The World Computer Derivative Conditions of Racial Capitalism Jonathan Beller

The World Computer

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The World Computer

Derivative Conditions of Racial Capitalism

JONATHAN BELLER

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For those who are written, unwritten, rewritten, and read

The technical subordination of the worker to the uniform motion of the instruments of labor, and the peculiar composition of the working group, consisting as it does of individuals of both sexes and all ages, gives rise to a barrack-like discipline, which is elaborated into a complete system in the factory, and brings the previously mentioned labor of superintendence to its fullest development, thereby dividing the workers into manual laborers and overseers, into the private soldiers and the NCOs of an industrial army. "The main difficulty" (in the automatic factory) "lay . . . above all in training human beings to renounce their desultory habits of work, and to identify themselves with the unvarying regularity of complex automations. To devise and administer a successful code of factory discipline, suited to the necessities of factory diligence, was the Herculean enterprise, the noble achievement of Arkwright! Even at the present day, when the system is perfectly organized and its labor lightened to the utmost, it is found nearly impossible to convert persons past the age of puberty into useful factory hands." In the factory code, the capitalist formulates his autocratic power over his workers like a private legislator, and purely as an emanation of his own will, unaccompanied by either that division of responsibility otherwise so much approved by the bourgeoisie, or the still more approved representative system. The code is merely the capitalist caricature of the social regulation of the labor process which becomes necessary in co-operation on a large scale and in the employment in common of instruments of labor, and especially of machinery. The overseer's book of penalties replaces the slave-driver's lash. All punishments naturally resolve themselves into fines and deductions from wages, and the law-giving talent of the factory Lycurgus so arranges matters that a violation of his laws is, if possible, more profitable to him than the keeping of them.

—KARL MARX, *CAPITAL*

Europe is literally the creation of the third world.

—FRANTZ FANON, *THE WRETCHED OF THE EARTH*

You fucked the world up now, we'll fuck it all back down.

—JANELLE MONÁE, "SCREWED," *DIRTY COMPUTER*

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No book is written totally alone and today no book is informed without the aids and hindrances of machines. In the pulsing oscillation from total isolation to borg annihilation in the prison house of computation there have appeared, within the variegated cloud of machine-mediated, cut-and-mix mental life, many erstwhile recognizable but still very, very special nodes: realish folks met along the way, folks who meant and mean a lot to me and to the work here, comrades who shared their keys and who thereby sustained and sustain for me some degree of groundedness, along with some of the better instantiations of the would-be writer/code-breaker/cyborg-programmer/revolutionary who is, anyway, more modestly and in the screen-light of academic day, simply this writer. Times are hard and I admire everything you all do to make this here sphere a better place.

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I

Computational Racial Capitalism

The Social Difference Engine and the World Computer

Power is so powerful it can afford
to pay people to speak truth to it.
–STEW

The wealth of societies in which the capitalist mode of production prevails appears as an immense collection of information; the individual bit appears as its elementary form. Or so it appears to the machines that count, the machines of account.

Moreover, the rise of information meant—in fact *is*—the ability to write a derivative contract on any phenomenon whatever. Its emergence is one with the calculus of probability and thus of risk. What price information? We will show here how information becomes a derivative on reality whose importance comes to exceed that of reality, at least for those bound by the *materiality* of information's risk profiles. Furthermore, the algorithm becomes the management strategy for the social differentiation introduced by and as information—a heuristic, becoming bureaucratic, becoming apparatus for the *profitable* integration of difference and, significantly, for any "us" worthy of that name, of that which and those who could be differentiated. The algorithm's calculative execution on information, its "procedural" problem solving, was called forth and derived from the market optimization of the socially meaningful metrics (things somehow or other worth measuring) of difference. Recursively, the algorithm and its avatars multiplied its capacities of differentiation.

With its Boolean operators, and later with pattern recognition, algorithmic execution on socially derived information effects a tranching of the world that also shatters prior social narratives and ontologies, and allows for the placing of contingent claims on any tranche whatever without regard for the rest. How much does it cost to ship a slave? Insurance policies for slave traders? Reparations for proprietors of slaves? Predictive policing? For racial capitalism, Blackness becomes a junior tranche. The third world becomes a junior tranche. The global South becomes a junior tranche. All subprime, all the lowest tranche of a security, the one deemed most risky. "Any losses on the value of the security are absorbed by the junior tranche before any other tranche, but for accepting this risk the junior tranche pays the highest rate of interest" (Curtis). The brutal divide and conquer approach, on a continuum with the separation imposed by racial capitalist pursuits from settler colonialism, factory barracks and camps, to workplace alienation and Debord's spectacle, effected the capacity to isolate certain phenomenon and then bet on the value of the outcomes while externalizing every other concern. Here too we find the distinction between signal and noise is in the first place a matter of political economy and its racism.

The slow nuclear bomb that is the COVID-19 pandemic is but a case in point in the terrible unfolding of what one may hope is still pre-history manifest as racial capitalism. It is a consequence of the convergence of the global *demos* being relegated to noise, to "the poor image" (Steyerl 2012: 31–45), to volatility by the global compute. The virus is not just information on a strand of genetic material, and should not as Ed Cohen warned us years ago, be treated fetishistically, as if it were itself the *cause* of global suffering (Cohen 2011). Viruses are everywhere—the global pandemic is symptomatic of world-systemic failure on many fronts: health care provisioning and access, economic inequality, agribusiness, social hierarchy, racism, etc. Individual bodies are made precarious by a matrix of financialized "information" that differentiates among us while externalizing whatever might be left of our pre-existing conditions that could all too briefly be summed up as our real interests or even our ecological concerns—our connection to the *bios* in the broadest sense. We are subjected to and by a continuous for-profit reformatting by the various systems of mediation that overcode us as problems to be solved—including by the regimes of all the "estates:" the fourth estate that is "the press," and particularly a fifth estate that has in fact absorbed all the others for its own calculus, namely "computation." We observe that the reigning global calculus of profit, though invented by no one in particular, everywhere seeks to extract our value and mostly benefits those who believe in theory or in practice that they are shining

examples of a superior race. Those who have almost unlimited access to the social product, and to us, to our information, to our time. How does this sense of superiority, of the greatness of our oppressors, come about? From their harvesting the outputs of the rabble and their self-satisfied accession to the violence necessary to keep us down.

Most recently, the global compute has involved off-loading systemic precarity onto individuals and where possible onto entire peoples to the point, just reached in 2020, when that strategy itself created radical systemic instability: causing deaths that will likely be in the millions, and not incidentally threatening global "depression." Well, one person's, or one people's, Armageddon is another's depression—or their joy. The algorithmic optimization of society for profit, an economics that, while sometimes unconscious, is these days never too far from the conscious mind of the creators of specific programs, collectively effects a wholesale compression of the sociosemiotic into what Friedrich August von Hayek (1945: 14) precisely called "a system of telecommuncations" capacitated by what he grasped as effectively the price signal. Money, or what, in a different key, Alfred Sohn-Rethel (1978: 28) perceived as exhibit A of "real abstraction," relegates, wherever possible, everything else to noise.[1] The "noise" of course, is the source of volatility. The suppression of noise is from the standpoint of communication theory a technical matter. Here we understand it as a matter of politics and economy. Noise suppression directly correlates to people's oppression. In financial terms, volatility is a similar index—the expression, in prices, of decision making under conditions of uncertainty. Ironic then that volatility has become a major source of value creation for synthetic finance, and now for states. The U.S.'s Corona bailouts of over three trillion US dollars—responses to the volatility of the social rendered ever more precarious by the existing economy—represent more than 60 percent of the money ever issued in the history of the country.

What perhaps best characterized this period is a full-blown convergence of communication, information and financialization *as* computation; whether or not this convergence and all its incipient violence can be redesigned is an open question. This question is ultimately about a possible politics of the protocolization of these informatic networks within a literally universal system of computation that as hypostatic states looks like a virtual machine, what I here call *the world computer*, and as diachronic flow (processing) is nothing less than *economic media*. Can these formations that for their proprietors profitably collapse message and value be hacked or reprogrammed so that the command control centers that make the most (from) difference are not in the hands of racist plutocrats—do not in fact *produce* them? That question,

though addressed in this volume will be taken up more fully at a later date, with a particular focus on the how and the who.[2] Here in this book we consider the various social vectors and components sedimented into machine function and then reactivated by the dire co-articulation of racial capitalism and computation—rearticulated as computational racial capitalism and its virtual machine, the world computer.

Information as Real Abstraction

Taking the notion that Capital was always a computer as a starting point (Dyer-Witheford, 2013), *The World Computer* understands the history of the commodification of life as a process of encrypting the world's myriad qualities as quantities. Formal and informal techniques, from double-entry bookkeeping and racialization, to the rise of information and discrete state machines, imposed and extended the tyranny of racial capital's relentless calculus of profit. By means of the coercive colonization of almost all social spaces, categories, and representations—where today language, image, music, and communication all depend upon a computational substrate that is an outgrowth of fixed capital—all, or nearly all, expressivity has been captured in the dialectic of massive capital accumulation on the one side and radical dispossession on the other. Currently the money-likeness of expression—visible as "likes" and in other attention metrics that treat attention and affect as currency—is symptomatic of *the financialization of daily life* (Martin, 2015a). All expression, no matter what its valence, is conscripted by algorithms of profit that intensify inequality by being put in the service of racial capitalism; consequently, we are experiencing a near-apocalyptic, world-scale failure to be able to address global crises including migration for reparations, carceral systems, genocide, militarism, climate racism, racism, pandemic, anti-Blackness, extinction, and other geopolitical ills. The colonization of semiotics by racial capital has rendered all "democratic" modes of governance outmoded save those designed for the violent purpose of extracting profits for the enfranchised. Culturally these modes of extraction take the form of fractal fascism. An understanding that informationalized semiotic practices function as financial derivatives may allow for a reimagining of the relationship between language, visuality, and that other economic medium, namely money, in an attempt to reprogram economy and therefore the creation and distribution of value—and thus also the politics and potentials of representation. In what would amount to an end to postmodernism understood as the cultural logic of late capitalism, our revolutionary politics require, as did the communisms of the early twentieth century, a new type

of economic program. In the age of computation, putting political economy back on the table implies a reprogramming of our cultural logics as economic media for the radical redress of the ills of exploitation and the democratization of the distribution of the world social product. Sustainable communism requires the decolonizaton of abstraction and the remaking of the protocols of social practice that give rise to real abstraction.

Though in this section we will more narrowly address the issues of money, race, and information as "real abstraction," and their role in computational racial capitalism, we note the overarching argument for the larger study:

1 Commodification inaugurates the global transformation of qualities into quantities and gives rise to the world computer.

2 "Information" is not a naturally occurring reality but emerges in the footprint of price and is always a means to posit the price of a possible or actual product.

3 The general formula for capital, M-C-M′, where M is money, C is commodity, and M′ is more money) can be rewritten M-I-M′, where I is information.

4 "Labor," Attention, Cognition, Metabolism, Life converge as "Informatic Labor" whose purpose, with respect to Capital, is to create state changes in the Universal Turing Machine that is the World Computer—racial capital's relentless, granular, and planetary computation of its accounts.

5 Semiotics, representation, and categories of social difference function as financial derivatives—as wagers on the economic value of their underliers and as means of structuring risk for capital.

