasmagoria (Benjamin, 2023 [1973]: 28); today, the digitized world is, too.

The mapped streets of the great digital exo-digestive tract upon which primaries and double-goers walk together-apart appears as the site of the flâneur's rebirth. As the wonder of the 19th Century metropolis created the conditions of daily life associated with the flâneur (as well as such conditions' inherent instability and devolution from wanderer to detective to mere consumer), so too may the wonderful creepiness (Chun, 2017) and justifiable optimism (Seberger and Gupta, 2025) of the spectral double-goer create the conditions for a new wanderer: a botanizer of the *algorithmic*.¹²

Just as the flâneur emerged through a specialized set of mediations – the development of urban spaces and the scaled-up, market-driven infrastructures of daily life they comprise – today's double-goer also emerges from a specialized set of mediations. Such mediations are undergirded by algorithms. They comprise a spectral vector of daily life: the world as it may exist in and through the realization of a genuinely more-than-human

ontology: an ontology that would allow an ethics of algorithmic mediation: an ethics of double-goers. While such novel mediations are obviously extant – again, adjacent possible futures (Kauffman, 2002) – treatment of the doppelganger trope precludes even initial framing of double-goers as aspirational or otherwise positive. The revulsion described by Watson (2014) was well and good in 2014, as was Haggerty and Ericson's (2000) identification of data doubles as discomfiting functions of expanding surveillance culture. Yet in 2025, such approaches paint people into a corner because the things that frighten us so are now ubiquitous. If doubles and doppelgangers are defined in relation to the creep of surveillance and the discomfiture of being represented through data, then it becomes difficult to understand the futures resident within such processes as positive. In the imaginary formed by the terms "data double" (Haggerty and Ericson, 2000) and "data doppelganger," (Watson, 2014), to engage with our data-driven Others is always already to be bothered. We see the spectrality of the double-goer emerge through the idealized conditions of dignity that are absent from the mechanics of surveillance capitalism.

Yet there is no past to which we might return. The glory days – halcyon and blurred in their manufactured critical nostalgia – are gone; indeed, they never existed. What remains, however, as immediately present in the subtension of daily life are double-goers. They remain immediately and always *possibly* present (in time and space) because they are of the infrastructures that subtend mundanity. They reside in spectrality – partially seen, inferably present through their absence – and in such spectrality, they may present as levers of optimism. Such optimism as one encounters in the double-goer differs from "cruel optimism" (Berlant, 2011) because it does not emphasize an *a priori* definition of cruelty or optimism – nor is it caught up in the search for idylls – but rather grounds such a compound term in the lived realities of datafied life. We do not seek ignorance of the double-goer's dubious roots in surveillance capitalism; we do, however, urge scholars, researchers, and practitioners alike to embrace the possibility of beneficent and even graceful double-goers.

Benjamin (2023 [1973]: 34), in discussing Poe's "The Man in the Crowd," notes that the flâneur is precisely the sort who, having shed the narrative structure of detective fiction (if not its standard tropes) persistently remains at the center of the story:

The mere armature [of the detective story] has remained: the pursuer, the crowd, and an unknown man who arranges his walk through London in such a way that he always remains in the middle of the crowd. This unknown man is the flâneur.

Double-goers signify an *n*-dimensional new world, and we cannot reasonably proscribe exploration of such a world from the experiential perspective of being humanly embodied. Indeed, like the flâneur, we find ourselves always already in the middle of a spectral crowd: we sense the presence of absent selves, looming predictions and algorithmic personalizations. In so being at the center of the crowd, we identify a paradox. As we extend into posthuman ontologies through and by means of algorithmic media, we become evermore the center of our own attention. Yet through the double-goer, it is possible to envision a kind of infrastructure of regular self-reflection, regular

introspection: when presented constantly with glimpses of our data-driven double-goers, such presentations comprise sites of individual agency: the agency to question, to explore, to reject. Through the double-goer we receive the opportunity to detect, to remain the unknown person who at the center of their own spectral crowd. When you see what Amazon is recommending to you (films or consumer goods), you often sigh and resolve to be different in the future: you want to project a self whose double-goer acts differently.

Such centrality within the spectral crowd necessitates a choreography: an ethics the double-goer's limitations. In being mutually spectral, both primary and double-goer occupy either side of the persistent present's potentialities: those imagined or considered and those executed, realized. Through critical self-reflection about encounters with our double-goers, we may actually exert control over them. Not in a transitive way – we cannot restrain the double-goer. Yet we may intransitively lead the double-goer in a dance through which we negotiate realities through another kind of transitive verb: the reflexive.

At the scale of the individual, doubles (including the doppelgangers of the 19th century and the data-driven double-goers of the 21st) present as interesting solely because they exist in relation to a given subjectivity. Such a subjectivity – that which might be represented by the word “I” – remains ever capable of action despite recommendations and nudges. Through curious and playful acceptance of the double-goer, it becomes possible for the individual to dance with the double-goer – more specifically, to control the relevance and power of those actants whose politics (Winner, 1980) infuse algorithmic media. Double-goers may appear to be dire, but only if they are encountered in contexts (institutional, governmental) where misrepresentation is dire in consequence. That is, there are scalar limits to understanding the double-goer as aspirational. The double-goer may, through the user's reflexive self-reflection, be led as we (individuals) dance in the streets of the more-than-human metropolis. The individual may choose the weight they assign encounters with their double-goers. This is, however, not the case in relation to double-goers borne of contexts in which major power imbalances exist between the producer of the double-goer (the platform) and the individual whose behavioral data constitutes the fodder for production. Yet at the experiential edge of our more-than-human assemblage, we new flâneurs cannot be wholly idle: self-reflection is requisite lest we suffer the fate of Benjamin and Poe's flâneur: ultimately becoming abandoned in the crowd, extant solely as another commodity (Benjamin, 2023 [1973]: 29).