6 Only a direct engagement with the computational colonization of the life-world through a reprogramming (remaking) of the material processes of abstraction that constitute real abstraction can secure victory—in the form of a definitive step out of and away from racial capitalism—for the progressive movements of our times. Such a definitive movement requires an occupation and decolonization of information, and therefore of computation, and therefore of money. Only through a remaking of social relations at the molecular level of their calculus, informed by struggle against oppression, can the beauty of living and the fugitive legacies of creativity, community, and care prevail.

The mode of comprehension, analysis, and transformation proposed here will require an expanded notion of *racial capitalism*. It interrogates the existence of deep continuities and long-term emergences—what one could correctly call algorithms of extractive violence—in the history of capitalism. These *algorithms of violence* include the reading and writing of code(s) on bodies, their surveillance and overcoding by informatic abstraction. Such algorithms of epidermalization or "the imposition of race on the body" (Browne: 113) are inscribed

and executed *on the flesh* (Spillers 1987); and they are executed by means of codification processes that violently impose both a metaphysical and physical reformatting of bodies. As Simone Browne shows, epidermalization is given "its alphanumeric form" (99) through a vast array tools of marking, scarification, discipline, and surveillance that include branding irons, implements of torture, auction blocks, ship design, insurance policies, newspaper ads for runaway "property," photographs in postcard form and a panoply of other media of dehumanization. Executable code is imposed as social categories of race, gender, religion and property, as ideologies, psychologies, contracts, brands, communication theories, game theories, and quantities of money—these abstractions work their ways into and are indeed imposed by the machines of calculation—and their avatars. We confront a continuous process of unmaking and remaking using all means available; it is violently inscribed on bodies. Sylvia Wynter, in her post–Rodney King piece "No Humans Involved: An Open Letter to My Colleagues" writes, "Both W. E. B. Du Bois and Elsa Goveia have emphasized the way in which the code of 'Race' or the Color Line, functions to systemically *predetermine* the sharply unequal re-distribution of the collectively produced global resources; and therefore, the correlation of the racial ranking rule with the Rich/Poor rule. Goveia pointed out that all American societies are integrated on the basis of a central cultural belief in which all *share*. This belief, that of the genetic-racial inferiority of Black people to *all others,* functions to enable our social hierarchies, including those of rich and poor determined directly by the economic system, to be perceived as having been *as* pre-determined by 'that great crap game called life,' as have also ostensibly been the invariant hierarchy between White and Black. Consequently in the Caribbean and Latin America, within the terms of this sociosymbolic calculus, to be 'rich' was also to be 'White,' to be poor was also to be 'Black'" (Wynter: 52).

"To be 'rich' was also to be 'White,' to be poor was also to be 'Black.'" The real abstraction imposed by executable code—the "code of 'Race'" that "functions to systematically *predetermine* the structurally unequal redistribution of global resources" is beholden to mediating capitalist exchange while embarking on a radical reformatting of ontology. This reformatting, the supposed result of "that great crap game called life," brutally correlates race and value, but not entirely by chance, while racial capitalism embarks on imposing this calculus globally. Racial abstraction is endemic to what we will further explore as "real abstraction"; the evacuation of quality by abstract categories and quantities is, as we shall see in more detail, a "necessary" correlate to a world overrun by the calculus of money. Such algorithms of violence encode social difference, and although they may begin as heuristics ("rules of thumb"), they are

none the less crucial to the calculated and calculating expansion of racial capital. Its processes and processing structures the meanings that can be ascribed to—and, as importantly, what can be done to—those of us whose data profiles constitute us as "illegal," "Mexican," "Black," "Gypsy," "Jew," and a lexicon of thousands of other actionable signs. This codification process draws from the histories of slavery, of colonialism, of state formation, of genocide, of gender oppression, of religious pogroms, of normativity, and again from the militarization and policing and the apparatuses of calculation that have developed within states and parastates in their own biometric pursuit of capital—power. Their violent destruction and remaking of the world. The *internalization* of these codes, including the struggles with them and the ways in which they license and/or foreclose various actions, exists in a recursive relationship to their perilous refinement. Their analysis, a code-breaking of sorts, will therefore demand some drastic modifications in many of the various anticapitalist, antistate warrior-stances practiced to date, particularly in a large number of their European and U.S. incarnations that until very recently remained blind to their own imperial violence and are too often complicit with hegemonic codes of masculine, unraced agency, imperialist nationalism, and default liberal assumptions in relation to questions of race, gender, sexuality, coloniality, and other forms of historically institutionalized oppression.[3]

The analytic, *computational racial capital*, would identify the field of operations that emerges around the embryonic form of the commodity and coarticulates with racial abstraction to formalize its code, code that serves as operating system for the virtual machine here hypostasized as "the world computer" and by inscribing itself on bodies and everything else. The commodity, the analysis of which famously begins volume 1 of Marx's *Capital*, expressed the dual being and indeed dual registration of the humanly informed object as both quality of matter and quantity of exchange-value, along with the global generalization of this form. "The wealth of societies in which the capitalist mode of production prevails appears as an immense collection of commodities" (125). Commodities were (and with some modifications to be discussed further on, still are) humanly informed materials with a use-value and an exchange-value—humanly informed qualities indexed by quantities. "Computational racial capital," as a heuristic device, stages an analysis of the convergence of what on the one side often appeared as universal: the economic, abstract, and machinic operating systems of global production and reproduction endemic to the commodity form and its calculus, with what on another side, sometimes appeared as particular or even incidental: racism, colonialism, slavery, imperialism, and racialization. The concept organizes this dramaturgy of analytically reunifying

elements that were never materially separate in light of the study that the late Cedric Robinson conducted and recorded as *Black Marxism*. Robinson writes, "The development, organization and expansion of capitalist society pursued essentially racial directions, so too did social ideology. As a material force, then, it could be expected that racialism would inevitably permeate the social structures emergent from capitalism. I have used the term 'racial capitalism' to refer to the development and to the subsequent structure as an historical agency" (1983: 2–3). *The World Computer* takes what Robinson saw as "civilizational racism," and its central role in the development of capital as axiomatic,—and sees that this role extends to and deeply into capitalist calculation and machinery during the entire period in which the world economic system seems to have moved form the paradigm of the commodity to a paradigm of information. "Computational racial capitalism" would thus understand the generalization of computation as an extension of capital logics and practices that include and indeed require the economic *calculus* of the dialectics of social difference. These differences, both economic and semiotic, would include those plied by slavery, anti-Blackness and other forms of racism during the past centuries. *Computation must therefore be recognized as not a mere technical emergence but the practical result of an ongoing and bloody struggle between the would-have-it-alls and the to-be-dispossessed.* Developed both consciously and unconsciously, computational racial capitalism is, when seen in the light of ongoing racialization and value extraction, "the subsequent structure as an historical agency." The racial logic of computation must be pursued when considering finance, surveillance, population management, policing, social systems, social media, or any of the vast suite of protocols plying difference for capital. The local instance of computation, a specific 1 or 0, may seem value neutral, a matter as indifferent as lead for a bullet or uranium for a bomb. But we are looking at computation as the modality of a world-system. Computation emerges as the result of struggles that informed "class struggle" in all its forms, recognized or not by the often spotty tradition(s) of Marxism, including those struggles specific to the antagonisms of colonialism, slavery, imperialism, and white supremacist heteropatriarchal capitalism more generally. It is the *result* of struggles indexed by race, gender, sexuality, nationality, and ethnicity, along with additional terms indexing social differentiation too numerous to incant here but that together form a lexicon and a grammar of extractive oppression—and as we have said and as must always be remembered, also of struggle. The lexicon includes compressions that result in many of history's abstractions including a perhaps singularly pointed abstraction: "a history whose shorthand is race" (Spillers 1997: 142). The grammar for that lexicon depends upon the deployment and execu-

tion of forms of differentiating abstraction that are lived—lived processes of abstraction and lived abstraction organized by the increasingly complex and variegated calculus of profit and thus of domination.

"Real abstraction," then, emerges not just as money in Sohn-Rethel's sense, but as the codification of race, gender, sexuality, geography, credit and time—and gives rise to a "grammar," in Hortense Spillers's (1987) use of the term, that not only structures meaning and redounds to the deepest crevices of being smelted by social practices, but also, and not incidentally, prices differentials indexed to social difference.[4] "Real abstraction," as Sohn-Rethel spent his life deciphering, takes place "behind [our] backs" as the practical and historical working out of the exchange of equivalents within the process of the exchange of goods (33). For him, the development of the money-form, of the real abstraction that is money, is Exhibit A of the abstraction process mediating object exchange. This capacity for abstraction, realized first in "the money commodity" and then as money provided the template for further abstraction, not least in the conceptual formations of Western philosophy itself (1978). Sohn-Rethel develops this argument that practices of exchange precede the abstraction of value in *Intellectual and Manual Labour*, providing the full quotation from Marx: "Men do not therefore bring the product of their labour into relation with each other as value because they see these objects merely as the material integuments of homogeneous human labour. The reverse is true: by equating their different products to each other in exchange as values, they equate their different kinds of labour as human labour. They do this without being aware of it. (Marx 1990: 166 in Sohn-Rethel 1978: 32). Here is Sohn-Rethel's commentary:

> People become aware of the exchange abstraction only when they come face to face with the result which their own actions have engendered "behind their backs" as Marx says. In money the exchange abstraction achieves concentrated representation, but a mere functional one—embodied in a coin. It is not recognizable in its true identity as abstract form, but disguised as a thing one carries about in one's pocket, hands out to others, or receives from them. Marx says explicitly that the value abstraction never assumes a representation as such, since the only expression it ever finds is the equation of one commodity with the use-value of another. The gold or silver or other matter which lends to money its palpable and visible body is merely a metaphor of the value abstraction it embodies, not this abstraction itself. (33–34)

Exchange-value is "in our heads" but is not the creation of any individual. Alongside use-value it is the other, abstract component of the "double being"

of the commodity-form. Like Norbert Wiener's (1961: 132) definition of information but, strictly speaking, emerging long before the idea of information proper, real abstraction is "not matter or energy." There is not an atom of matter in exchange-value, or, as Marx puts it, "Not an atom of matter enters into the objectivity of commodities as values; in this it is the direct opposite of the coarsely sensuous objectivity of commodities as physical objects" (1990: 138). And a bit on, "So far no chemist has ever discovered exchange-value in a pearl or diamond" (177). But unlike in Wiener's naturalist definition of information, exchange-value *is* an index of a social relation, an historical outcome. It indexes "abstract universal labor time," a third term that forms the basis of comparison between two ostensibly incomparable and therefore incommensurable commodities, and, because common to both, creates the ratio of value that renders them quantitatively commensurable. This distinction between the social basis of exchange-value and the universal character of information should give us pause. As we shall have occasion to observe, information, as it is today (mis)understood, is thought to be a naturally occurring additional property of things—neither matter nor energy—rather than a domain of expression constituted by means of a technological and economic repression of its social dimension. Notably, Sohn-Rethel "set[s] out to argue that the abstractness operating in exchange and reflected in value does nevertheless find an identical expression, namely the abstract intellect, or the so-called pure understanding—the cognitive source of scientific knowledge" (34). For him, it gives rise to the abstract capacities of the subject of philosophy as well as the quantitative capacities of the subject of science and mathematics that in the twentieth century move toward a paradigm of information. Echoing Sohn-Rethel, we could say then that information is in our machines but not the creation of any individual machine. *Not an atom of matter enters into information, though, like value, it is platformed on matter and requires energy for creation*. This thesis will take on particular importance as we consider social differences whose descriptors, it turns out, are executable in a computational sense, at least from the point of view of financial calculus, but platformed on matter, and indeed, on living matter, on life.

Beyond the intention of any individual, abstraction as "exchange-value" in "money" occurs in and as the process and processing of exchange in accord with an emerging standard. This standard, which economists call "exchange-value," and which, in Marx is based on abstract universal labor time (the historically variable, socially necessary average time required to produce a commodity), persists alongside and within the specific qualities of the commodity (its use-value) and creates the commodity's dual being. Though without chemical or material basis, this standard, exchange-value, is a social relation—a social

relation as an abstraction—that inheres in the commodity-form itself and is formalized with the rise of the money commodity. The money commodity, in becoming a general equivalent, standardizes and thus renders fully quantifiable the exchange-value of commodities—exchange-values denominated in quantities of money. The quantification of value in a measure of money is an abstraction enabled by money itself which, as we have seen, is a real abstraction. It is a calculation that has occurred behind our backs, and indeed produces what Hayek (1945) identifies as the price system. When we recognize the differences in wages among people who are raced, gendered, nationed, and classed by various matrices of valuation, we also recognize that the calculus performed by and as real abstraction includes racial abstraction and gender abstraction. It is part of the calculus of capital that provides it with an account of and discounts on the rate of exchange with the labor power of marked people(s)—by discounting people(s) (Beller 2017b; see also Bhandar and Toscano 2015: 8–17). Racial abstraction provides capital with an index that measures a deviation from the average value of human life (itself historically driven down by the falling rate of profit). In this, computational racial capitalism is not merely a heuristic or a metaphor for the processes of a virtual machine; it is a historical-material condition.

As we shall see, and as is obvious at least in the general case to anyone who has thought seriously about it, whiteness (and the fascist masculinity endemic to it) is not only operating where one finds "race": it is operating everywhere in the imperium that it can be imagined (by some) that race is *not* a factor—in medicine, in science, in statistics, in computation, in information. As I wrote—resituating Bateson's (1972) definition of information—in *The Message Is Murder*, information is not merely "a difference that makes a difference"; it is a difference that makes a *social* difference. This slight difference in expression situates information historically. While in keeping with Bateson's far reaching ideas regarding an ecology of mind ("If I am right, the whole thinking about what we are and what other people are has got to be restructured"; 468), ideas that at once problematize any distinction between inside and outside and that make him dubious of any thought that presupposes sovereign subjectivity, my interpolation of "social" in his formulation "a difference that makes a social difference" shifts the emphasis somewhat by insisting on the always already sociohistoricity of any possible knowledge. Bateson believed that his understanding of information and systems ecology promised a new mode of thinking that he himself, as a twentieth-century bourgeois white man, did not feel capable of really embodying. Thus our interpolation, in keeping with Bateson but made compatible with Marx is, in keeping with Marx, designed to "transform . . . the problem of knowledge into one of social theory" (Postone 2003: 216). Such

a transformation situates knowledge and now also information in the socio-historical milieu, the ecology such that it is, of racial capitalism, and therein finds information's historical conditions of possibility.

Here we advance the argument for the ultimately determining instance of social difference (and up the ante for the bet against whiteness) by proposing that information is the elaboration of real abstraction, of abstraction that results from collective practices of economic exchange and therefore from the general management of value as a social relation. I argue that set out in logical sequence, information is posited by, then posits and then presupposes the human processes of exchange that Sohn-Rethel, following Marx, argues are the practices that first give rise to the money-form and to real abstraction. For Sohn-Rethel the result of the activities of comparison, adequation, and trading of specific things that have qualities—which are, strictly speaking, incomparable—resulted over time in a process of finding a relation of equivalence and then general equivalence indexed to abstract labor time, what was in effect socially average human labor time. Exchange-value was a quantitative measure of that abstract time—the average socially necessary time to create commodity X denominated in money. This real abstraction was no one's invention but was the practical result of exchange—of people's activity—and thus emerged as a nonconscious result that nonetheless interceded on conscious process. Consequently, real abstraction was for Sohn-Rethel also the precursor to conceptual abstraction, including philosophy, science and mathematics. He writes:

> The essence of commodity abstraction, however, is that it is not thought-induced; it does not originate in men's minds but in their actions. And yet this does not give "abstraction" a merely metaphorical meaning. It is abstraction in its precise, literal sense. The economic concept of value resulting from it is characterized by a complete absence of quality, a differentiation purely by quantity and by applicability to every kind of commodity and service which can occur on the market. These qualities of the economic value abstraction indeed display a striking similarity with fundamental categories of quantifying natural science without, admittedly, the slightest inner relationship between these heterogeneous spheres being *as yet* recognizable. While the concepts of natural science are thought abstractions, the economic concept of value is a real one. It exists nowhere other than in the human mind but it does not spring from it. Rather it is purely social in character, arising in the spatio-temporal sphere of human interrelations. It is not people who originate these abstractions but their actions. "They do this without being aware of it."[5]

The practical rise of a form of abstraction indifferent to particular qualities is key here and is to be understood as a precursor to the content-indifferent abstractions of a variety of types. As Simmel notes in *The Philosophy of Money*, law, intellectuality, and money "have the power to lay down forms and directions to which they are content indifferent" (441–2). Without doubt, such power informed the racial categories of the Humanism of Ernst Renan, Roger Caillois, and others so brilliantly excoriated by Aimé Césaire in his *Discourse on Colonialism*. We add here the hypothesis that the rise of information as the content-indifferent assignation of numerical index to any social relation whatever, is a development of the abstraction necessary for economic exchange to persist under the intensive "developmental" pressure of global racial capitalism—information is derived from the increasingly complex things that people do through and as exchange and as such is both precursor and corollary to financialization—the social conditions that sustain what is fetishistically apprehended as "finance capital" and its seeming capacity to derive wealth from pure speculation and risk management in ways that (incorrectly) appear to be fully detached from labor and labor time.

In this light, information reveals itself as neither naturally occurring nor the creation of anyone in particular, but, in keeping with Sohn-Rethel's Marxian formulation of real abstraction, is likewise invented "behind our backs" as a result of "man's" practical activity. Information enables a complexification and further generalization of what will turn out to be monetary media, media that would be adequate to, and indeed are adequate (from the perspective of capital) to contemporary forms of exchange—what people do when they interact with one another in what is now the social factory. In brief, information is the extension of a monetary calculus adequate to the increasingly abstract character of social relations and social exigencies. It is an interstitial, materially platformed, calculative fabric of abstraction that through its coordinated capillary actions orchestrates social practice and provides interface for the uptake of value production. Once this idea is fully grasped, it becomes pointless to look for any other origin to the information age.

Just as for Marx there is not a single atom of matter in exchange value (1990: 138), we say that there is not a single atom of matter in information.[6] "All the phenomenon of the universe, whether produced by the hand of man or indeed by the universal laws of physics, are not to be conceived as acts of creation but solely as a reordering of matter" (Pietro Verri 1771, cited in Marx 1990: 133; note 13). Value is the socially valid *informing* of matter, so too is information.

Economy then is society's matter compiler and, approximately simultaneously with the advent of "man," "history," and "the world market," "exchange

value" emerges as a quantitative measure of the social value of material state changes indexed to human labour posited as "abstract universal labour time." Marx's famous example of the simple wooden table in Chapter 1 of *Capital*, which "transcends sensuousness" when leaving the clear-cut framework of use value and becoming a commodity and thus an exchange value, registers as "fetishism," the "metaphysical subtleties," "theological niceties," and "grotesque ideas" (1990: 163), endemic in the table's computability as value. In brief, just as discreet states of matter embodying value as a network of commodities mediated by markets and tied to labor give rise historically to the discrete state *machine*, otherwise known as the computer, exchange value gives rise to computable information and then to computation itself, becoming interoperable with it. Even before the rise of information proper, exchange value operates as information (and thus, necessarily information processing)—and then, as synthetic finance and contemporary forms of computer-mediated accounting and production readily testify, by means of it. Computation is the extension, development, and formalization of the calculus of exchange value—the ramification of its fetish character—and becomes in spirit and in practice, a command control layer for the management of the profitable calculus of value. Platformed on states of matter, information, not matter but rather *difference* between and among states of matter, extends, grammartizes, and granularizes the calculus of value regarding the organization of matter. Commodities and computation thus run the same basic operating system—state changes in matter driven by human practices—the value of which in any given state is expressed in the context of an informatic network and indexed to labor time. As such, information is the processing power of money itself and is inexorably beholden to abstract labor time and thus to racial capitalism. It is, in brief, an outgrowth of the money form. The cost of computation, the arrival at a discrete state, is a derivative operation, indicating an investment, that is explicitly a risk on the future value of an underlier, that is, on value itself.

This argument for understanding the social as the ultimate referent and ground for any and all information, further advanced in chapter 1, is not content to serve as a mere heuristic for cultural theorists to express a modicum of suspicion with respect to truth claims backed by statistics and information. It is a thoroughgoing indictment of information as a *technique* of value extraction, racialization, and instrumental social differentiation. As a first approximation, actually existing information, like actually existing money, can indeed be said to be the root of all evil—in as much as the fact of its existence is a symptom of a far more complex historical process than what would seem to be discernible from the fact of the coin or the bit. The problem, of course, is that your

metabolism (and mine), cannot easily extend into the future without access to both. I develop this idea here to say that *everywhere computation operates, so too does racial capitalism*—at least until proven otherwise. The repressive apparatus of capital clearly *assumes* this role for information, even if it does so at a level that most often exceeds ordinary default "human" (white) understanding: the net result to date of the number crunch of "the world computer" is a hierarchy of valuations inseparable from the violence of racialization and its attendant dispossession, and inseparable again from what Ruth Wilson Gilmore (2007: 28) in her classic and statistically attuned definition of racism calls "the state-sanctioned or extralegal production and exploitation of group-differentiated vulnerability to premature death." Today, we argue, no calculation, networked as it is with the world computer, is fully separable from informatics and its basis in racial capitalism. We will argue for this logical and also horrific history of abstraction in more detail below as we explore the interoperability of digital systems and their colonization of the semiotic, corporeal and material domains. The global learning curve of revolutionary praxis must attend to this modal innovation of systemic oppression, an oppression which is at once beyond all calculation and one with it.[7]

The fundamental premise of this book, which then gives rise to the rest, is that what we today call digitization began more than seven centuries ago with commodification, that is, with wage labor and the rise of private property along with money of account. Private property, recall from Marx, was not the cause but the result of alienated labor (though later the relationship becomes reciprocal). In Marx's words: "Private property appears to be the source, the cause of alienated labour, it is really its consequence, just as the gods in the beginning are not the cause but the effect of man's intellectual confusion. Later this relationship becomes reciprocal" (Marx 1978: 79). The alienation of labor and the accumulation of value as private property are of a piece: private property, for Marx, is no more natural than is avarice. Some seven centuries ago, the commodity-form, which allowed for the denomination of use-values in terms of exchange-value, and wage labor, which denominated human creativity in terms of the same exchange-value quantified by means of the money-commodity (e.g., gold), inaugurated the universalizing conversion of all qualities into quantities. This emergence, indexing quantities of money to amounts of abstract universal labor time, like that of private property itself, was a result of man's "practical activity" (76). We might call this emerging domination of production, exchange, and social life by the money commodity and its capacity to mediate a quantifiable yet content-indifferent value-form present in all other commodities Digital Culture 1.0 (DC1). As materials and persons recur-

sively passed through the expanding production cycles of capital and were increasingly caught in the warp of private accumulation enabled by the institution of capital's unequal exchange with labor by means of the wage (itself an abstraction machine, a calculus), and of private property's systems of accounts, so began an incipient digitization of the life-world through the generalized inscription of all existing use-values and of all imaginable use-values in terms of quantities of exchange-value. Money's operating system permeated the world. Under capitalist expansion and its highly varied methods of accounting, qualities became increasingly treated quantitatively, and therefore become supplemental to and subjugated by the calculus of profit; the rest is world history. It is also the history of the intensive *development* of real abstraction—the rise from social exchange of money-denominated numbers indexing social activity and social relations attained increasingly complex forms.