What remains available to us as users is a generous and playful understanding of double-goers as sites of aspiration – positive by-products of an otherwise dubious economic-scientistic *modus operandi*. By framing the data doppelganger in overtly revolting affect, Watson (2014) precluded consideration of the joy that might come from understanding ourselves as spectrally human and posthuman: where Watson creates a doppelganger that walks through our worlds throwing elbows, bumping shoulders, and stepping on toes, we challenge ourselves to lean into a harsh yet wonderful reality: double-goers walk among us, and there is no reason to assume that they will cease to do so in the near future. Such are the pragmatics of life alongside double-goers.

Conclusion

One could argue that for those who possess values aligned with the financial stakes of Big Tech (yes, dear [double] reader, that means us and you), the double-goer must be aspirational. Yet for those who are wary of techno-solutionism (for whatever reason), doppelgangers appear as sites of revulsion. The truth is that doppelgangers are both: they are aspirational and they are revolting. The possession of such contradictory characteristics indicates the doppelganger as a key site through which *our* posthuman tomorrows will be negotiated. Just as the gut biome has become so central to the understanding of human physiology, so has the exo-digestive tract become central to our human futures.

We need to take the aspirational element of our double-goers more seriously *and* more playfully. There is a long history of doubles as reflections. It is the apparent appropriation of agency by the double, which is core because of the distribution of agency across spectral agents that double-goers beget. An analogy here is with the invasion of the incipient cell by mitochondria. The latter were the outsiders, the threat – they became so central to all life that they subsist in all cellular organisms. The core trick of the cell was to “recognize” that the outsider within was a factory for producing useful energy. Symbiosis is central to life, not separation (see: Clarke, 2020).

Rather than seeing the doppelganger as a threatening outsider, we need to see it as opening a way to a new playing field, a new mode of being. Criticizing surveillance capitalism for producing the data double is the same move as criticizing industrial capitalism for producing vital infrastructures (sewage, electricity, water). The criticism appears valid, but is really just misplaced. Nineteenth century capitalism produced great infrastructure – the real story was the infrastructure, not the capitalism despite the narcissism of the ruling classes; and the real story of infrastructure is *experience*. Sure, surveillance capitalism has given us visions and realities of control and darkness – but it has also given us a welcome a persistent and posthuman dancing partner. The mirrored world of algorithmic mediation presents to us as a great disco ball, and in so presenting, produces us as dancers on a spectral floor. That is the real story here. It is so hard to see the light when there is money in the dark; but the aspirational double-goer is taking us on a fascinating journey into our reconfigured futures. Machines constitute us, as we do them (Haraway, 1991). As Lynn Margulis noted, machines are just DNA’s latest attempt to achieve homeostasis. (See: Clarke, 2020). It is time to get your back up off the wall and dance.

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Notes

1. Borrowing from the field of human-computer interaction (HCI), and particularly feminist HCI, we understand “interaction” as a category that exceeds discrete taps and clicks, but rather represents an affective condition of daily life (Bardzell and Blevis, 2010).

2. The reader is encouraged to search for “carpet cleaning ASMR” on their content-streaming preferred platform.
3. Harkening back to a key problem in existentialism, we must be able to imagine ourselves happy in the future (Seberger and Bowker, 2021).
4. Where reaction is understood to include the provision of feedback to users based on crunched behavioral data, and such crunching instantiates certain politics (Winner, 1980), the reactive provision of feedback in the form of “personalized” content constitutes an exertion of agency on behalf of those whose politics algorithms instantiate. They are reactive to the point of appearing proactive.
5. All 78 known images are available for viewing via The Public Domain Review.
6. The title of the image being itself a scientific victory cry, denoting the shift from the miasma theory of disease to Koch and, later, Pasteur’s solidification of a germ/microbe theory of disease.
7. When the laboratory becomes a cultural technique, the realm of the doppelganger expands beyond the walls of wet labs and into the world of messy sociality.
8. We describe a “biologically human niche” in order to situate the socialities, histories, and cultures of humanness in a way that is conceptually separable from the contemporary ontology of the post- or more-than-human. One may, for example, remain biologically human even as one exists ontologically in mode that refutes human exceptionalism.
9. We contend that description and knowing are forms of manipulation.
10. Compare <https://www.gustafvonarbin.se/Shadows-walk-with-me>, influenced by David Lynch, the double being a key theme in his aptly titled *Twin Peaks*.
11. One is reminded of Michel Onfray’s “counter history of philosophy,” where tracing hedonism rather than the negativity of much philosophy is so illuminating.
12. Various definitions of creepiness are found in the media studies and human-computer interaction (HCI) literatures. We adopt the approach introduced by Seberger and Bowker (2021) and expanded upon by Seberger et al. (2024) and Seberger and Gupta (2025).

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