Without doubt, capital was not and is not the only organizational force that gives form and systematicity to inequality—racism is "civilizational," as Cedric Robinson argues and forms of gender oppression predate capitalism—but capital expansion depended upon utilizing existing inequalities, developing new ones, and legitimating that development. It was and remains a social difference engine. Legitimation of differentiation is a means to monetization. This is not to say that racism was not and is not often its own motivation. However, to abstract here from Robinson's vastly understudied work, capitalism was not only always racial capitalism, it was always a social difference engine. It operated by means of differentiation, abstraction, and exploitative extraction: the imposition of fungible units and forms, as well as the excision, stifling, and oppression of counterclaims to the "law" of value. As Marxist feminism and Black Marxism have shown, and as white Marxism has resisted, the value-form always was and yet remains raced and gendered. Indeed it depends upon the fungibility of these abstracting categories. Capital offers recognition through remuneration to some types of labor while depending upon other forms of coerced (enslaved, feminized, or otherwise discounted) socially mandated labor (domestic labor, indentured servitude, disposable) and upon a large, often deadly, gray area stretching along social differentiation ranging from full citizenship to second and third class citizenship to social death to murder for its expansion and generalization. Put another way, money—as vanishing mediator of exchange by means of value abstraction—was also a system of representation. The money commodity, in being able to represent value, was also an instrument for the enforcing of systemic bias. Its very circulation and pricing mechanisms legitimated hierarchies of social differentiations as it utilized them and their capacity to format the social. This systemic

bias of the content indifferent money-form became increasingly true with sovereign monies.

Monetary systems of representation, invisible, pure or natural as they may seem thanks to their ability to deracinate quantities *for all "practical" purposes* are nonetheless always platformed in an instance of the social order. This platform, for example, can be the sovereign state, the interstate system, an institutionally and ideologically upheld regime of truth, or distributed computation. These platforms have their advantages in that by assuming and naturalizing their institutionality and thus their sovereignty, they can compress heterogeneous values into information. Price, as Hayek theorized at the dawn of the computer age, condensed social complexity into a single number and rendered other considerations external and/or redundant. All social signals were collapsed into the "telecommunications" of the price signal that, like Shannon's mathematical theory of communication, was "content-indifferent" (Hayek 1945: 519–30; Shannon 1948). It is the argument here that such content indifference depends not just on monetary abstraction but on a matrix of abstraction—including commodity abstraction, racial abstraction, and gender abstraction—and that these forms of abstraction impose lived abstraction on social relations that have themselves become abstract (in time that itself has become abstract [Postone: 186–225]), while naturalizing or otherwise normalizing and thus enforcing, their platform sovereignty. The media of content indifference have cutting edges. Such cuts are everywhere felt; here we must assemble them and interrogate their digitality to decode their deeper logic and their grounding in violence.

We observe that within the economy of DC1, and certainly within that of contemporary digital culture—or Digital Culture 2.0 (DC2), in which the digital computer or discrete state machine becomes the primary medium of social exchange—the quantification process, like everything else that might matter in economics, always passes through "monetization." That is, everything else that will matter will pass through monetization if its capillary processes in science, engineering, mathematics, informatics, war, housekeeping, cottage industry, demography, and every other domain are to be valorized and thus assured both continuing relevance, and thereby, an existence fully conferred. Some platform somewhere will find interest in extracting your information, and you must "consent" to survive. Quantified processes as well as the quantification process itself must provide an ROI—return on investment—to databanks, computers and cloud computers. Such a rationale is rigorously applied both to human processes and to human-machine processes in an intensive development of metrics and systems of account. This development of vertical and

horizontal systemic integration around the requisites of the value-form must be clearly understood as "the computational mode of production." It optionalizes and optimizes value extraction and, in what may be a surprising result, has rendered social processes themselves as investible derivatives—financial positions that structure risk in relation to the volatility of valuation. This generalization of a direct relation of cybersocial processes to finance is accomplished vis-à-vis computation and results in derivative conditions, or what, following Randy Martin's (2015a) understanding of both the financialization of daily life and the social derivative, I sometimes refer to as "the derivative condition."

Nowhere perhaps is this general and thoroughgoing recasting of the character and calculus of interactive nodes by capital more clearly stated—at least early on—than in Foucault's analysis of "human capital" in his lectures on neoliberalism in *The Birth of Biopolitics* (2008). There, recapitulating Irving Fisher, Foucault asks what is a wage—and replies, "It is an income." He continues: "How can we define an income? An income is quite simply the product or return on a capital. Conversely we will call 'capital' everything that in one way or another can be a source of future income" (2008: 224). From this brilliant and (for the humanist) devastating treatment of the wage, which becomes merely, that is, generically, "an earnings stream" (224), Foucault remarks upon the shift of economics form an analysis of "process" to the analysis of "activity": "Economics should not consist in the study of these mechanisms [production, exchange, or consumption data], but in the nature and consequences of what they [economists] call substitutable choices" (222). Foucault (224) quoting Lionel Robbins: "Economics is the science of human behavior as a relationship between ends and scarce means which have mutually exclusive uses." Thus, as human capital, the worker becomes an entrepreneur of the self who manages his human capital, "being for himself his own capital, being for himself his own producer, being for himself the source of earnings" (226). The wage becomes an income stream derived from the risk taken with one's own human capital. As a structured form of risk management, it becomes a derivative position on the activity of a network:

> So we arrive at the idea that the wage is nothing other than the remuneration, the income allocated to a certain capital in as much as the ability-machine of which the income cannot be separated from the human individual who is the bearer. How is this capital made up? It is at this point that the reintroduction of labor or work into the field of economic analysis will make it possible, through a sort of acceleration or extension, to move

> on to the economic analysis of elements which had previously totally escaped it. (226)

This "reintroduction of labor or work" allows Foucault to take the formerly social elements—education, healthcare, parenting, genetic makeup—as variables in the composability of human capital that can then be submitted to cost-benefit analysis. "What type of stimuli, form of life, and relationship with parents, adults, and others can be crystallized into human capital? . . . Migration is an investment; the migrant is an investor. He is an entrepreneur of himself who incurs expense by investing to obtain some kind of improvement" (230). Foucault thus identifies in the rise of neoliberalism and the shift to the analysis of human capital, "the internal rationality, the strategic programming of individual's activities" (230). Here we may observe the generalization of a computational economic calculus to the neoliberal subject—an "internal rationality," a "strategic programming" bent on ROI. This optimization strategy is of course not the sole province of the individual and is, even in Foucault's analysis, transposed from an understanding of the corporation and the firm. Indeed, just as with corporate or investment bank management, social and now digital composability allows for multiple strategic programs to compete for the processing power of the "ability machine" under the worker's charge, making the worker, the entrepreneur of the self, a portfolio manager engaging in relationships that are always posited as contractual or informal forms of risk. For reasons that will become apparent later on, we could say that the worker manages a portfolio of derivatives and is themself a derivative in as much as they derive an income stream from a composable financial architecture designed for the timely management of contingent claims.

Here we glimpse an element of the social processes that will be formalized as a credit system acutely attuned to social difference, aspects of which are rigorously explored in Ivan Ascher's *Portfolio Society* (2018), and also as forms of derivative finance that allow for exposure to the volatility of underliers by means of structured obligation and the off-loading of risk rather than traditional forms of ownership. We understand these ramifications of the price system and its emerging complexity in and as synthetic finance as the development of a banking, credit, and financial system by informatics seeking the capability of representing anything whatever (that is, anything that counts for or can be counted by capital) and of assessing risk on the modes of accounting in the form of credit scores, interest rates, liquidity premiums, or other predictors of ROI. These informatic and computational assessments indexed to race, gender, zip code, age, and a million other data points, formalize contracts

referring to such risk indices in the content-indifferent systems language not only of digital computation but of money. As we shall see, in these terms at least, any representation as information is a capital investment, and information is a form of money, indeed a *development* of money. Its operations by means of quantification, shot through sociality and through what we understand as computation (ubiquitous computing), continue to ramify every and all appreciable appearance with ever greater resolution and granularity to this day.

Foucault casts the neoliberal insight as a response to both Marx and to classical economics which, because of their theoretical standpoints, only perceives labor as abstract labor rather than in "its specification, its qualitative modulations and the economic effects of these modulations" (222). With this corrective to what, for him, is Marxism's coarse optic, Foucault seems to embrace neoliberal rationality (and the individualization of agency) as the price of rendering his analysis, and of describing the economic approach elevated to the high level of discernment involved in and necessary to making "substitutable choices." It is as if "the scribe of power," as Edward Said once called Foucault, did not register contradiction, ontology, or a teleology in neoliberalization, and was agnostic at best on metaphysics, ethics, and the revolutionary goals of social movements. His mode of analysis—his sublime comprehension, which looks at the world synchronically and lucidly tells it like it is—demurs and indeed refuses the production of an outside, of a space of appeal, of an alternative to history, and registers only what can be represented in the representational terms that an "episteme," here that of neoliberalism, provides. This is the great power but also the political failing of Foucault, the writer, who will not deign to work in the name of anything but, in telling it like it is, would rather put on the mantel of an episteme and be the master of names. In this, Foucault seems tacitly but fully to accept the subjugation of competing traditions, alternate analytic strategies, and discrepant futures by the dominant discourses he so astutely mimes.[8]

So we will continue with the analysis of the abstraction process, of money, of racial abstraction, of information as a continuous reformatting of inside and outside, and this process's connection to present, past, and future—its connection to *the historically contested processes of social differentiation*. The sublime of the cultural dominant cannot be allowed to stand nor can criticism embrace the antiseptic aesthetics of fascism. We understand real abstraction as a result of the practical and practiced computation of social difference begun in the exchange of distinct objects possessing incommensurable qualities (objects that would, over time, become commodities) and developing over time into

money, finance, mathematics, statistics, communication, and computation. In other words, we understand that the status quo, elaborated by this abstraction process everywhere testifies to the dominion of the avatars of capital's AI—the alienated processing power of what has been called our species. But we will take our inspiration from the struggles of the global oppressed and endeavor to understand how our efforts might provide a currently existing, antiracist, anti-heteropatriarchal, anticapitalist, decolonial emergence with insight and opportunity in its *refusal* of objectivity, fungibility, and capitalist abstraction—its refusal of what in an earlier time might have been considered the realism imposed by capitalist domination (but today, in a world riven by derivative logics, would have to be called the hegemony of the deconstructive state). In this view, the calculative process itself, as an abstraction feeding on and creation abstractions, is limited in discernment, collapsing as it does difference into the executed computation performed as exchange. Difference is lost in differentiation; information provides an instrumental approach to life by collapsing its dimensions. Life becomes more abstract when a computation resulting in exchange is taken as a sign and then as a reference for future exchange. In this *programmatic* abstraction, computation as monetization and monetization as computation has totalizing and universalizing tendencies. But the entire process and processing is nonetheless materially tied to the qualitative, concrete specificity being processed—and it is here, in its radical exclusion of a diverse remainder from its methods of account, that we may discern the violence of abstraction. The scaling of real abstraction in capitalism, its formalization in material process that will include institutions and computational machines, never exhausts difference or annihilates conflict even as it sheers off noise, reduces variance, and renders objects, money, commodities, and people fungible. Such contradictions are endemic, unresolved, and—under racial capitalism—irresolvable. "Private property," Marx taught us, is "not the cause but the effect" of alienated labor (1978: 79), and, as this book shall demonstrate, as with private property, so too with "digitality," "race," and "information."

Of course, the properties of private property, as well as the ways in which matter is informed by what was called labor are in a process of transformation. We will explore the expansion of labor to processes of generating information that utilize attention, cognition, perception and metabolism. The collapse of all such activities into information, into a "universal monoculture of informational naturalism" (Steuer: 29), is the general elaboration of real (monetary) abstraction, and as such implies the shift in the mode of production that we call computational. Understanding information not as a discovery but as an

invention, a *technique*, reveals that its capacity for conversion accomplishes the injection of a sociohistorically mediated system of valuation into any domain whatever. This claim that information is in effect financialization, a response to racial capital's systemic need to configure new assets and assess risk while at the same time endeavoring to capture all knowledge, semiotics and sociality for the purposes of production, is to be explored in greater detail throughout this volume. As an invisible hand with infinite digits, what information is announces the universal generalization of ever more granular accounting. In this, it is—in itself and in what it enables—the development of the logistical dynamism of the money-form, its calculus of all things differentiable: skin color, nose size, carbon emissions, property. Because of the generalization of sociocybernetics, a calculus of risk and reward now accompanies all knowing. And all unknowing. All appearing and all disappearing. Information serves as an instrumental proposal for the universality of accounting and for the rendering accountable; it serves as the medium of computational racial capital—the means to generate an income stream through a cybernetic interface with any phenomenon whatever. The rest is technology, which is to say, social relations, or, more precisely, the abstraction and reification of social relations and their sedimentation and automation in machinery. Despite the somewhat shocking acknowledgment that "information is information, not matter or energy" (Wiener 1961: 132) information has nonetheless been assumed—incorrectly—to be an effect of things' mere or sheer existence, an ontological component of things. Here we argue that information is a real abstraction, in short, a consequence of what people have done and do when they produce and exchange their goods, when, historically, they compile matter to combat the falling rate of profit and thereby "innovate" to arbitrage the cost of labor. Information is not, as has been long held, a natural property of things. Information is precisely an extension of the logic of property, a social result, *a capitalizing way of knowing and doing*, that is now intelligible as a derivative instrument indexed to an underlier—a generalized means for the pricing of investible risk in a field of contingencies that has its local meaning in the marketplace and an overall consequence that is beyond all price.

Syed Mustafa Ali's scholarship further demonstrates the consilience of white supremacy and informatics. In a significant essay, "Race: The Difference That Makes a Difference" (2013), Ali wagers: that "cybernetics and informatics should be considered racial formations and the allegedly 'abstract' and impartial/neutral stance associated with them should be understood as masking the operation of racism or white supremacy" (102).[9] Turning to the work of Charles Mills (1997) on the systemic and contractual aspects of racism, this allows

Ali to consider both the conscious and non- or unconscious aspect of the racism endemic to the function of information.

> While sympathetic to cognitive accounts of racism, Mills insists that racism can—and *does*—exist in a purely structural (or pattern-based) capacity, that is, in terms of differentially-embedded power relations that are at least not explicitly intentional, that is, dependent on consciousness for their continued existence. Put another way, racism can exist in the absence of inform*ed* subjects who are conscious of their racist beliefs and practices, although subjects who *are* conscious of their racist beliefs and practices—racist inform*ers*—are necessary for the production of racism in the first instance. This is possible because Mills maintains that patterns of discrimination and/or domination associated with racial difference—that is, racism—should not be understood as the *exceptional* behavior of *individuals* deviating from a non-racist social norm, but rather, as a global socio-political *system* (30) that is both historical and material in nature. On Mills' view, racism—more precisely, global white supremacy—is a political system, a particular power structure of formal or informal rule, socioeconomic privilege, and norms for the differential distribution of material wealth and opportunities, benefits and burdens, rights and duties. Crucially, Mills maintains that white supremacy can be theorized as a "contract" between whites—a Racial Contract—which he proceeds to define as follows: The Racial Contract is that set of formal or informal agreements or meta-agreements (higher-level contracts about contracts, which set the limits of the contract's validity) between the members of one subset of humans, henceforth designated by (shifting) "racial" (phenotypical/genealogical/cultural) criteria C1, C2, C3 . . . as "white", and coextensive (making due allowance for gender differentiation) with the class of full persons, to categorize the remaining subset of humans as "nonwhite" and of a different and inferior moral status, subpersons, so that they have a subordinate civil standing in the white or white-ruled polities the whites either already inhabit or establish or in transactions as aliens with these polities, and the moral and juridical rules normally regulating the behavior of whites in their dealing with one another either do not apply at all in dealings with nonwhites or apply only in a qualified form (depending in part on changing historical circumstances and what particular variety of nonwhite is involved), but in any case the general purpose of the Contract is always the differential privileging of the whites as a group with respect to the nonwhites as a group, the exploitation of their bodies, land, and

> resources, and the denial of equal socioeconomic opportunities to them. All whites are beneficiaries of the Contract, though some whites are not signatories. (Mills 1997: 11, quoted in Ali 2013: 99–100)

Ali concludes here: "To the extent that information is concerned with differences that make a difference (Bateson 1972) and involves a process of *inform*ing—that is, transmission of meaning (Baeyer 2003)—which can turn out to be a process of *mis*/*dis*informing, it might be argued that the 'signing' (establishment) and subsequent 're-signing' (maintenance, expansion and refinement) of the Racial Contract of white supremacy constitute informational processes" (Ali 2013: 100).

We have argued this here and something more. The global institutionalization and formalization of white supremacist programming in racial capitalism, wherein "the Racial Contract of white supremacy" is written, signed, and resigned, is not an incidental outcome of informatics, rather it constitutes the material history of the rise of information and its foundation in social difference and profitable social differentiation. Ali's "critical information theory" of race deepens our exploration of the co-evolution of racial abstraction and information. The coherence is even more powerful when racialization, the "signing" and "re-signing" of the racial contract inherent in the ongoing development of code, is considered in the context of both labor and financialization.

As the emergence of codes and contracts that can be formally and informally applied in the profitable organization of dissymetrical exchange between labor and capital, "the Racial Contract of white supremacy" generates data and management requisites that become formalized as what Safiya Umoja Noble calls "algorithms of oppression" and Ruha Benjamin (2019: 1) calls "the new Jim Code." Computation is invested in and vested by racial capitalism and the resultant fractal fascism of computational racial capitalism is in our faces every day. Its development occurs in lockstep with oppression. These algorithms, formal and informal, are not incidental emergences in a general system of computing that can also be used to run the economy. They are rather foundational and decisive strategies of emergence and control, evolving codes that would include, for example, the southern "black codes" prevalent in the United States post-1865, that seemingly automate and render autonomous so many types of binding contracts. These "contracts," vertically and horizontally integrated planet-wide, are a fundamental part of the still developing extractive paradigms of computational racial capitalism and its profitable management of value extraction and dispossession through

strategies of social differentiation that allow for the creation of tranches that must be inhabited and if possible survived. Additionally, information *processing* has become the paradigmatic uptake for what elsewhere I have called informatic labor and the programmable image, in which denizens of racial capitalism provide additional information to platforms for capital accumulation in exchange for currencies that allow us to survive. This computational colonization of the semiotic domain further renders semiosis productive for capital, while demanding the re-signing of its code: minimally, a utilization of and participation in the logistical capacities of racial capitalism. These contracts, and all the others expressed as information and platformed on the virtual machine of the world computer function through the build out of real abstractions by means of informationalization, turning money into finance, value into risk, and bodies into races and genders to the point where, in the bloodless halls of Google, everything appears (and disappears) in a content indifferent common denominator: information. A result toward which we, who inhabit the bloodied world, cannot remain indifferent.

The Factory Code

The World Computer endeavors to address the moment when "the factory code," as described in the quotation from Marx that fronts this volume, has become—that is to say, has developed or morphed into, been subsumed by—computer code. In so doing, the ramifications of codification imposed by sociological metrics, financial accounting, and racial abstraction that give rise to "the computational mode of production" have turned society itself, and with it nearly all of semiotic activity, into a distributed factory. This factory, in its relentless pursuit of value-extraction, mercilessly drives the semiotic capacities of planetary life—its heteroglossia—toward the normative monologue of the value-form, policed by the disciplinary rationale of profit. Don't be fooled by the fancy accommodations and sleek ergonomics, the first-person shooter interfaces, the health monitors, the VR, the AR, the fetching AI, the panoply of apparent choices. And don't be fooled by the apparently nontechnical conditions of global slums, forced migrations, detention centers, and camps. In, on, and within this, the planetary factory floor, now rendered *n*-dimensional by the world computer and its screens, we encounter the unprecedented extension of the colonization of space, time, discourse, mind, and the imagination by means of algorithms that operationalize historically produced categories of social difference as so many inflections of class—so many instances of access and rights to (or the barring thereof) the

global-social product. The informatic matrix and its compute becomes the means for regulating and integrating the mesh of income streams, the access to money, and the capacity to convert ones life-products into goods. All denizens of the world computer are cybernetically locked in a machine-mediated competition for liquidity.

The general tendency of cybernetics to become a tool of capitalist competition was observed by Norbert Wiener as early as 1947:

> It has long been clear to me that the modern ultra-rapid computing machine was in principle an ideal central nervous system to an apparatus for automatic control; and that its input and output need not be in the form of numbers or diagrams but might very well be, respectively, the readings of artificial sense organs, such as photoelectric cells or thermometers, and the performance motors or solenoids. . . . Long before Nagasaki and the public awareness of the atomic bomb, it had occurred to me that we were in the presence of another social potentiality unheard of for the importance of good and for evil. The automatic factory and the assembly line without human agents are only so far ahead of us as is limited by our willingness to put such a degree of effort into their engineering. . . .
>
> I have said that this new development has unbounded possibilities for good and for evil. . . . It gives the human race a new and most effective collection of mechanical slaves to perform its labor. Such mechanical labor has most of the economic properties of slave labor, although unlike slave labor, it does not involve the direct demoralizing effects of human cruelty. However, any labor that accepts the conditions of competition with slave labor accepts the conditions of slave labor, and is essentially slave labor. The key word of this statement is competition. (1961: 26–27)

Sounding like more of a Marxist than a Keynesian, Wiener continues:

> Perhaps I may clarify the historical background of the present situation if I say that the first industrial revolution, the revolution of the "dark satanic mills" was the devaluation of the human arm by the competition of machinery. There is no rate of pay at which a United States pick-and-shovel laborer can live which is low enough to compete with the work of a steam shovel as an excavator. The modern industrial revolution is similarly bound to devalue the human brain, at least in its simpler and more routine decisions. (27)

Speculating on the solution to the problem endemic to cybernetics and to what we may grasp as the colonization of life and labor by information, Wie-

ner writes, "The answer, of course, is to have a society based on human values other than buying or selling. To arrive at this society, we need a good deal of planning and a good deal of struggle, which, if the best comes to the best, may be on the plane of ideas, and otherwise—who knows?" (28). Seventy-five years since the writing of these lines, the best, unfortunately, has not come to the best, and the competition endemic to the automation of racial capital that accepts and competes with the conditions of slave labor has pushed us all the way to "who knows?"

"Any labor that accepts the conditions of competition with slave labor accepts the conditions of slave labor, and is essentially slave labor" (Wiener: 27). That's the bottom line. With the calculus of social difference firmly in mind, *The World Computer*, in its titular concept, hypostasizes the operations of computational racial capitalism. Racial capitalism sets machinic efficiencies against the socius and in competition with slavery, and casts these integrated operations as a vast machinic assemblage mediated by real abstraction (information) for the ordination and therefore coordination of operations that can be divorced neither from finance, computing, representational media, or from social difference and differentiation, nor from the bio- or ecospheres. As an idea, "the world computer" expresses not the capacities of Ethereum virtual machine running atop its blockchain,[10] but the algorithmic computing of global domination occurring at unprecedented speed and scale and running on top of the *bios*.

This generalized and granular domination is busily at work not just in what W. E. B. Du Bois (2015) called, in his brilliant work of speculative fiction "The Princess Steel," the "Far Great" and the "Near Small," observable with telescopes and microscopes, respectively, but in what he called the "Great Near."[11] Dr. Hannibal Johnson, the black professor of sociology in "The Princess Steel" (originally titled "The Megascope: A Tale of Tales"), explains his efforts to reveal the otherwise invisible "shadowing curves of the Overlife" (823) with his great *megascope*: "You know, we can see the great that is far by means of the telescope and the small that is near by means of the microscope. We can see the Far Great and the Near Small but not the Great Near" (823). In their introduction to *W. E. B. Du Bois's Data Portraits Visualizing Black America*, Whitney Battle-Baptiste and Britt Rusert (2018) explain that "the vision produced by the megascope . . . is generated in part by data contained in a massive set of volumes lining the wall of the laboratory, a vast set of demographic studies collected for over '200 years' by some kind of 'Silent Brotherhood'" (8). They describe the vision and the subsequent allegory of the story this way: "When hooked up to the megascope, users are able to view the 'Great Near,' Du Bois's

term for the always present but usually invisible structures of colonialism and racial capitalism that shape the organization of society" (7). Here, taking inspiration from Du Bois's megascope, we assemble the data of the counterfactuality, among which we find what Shaka McGlotten (2016) might call "Black Data." We call out and make visible the virtual machine that is the world computer, along with its generalization and elaboration of the factory code to administer the protocols of computational racial capitalism. As we shall further explore, the invisible structures of colonialism and racial capitalism extend not only into society, but into the knowledge society produces and can produce with respect to the Far Great and the Near Small as well.

The world computer thrives on the production of difference and differentiation to produce ever more of the same: wealth and dispossession, that is, more wealth and more dispossession. In the name of efficiency its algorithms and algorithmic effects seize upon and would developmentally ramify all forms of historically worked-up social difference for the purpose of arbitrage on labor power even as they occupy and format our technologies and machines. They are programmed by the constant drive to get the same thing—in this genuinely tragic case, a quantity of the value-form—for less. Driven by the falling rate of profit and the subsequent cheapening of life, the result of this generalized arbitrage on the value of labor-time is unprecedented social hierarchy and a general devaluation of labor power—or what elsewhere I have called "attention" and Neferti Tadiar, in her recent work (2012), calls "life-time." This devaluation creates both a surfeit of discounted concerns along with the discounted people who may embody them.

Though generally devalued, we humanoids are nonetheless essential, though not in the ways we might choose to be. Our inability to choose our essential qualities results in large part from the fact that capital can only measure innovation in terms of its accumulation of surplus value. And, the larger the ratio of fixed capital to variable capital, says the law of the falling rate of profit, the greater the degree of exploitation (of the worker, of attention, of life-time) required, if the rate of profit is to remain constant. In other words, as labor power makes up an increasingly smaller proportion of the total value of capital outlay in the expanding production cycles of commodities, the return on the cost of labor power must increase in order to keep the proportion of profit relative to the total capital costs constant. If not, the rate of profit falls. Thus, the drive to innovation is a drive to increase the efficiency of labor and thereby the ratio of value-extraction (unpaid "surplus" labor) to the paid time (necessary labor) of the working day. (For the sake of this example, assume that the length of the day and the daily wage here, are held constant.) Over time, capital must

keep an increasingly larger proportion of each worker's value production, on average, if it is to valorize itself at the general rate of return and remain capital. Capital drives down what it pays per hour (it pays only for necessary labor) and takes the increasing proportion of unpaid time (surplus labor) for itself. As Moishe Postone puts it in *Time, Labor and Social Domination*, "Increased productivity leads to a decrease in the value of each commodity produced because less socially necessary labor time is expended. This indicates that the total value yielded in a particular period of time (for example, an hour) remains constant. The inversely proportional relationship between average productivity and the magnitude of value of a single commodity is a function of the fact that the magnitude of total value produced depends only on the amount of abstract human labor time expended. Changes in average productivity do not change the total value created in equal periods of time" (193).

From this we understand that innovation, driven by the falling rate of profit due to the increasing proportion of fixed capital to the value of labor in production that pushes capital to pay less and less for labor, is effectively a devaluation of the worker, since the worker is paid for less and less of the working day. We also mark clearly that this relationship between the proportion of fixed capital and the amount of labor that results in a falling rate of profit that can only be combatted by driving down the price of labor converts innovation under racial capitalism into an arbitrage on human time. The simple math driving down the proportion of the worker's necessary labor (necessary labor is the amount of working time necessary for a worker to reproduce themself given a certain level of social and technological development, which is what they are actually paid for and no more) with respect to their surplus labor (surplus labor is the amount of time the worker works for free and thus yields their productive power to capital) reminds us, as we regard the vast build-out that was once thought of as the human species, that Benjamin's dialectical flash is still true: "Every document of civilization is simultaneously a document of barbarism." We should recall this formulation when regarding the great scientific, cultural and technical achievements of our time—from the megacities to the cloud-connected microelectronics, to the great advances in capacity and efficiency such as the one that can be viscerally perceived as an F-35 fighter plane comes from nowhere and shatters the sky. Today, the vast communications infrastructure that links all together—an infrastructure which is at once computational in function and composed of fixed capital—requires massive amounts of input in exchange for minimal and often no direct remuneration to turn its profits at a competitive rate. Both point-and-shoot cameras and point-and-kill F-35s must provide ROI. Algorithms operating on phones, missiles, stock

markets, and everywhere else manage the uptake as well as most of the payoffs such as they are, while states and other hegemonic formations—themselves managed by a business calculus—police the externalities and the malcontent. Migrants and those seeking reparations are incarcerated, left to die, executed; Jair Bolsonaro, practicing his own brand of investment genocide, burns the Amazon and its peoples in order to graze cattle. Financial balance sheets require daily settlements and therefore returns for the short-term benefit of owners and externalized costs to the denizens of the image and the inhabitants of the unrepresented and the unthought. Through these algorithms of extraction—machinic and embodied, increasingly formalized, sedimented, formatted, and absorbed into computational digital infrastructure—and the representational system they drive, we directly confront the instrumentalization of thought, perception, action, and event.

This instrumentalization makes every act or expression into a wager of some consequence—a contingent claim on a share of the social product. It is characterized by a desperate war of each against all for access to income streams, to social currencies, to convertibility, to liquidity. Such is the derivative condition, where organization and expression are inexorably forms of a calculus that composes "positions" on value in conditions of global volatility. These positions are speculative and their claims are contingent on outcomes. Such a relentless globally integrated compute requires its data visualizations. Many formerly extra-economic activities—activities of "superintendence" otherwise to be understood as watching machines and making adjustments in accord with the protocols the machines put forth such that their operations may be valorized—are now value-productive for capital. Our superintendence has grown more complex since we were forced to supervise machines, arguably having come to encompass what today is called "visual culture." Since the inauguration of what I called the cinematic mode of production and the bringing of the industrial revolution to the eye, we have been watching and are still watching, if not exactly watching over, machine-mediated production. Today we still are being extracted from; and we are being watched, by the very machines we watch and some we can neither watch nor see. In the interface we read and are written by social codes that allot rights and access that include forms of ownership and citizenship, and that also license violence, secure impunity, and enforce genocide by means of networks. In ten thousand or a million ways, we survey and are surveilled. All these control mechanisms—and their throughput—have a stake in violence, a violence that some may benefit from while others are forced to endure or die. They undertake an encoding of all appearance and engage in a writing on the world, turning being into a sur-

face of inscription. They orchestrate what Kathryn Yusoff (2018: 2) calls, when referring to White geology in *A Billion Black Anthropocenes*, "colonial earth writing"—inscriptions on the materiality of the planet that include both the geo- and the bio-. Life and earth become surfaces of inscription, recording, and memory storage archiving capital's wagers and facilitating its grand compute.

While computational racial capital may appear in the guise of its many instances (e.g., the state form, fractal fascisms, institutional entrenchment, ambient social media, carceral systems, military-industrial complexes, a fleeting affective dispensation, a click, any datalogical event), *the world computer* endeavors to name the highest order abstraction of the transnational and indeed transspecies and multiversal historicomaterial logic that coordinates—and in reality (such as it is) ordinates—the planetary *bios*—at myriad levels of scale and with vast, increasingly integrated systems. Because of the planetary—and from an epistemological standpoint, *cosmic*—scope of this encroachment, along with the physical and metaphysical consequences thereof, it will also be demonstrated here that computational racial capital, as the world computer, commands the value-extractive reprogramming of ontologies—a reformatting of life, time and cosmos by means of information. This reformatting is practical-material, representational, physical, and metaphysical, but above all, political-economic.

As a concept, the world computer is an abstraction that names a system of abstraction, a stack (Bratton 2016). This system of abstraction(s) is beyond the control of any individual and functions instrumentally and materially to structure the value-productive reconfiguration of ontologies. As *Star Trek*'s epic intonation, "Space, the final frontier," intimated for the childhood of some members of my generation, enterprising imperialism embarks upon a project of cosmic proportions. Today, with the conquest not only of reality but of virtual reality, we might add "Time, the final frontier," or "Neuronal processing, the final frontier," or "Ontology, the final frontier," the point being that these are all frontiers being readied for the extractive practices enabled by their informationalization. Information becomes the secret ingredient that liquefies ontologies by rendering them computable, while providing liquidity by making their now-informatic being into work-sites; computational racial capital is, among other things, the processor of our time and times, our thought and thinking, our metabolic unfolding in relation to information—our becoming cyborg that results in our "being," such that it is. Computational racial capital's informatic computing is the practical extension of our senses—or rather "our" senses, since property, colonization and possession, never simple matters, have grown far more complex. Nonetheless, despite its

cosmic colonization of subject and world, the world computer is at least as difficult to perceive as is the medium of a message, precisely because its theater of prosthetic operations stretches both to the geographic and the epistemic horizon: with the near fatal capture of representation by computational racial capital, the convergence of all media with computation and of computation with financialization, one looks *through* computational racial capitalism even if one wants to look *at* it. In its very operations of constituting an object and perception, computational racial capitalism also ordains (and indeed intensifies) a project of unparalleled violence. Our apprehension of the world is therefore an apprehension by means of violence.

This system of leveraged abstraction—with its half-Hegelian, half-Heisenbergian property of only being able to be perceived through its own emergent process, and thus only perceivable from particular points of view—is most often reductively understood as if it were two distinct components: most commonly as "computation" and, in a somewhat more sociological register, as "finance." As we shall further demonstrate, these ostensibly separate registers of computation and finance have a deeper unity. What is called "social difference"—is at once precondition and result of their operations;—its elaboration is at once the result of an increasingly global struggle for liberation *and* a homogenizing strategy of global subsumption.

Despite philosophers' claims and, in some cases, their vain hopes, and despite economists' disavowals, we have not (yet) escaped the dialectic of capitalism as "simultaneously the best and worst." We may hope that one day computational racial capitalism will remain the worst thing that ever happened but will no longer also be endemic to what counts as "the best," but hope alone will not be enough to make that day arrive. All modern achievements, or what in the capitalist world one might want to call progress, beauty, refinement, and liberation, are to be measured against violence, violence that includes the middle passage, colonial encroachments, climate injustice and "environmental" racism, modern modes of enslavement, camps, slums, sexisms, wars, carceral systems, murders, pogroms, and genocides all endemic to this self-same (post)modernity. To this tragic, "all-too-'human'" (in the colonial sense) list of atrocities and its formations of violence, we might add to the consequences of abstraction-extraction techniques that form the bedrock of postmodernism: the blanket militarization, widespread securitization, endless competition, implacable xenophobia, neoapartheid, border walls, white supremacist heteropatriarchy, drone warfare, fractal fascism, inescapable precarity, global psychosis, the colonization of time, perception and semiotics, and the endemic, widespread generalized unfriendliness unfolding with a computation-

ally driven racial calculus that motivates bio- and necropolitics. We will make an attempt to understand these phenomena in the wake of colonization and slavery, and to understand the dissolution of traditional cultural form(s), as further consequences of the cut-and-mix derivative condition imposed by the world computer—as consequences of the world computer, its merciless calculus of profit and its suppression of noise.

Computational racial capital as an operative process or metaprogram—presiding, I am obliged to report (pace Flusser), over the photographic program as well as over some premature pronouncements of the arrival of some postcapitalism—endeavors to constitute the horizon of our historical imagination. It presides over the disavowal of its own imposition of such limitations on the imagination. Indeed, the world computer's enclosure of futurity is sometimes presented as an opening toward freedom. As if to hide its own function, the AI that colonizes planet Earth must disguise the fact that it is AI; or, when it does appear, it appears in philosophy, cinema, fiction, and, yes, even critical theory as a transcendent and sublime fantasy. The thrill of these various genres is that the AI-sublime leaves the specific form for the socially necessary reconstitution of the ego, postencounter, posteuphoria, seemingly open (things can never be the same, we will never be the same, I am not the same), while also seeming to render the fate of the so-called human irrelevant. May as well shop on, then! But if the people are to be the companion species to AI, we, like Haraway's dogs, might require a manifesto of our own—a political statement that respects our historically arrived-at position. Though we cannot say whether or not AI "intentionally" hides its invisible hands and digits, as well as its habitation of bodies and minds (an undecidability that correctly suggests that systemic instrumentalization and real abstraction partake of a logic of a different order than does everyday understanding and subjectifcation), this writing endeavors to rupture the containment of the imagination by the overdetermining logic of computational capital and frame out the Great Near consequences of the colonization of the life-world by machinic fixed capital as if these consequences matter.

Machine logic posits and increasingly presupposes subordinated human metabolic processes as value productive. Given the world computer's capacity for profitable semiotic absorption, this book therefore must endeavor to create a rupture in its function in part by rendering the global compute legible as a concept—as "the world computer"—and in part by doing so in what can only be an incompletely digestible mode. The fugitivity of contemporary political theory is a necessity, as full legibility within "capitalist realism" is tantamount to capitalist production and systemic cooptation. To be clear (without being

too clear), the text's sometimes unconventional "style," as well as its "speculative" claims, are part of its theory and practice—a form of *budo* that would be opposed to the computational operations of the colonizer, resident to varying degrees in nearly all lands and heads.

In relation to problems of periodization, the concepts constellated as computational racial capital, the social difference engine, the world computer, and the computational mode of production are wrought to comprehend and thus also recast a number of terms created over the last forty years or so, terms coined in pursuit of intellectual adequation for emergent structures of domination and exploitation beginning in the last century. This aging terminology includes *postmodernism*, *posthumanism*, *post-Fordism*, *cognitive capitalism*, *virtuosity*, *neuropower*, *biopolitics*, *necropolitics*, *necrocapital*, and my own earlier efforts, *the cinematic mode of production* and *the attention theory of value*. The breaking of these forms is also subject to the dialectical advance of the world computer. Computational racial capitalism emerges in and through the computational mode of production, which, as will be shown here, itself institutes and develops "informatic labor," "networked commodities," and new techniques of abstraction whose summation can be given in the phrase *the world computer* and whose result is not only the financialization of everyday life but "the derivative condition," in which any and all instantiations of form can be taken as positions on the generalized volatility of the market—because they are, unavoidably.

Digital culture and what we recognize as digitization (DC2) emerges within the framework of instrumentalization and what Seb Franklin (2015) and before him Alex Galloway (2004) and James Benninger (1986) call "control." Control is the organization of society by capital, but it is often imagined in a first instance as society, science, governance, or cybernetics, and only secondarily as having to do with capital and capitalist informatics. Deleuze saw an intimate relation between capital and control, with control opening a new phase of capitalist organization. I take a new tack here in order to propose an analysis of informatic protocols from a Marxist theory of *techné*. In practice, the term *information* is both the means by which the generalized digitization of all that appears is first posited as a possibility, and the name for this process of universal digitization; information is understood as a historically emergent "always already" that ascribes to every aspect of the multiverse a quantitative component that is neither matter nor energy. It's dead labor. This becomes apparent as soon as we recognize that information is only gathered and processed by apparatuses of our own making. We also recognize that despite appearing natural or eternal, information historically instantiates a new domain or property to cosmic being and effectively posits the universe as a standing reserve for the epistemological

emergence of quantitative metrics—a domain of infinite sites of infinite accumulation and volatility. This information can be meshed with human inputs to become capital. The informationalization of the cosmos is the meshing. Dead labor can be affixed and indexed to everything that appears in a way that informs matter, that is, machines, that are then ready to further interface with human process.

Just as computation emerges in the footprint of racial capitalism, its medium—namely, information—emerges in the footprint of the value-form, and specifically from price as a number that when attached to a denomination quantifies the value of anything whatever. In different ways (to which we will devote some passages further on), both price and information are means for capital to get from M to M′: both are measures of states of negative entropy, that is, of a type of value-creating order imposed on matter by intentional social process, but what is forgotten or for the most part not understood at all, particularly in the latter case of information, is that both have their ultimate, determining instance in social relations. Just as capital posits quality as quantity, computation posits material organization as information. This latter—organized matter or energy, legible (by observation) as information—is precisely what the digital physicists tell us about the very structure of the multiverse: it is numbers all the way down, quantities—discrete states. No one stops to think (and it sounds almost impolite, if not insane, to suggest) that they, *Solaris*-like, as they look out to the cosmos, are gazing into their own unconscious—an alien(ated) world nonetheless inseparable from their own history and thus, irreducibly, tainted by traces of their own making. As we shall see in chapter 1, they are gazing into the computational unconscious. Numbers are organized by and as material arrays; they are practical, material, computational. By attaching a technical cost to all knowledge, computational methods of account and accountability measure information flow in what amounts to a financialization of the observable world. That's the cosmic ecology—bets can be placed on the various outcomes. It is perhaps less surprising that the "DNA" of the cosmos turns out to be the same as that of exchange-value when we recognize that the apparatuses of capture, the machines that extend human perception to information at any scale imaginable, are also machines of capitalization—that computational systems of account are themselves always mediated by the vanishing mediator known as money. But we are saying more, namely, that they are also the thinking of money, its calculus. Such conditions and means of production extend the operating costs of the logistics of perception into all phenomena and seek a return on their investment, and thus they are always already functioning in the marketplace. In short, the infrastructure for the appearance of "information,"

as such and at all, is inseparable from the developmental expansion process of exchange-value and the history of generalized commodification; this history is the result of a process occurring behind the scenes of any particular exchange, but it is no less social for all that. Just as exchange-value is in our heads and yet not the creation of any particular individual, information is in our computers and yet not the creation of any particular computer. It is inscribed in the social totality. And as with exchange-value before it (historically speaking), information, as a seemingly natural appurtenance of all things, a second nature, is, in fact, an extension, symptom, and means of the expansive logic of commodification—an extension of its operating system—the OS of racial capitalism.

Just as, through double-entry bookkeeping or derivative pricing models, capital "perceives" value, computation "perceives" information,—whether by means of punch cards or digital sensors. The entrepreneur of the self, with its "internal rationality and strategic programming," is a nodal point in the fabric of valuation analogous to the role of the computational machine in the fabric of information. Capital, we could say, is the metabolism of value while computation is the metabolism of information. Value mediates social wealth while information mediates the cosmic, yet the cosmic is known through the framework of the social and is incorporated in the sociality of wealth, which is to say that "the cosmic" is mediated by value and thus capital.

The unity of value and information appears with the concept and capacities of computation, and can be grasped with the concept of computational capital. This concept then provides explanations for the capacity of processes it identifies. Suspicious that information is a means of capitalization, we could ask whose metabolism provides the motor force? We begin to suspect that capital and computation are not two things but one, now that, *in practice*, they can no longer be considered separately and, furthermore, that their metabolisms depend upon yet another level of metabolic processes near the bottom of the stack: ours. Information, like value, and computation, like capital, is always already cybernetic. Understood *without* the historical apparatuses of perception, capture, and manipulation that not only make information useful but indeed *constitute* it, "information" remains a mere fetish. In common usage it is such a fetish. When we grasp the fact of the appurtenances that surface and record information, we also posit the totality of their infrastructure, their history, and their cybernetic integration with human practice. Information then appears as a real abstraction, an essential practice of capitalist production; it is a means to price. The world computer puts a price on knowledge that is the price of the risk of its cost. Finance, ordinarily hidden from view in the pure sciences and the oh-so-discrete disciplines, now emerges as being all about the

various methods of account that have grown up like mushrooms in every field of endeavor. Learning Outcomes Assessment, anyone? Like everyone else, scientists, no matter how ascetic they may be, are entrepreneurs of themselves and their computations, managing as best they can their highly mediated portfolios in the same sordid marketplace—of knowledge.

Some of these methods, ventures, and adventures, scientific or otherwise, became highly specialized and—because highly mediated by vectors that mystify or dignify their relation to capital—seemingly autonomous. But like the endeavors of colonial settlers and frontier prospectors, and even like those of Foucault's migrants who invest some (or all) of their human capital on the possibility of reparations to get a higher return on their "life-time" (Tadiar 2012), all endeavors must ultimately demonstrate their sustainability in the market or face severance. Thus, we understand Jodi Melamed's (2019) take on administrative power—"Policing is the power to administer capitalism to the point of killing"—as indicating the totalitarian scope of capitalist administration by the factory code, the same code that would organize social difference, access and profits. Today even the rhizome is subjugated to the market; ask your local mushroom farmer, Deleuzian adjunct professor, struggling architect, or Israeli military strategist.

The standard clerical methods of bureaucratic organizations, streamlined as flowcharts, heuristic devices, and algorithms and then encoded and sedimented into discrete state machines known as computers, turned out to have even more applicability than was at first imagined in the nineteenth-century parameters that defined the organization of workflow and commercial value transfer. No surprise, really, at least so long as we keep in mind Charles Babbage's steam-driven mechanization of calculative thought, or Alan Turing's (2003) notion that machines can surprise us even if we think we grasp the rational principles of a program, or Phillip Mirowski's (2002) analysis—based upon John von Neumann's view of market emergence as the computational effect of cellular automata—of economics as a "cyborg science." Mere unaccommodated humans cannot run all the logical permutations of a program with the rigor and thoroughness of calculation engines. Automate thought, animate it as Deborah Levitt (2018) suggests, and the unpredictable emerges from the seemingly predictable—to the point of ontological disruption. We could add here that ontological disruption by means of programming and animation creates new opportunities for interface. From this insight alone—specifically, that information interfaces as a medium of value production and transfer (to be further demonstrated in the following pages) and that increasing complexity emerges from the automation and autonomization of value—one begins to grasp that the sense organs capable of the requisite orders of informatic

perception and participation are cultivated, and cultivated *cybernetically*, over the long term. It takes a lot of work *not* to see all this. The making of the five senses requires the entire history of the world down to the present, as Marx said. This nineteenth-century insight, hailing from the days of the steam engine and its early industrial products, was already a theory of technics and cybernetics. The ever more refined, ever more global, and ever more granular detection and parsing of value in a network of commodities is one with the further development of the senses. Real abstraction, beyond becoming the basis of abstract thought (Sohn-Rethel) requires the transformation of perception, the ability to sense and think value; indeed its evolution requires the constant revolutionizing of perception. Dialectically, these senses—human senses for a world that is the result of human labor, a humanized world—remake the world through an immense number of productive and reproductive iterations with it. The early Marx understood the senses to be undergoing reorganization by capital but nonetheless locked in a struggle to perceive a humanized world. This world in which the hidden social dimensions impacted in objects (commodities)—as well as in categories, abstractions, ideologies, genders, and sexualities—became visible in what could only be the immanence of the communism of species creativity and emergence. It is (or should be) troubling that the techné of the value-form—as well as its regime of perception historically worked-up by means of reification to conform to the protocols of alienation, private property, and individual agency—is grafted so seamlessly to the techné of what seems to be a subsequent and succeeding form, information. Particularly as we are *experientially* coming to understand that computation is an intensification of capital, and that computation has infiltrated all matter of appearance and therefore all (known and knowable) matter. The calculus of each moment and all things becomes an affordance of the human-machine, the cyborg, and these assemblages grow new organs with which to measure the world with ever increasing granularity and, when deployed in concert, with ever increasing totalization. This calculus is ultimately one of life or death, or as Jasbir K. Puar (2017) theorizes, of capacitation and maiming. Computation *emerges as* the development of capital, its ramification of the life-world, its intensification of extraction, its automation of management strategies, its strategic apportioning of an increasing palette of resources, its insidious mechanics of colonization, its multiplication of modes of capacitation and maiming, its totalizations and its totalitarianism—its practice and its thought. It emerges as nothing less than a harness for the processing power of the "human capital" from which the entrepreneur of the self is to derive their revenue stream, Foucault's "ability machine."

Of course, this explication of the general expansion of the factory code constitutes an argument. Understanding, from our current vantage point, that capitalism, with its calculus of profit, was always already a computer—as Nick Dyer-Witheford (2013, 2015), drawing on Hayek (1945), has brilliantly pointed out—would allow for a thorough reimagining of world history along with a complete rethinking of the meaning, emergence, and indeed sociohistoric function of computation. Here the wager is on the *conceptualization* of the emergent and historical relations endemic to capitalism and computation, and on revealing their mutual imbrication as computational racial capital executing its programs as the world computer, all the while imposing increasing volatility, financial precarity, and derivative conditions.

Derivative Computing, Read-Write Ontologies, Financialization of Deconstruction

The notion of computation currently dominant is that it is an information management tool that helps to reveal the inner workings of nature whether in the analysis of cognitive function, markets, or galaxy formation: scientific tools reveal nature's ontological character. Simulation helps us understand reality. Information science, like other sciences and like "reality itself," is presumed to pertain beyond the merely social, even if it turns out that "reality itself" is a simulation. In the thought experiment that is *The World Computer*, the aim is to understand that *this thinking of information as being everywhere*—and thus, as everywhere legible, at least in principle, *is a direct extension of the colonial project* and carries with it the legacies of slavery, wage labor, heteropatriarchy, and proletarianization. Modern computation, rather than revealing a standalone truth in things, is foregrounded here as always already the bureaucratic thought of capitalism—and thus also its practice, its practical organization of production. It is the alienated and alienating thought of the *bios*. Computation is the thought of finance capital in the same manner that, for Lukacs in *Reification and the Consciousness of the Proletariat*, Kant's categorical thought was the thought of reification and of the consequent spatialization of time imposed by the commodity-form and wage-labor, respectively. And again, computation is for finance capital just as, for Sohn-Rethel in *Intellectual and Manual Labor*, the real abstraction known as "money" was for the social act of commodity exchange. Sohn-Rethel argues that real abstraction opens the space for the transcendental subject of philosophy—the subject of and for the exchange of equivalents who was represented—we might say formatted—as the owner of their commodity to other commodity owners, similarly formatted. In our day,

the real abstraction that is the computationally mediated process of exchange develops the complex relationship between market and subject by opening the space for AI and the social derivative. We interface as nodal points on a distributed network—a network that constitutes us as agents for exchange, and we assemble our relationships as best we can to wager on an income stream for our activity machine.

In considering computation as the alienated and alienating thought of the bios, an autonomization of the thinking of racial capitalism that all of us, perhaps without exception, are forced to game, it is useful to recall Postone's account of abstract time, or what is effectively, the alienation of time and its consequent conversion to a real abstraction. Postone notes that antecedent, "concrete time" was a dependent variable whose character was determined by the concrete relations of a given society, but the emergence of socially necessary labor time converted time into "abstract time," an independent variable.

> Because abstract human labor constitutes a general social mediation, in Marx's analysis, the labor time that serves as the measure of value is not individual and contingent but *social* and *necessary* [190]. . . . As a category of the totality, socially necessary labor time expresses a quasi-objective social necessity with which the producers are confronted. It is the temporal dimension of the abstract domination that characterizes the structure of alienated social relations in capitalism. The social totality constituted by labor as an objective general mediation has a temporal character wherein *time becomes necessity* [191]. . . . In capitalism, abstract temporal measure rather than concrete material quantity is the measure of social wealth. This difference is the first determination of the possibility in capitalism that, not only for the poor, but for society as a whole, poverty (in terms of value) can exist in the midst of plenty (in terms of material wealth). Material wealth in capitalism is, ultimately, only apparent wealth [194].

Examining the process by which "time becomes necessity" Postone takes his readers thorough an account of the standardization of time in Europe by the systemically coordinated need to measure labor time, that included factory discipline, the organization of village life and the development of clocks. "Variable hours" became invariable, and abstract time became "the uniform, continuous, homogeneous 'empty' time . . . independent of events" (202). "The temporal forms have a life of their own and are compelling for all members of capitalist society" (214). As opposed to the dependent variable that was concrete time situated in various communities and their particular, seasonal temporalities, "abstract time is an independent variable; it constitutes an in-

dependent framework with which motion events and actions occur [and can be measured]. Such time is divisible into equal, constant, nonqualitative units" (202). Postone writes, "The abstract form of time associated with the new structure of social relations also expressed a new form of domination (214). "As a result of general social mediation, labor time expenditure is transformed into a temporal norm that not only is abstracted from but also stands above and determines individual action. Just as labor is transformed from an action of individuals to the alienated general principle of the totality under which the individuals are subsumed, time expenditure is transformed form a result *of* activity into a normative measure *for* activity. Although . . . the magnitude of socially necessary labor time is a dependent variable of society as a whole, it is an independent variable with regard to individual activity. This process, whereby a concerte, dependent variable of human activity becomes an abstract independent variable governing this activity is real and not illusory. It is intrinsic to the process of alienated social constitution effected by labor" (215).

The independence of time from concrete situations, "real and not illusory," is a historical result, a consequence of production. Abstract time is a real abstraction, a social relationship embedded in a new form of time that confronts humanity as both alien in its independence and as necessity in its indifference to all qualities. This of course is the same objective, homogeneous time that allows for the development of modern physics, calculus and computation.

Categoricality, abstraction, computability, and the horizon of omniscience become the basic architecture of capitalist planning and perception—the ever finer granularity of computation means precisely the capillary ramification and reorganization of the life-world, of space, time and consciousness, by means of the modular affordances of objective and objectifying content—indifferent 1s and 0s. These two numbers were and are of course ideologically neutral because content-indifferent—unless, of course, content indifference is itself an ideology, naturalized in the same manner that so many have naturalized abstract time. Is such a degree-zero view of number a blindness to the message that is its medium? Simulation, as Baudrillard (2004) powerfully intuited, was not just an effect of political economy; it was in effect a praxis, and thus a (quasi-) philosophy—of a kind that meant the end of traditional notions of both. It also meant a new period of capital and a new mode of production. "Today abstraction is no longer that of the map, the double, the mirror, or the concept. Simulation is no longer that of a territory, a referential being, or a substance. It is the generation by models of a real without origin or reality: a hyperreal. The territory no longer precedes the map, nor does it survive it" (365). In theorizing hyper-reality, he almost could have written, "All that is

solid melts into information." Computability liquifies the solid in accord with the requisites of capital. Just here in the informatic flux, we can see, alongside its vast achievements, computation's intimate link, in the alienation of the territory by means of the map, to the colonial project, the industrial project, and globalization in the derealization of traditional forms of space and time. Capital's ability to infiltrate, organize, and predict, to simulate a model *and to impose it*, to abstract and to subsume difference in accord with its own code (and, where necessary, to generate difference and distinction to serve the expansion and development of this code), to operationalize and then self-optimize, provided and continues to provide the conceptual, material, and existential basis, along with the urgency, for the further *development* of computation. Tragically, it also provides the urgency to transform its process, its processors, its processing. Compounding the tragedy of this millennium, those who are or might be in a position to best interrogate computational process most often view it as a ratification of their assumptions about nature by relegating the material conditions of computation and *of their thought* to the unthought.

In sharp contrast, we view computation as a strategy of efficient risk management—a cost-benefit analysis of the "substitutable choices" for the essential program of capital. It opens new ways of apportioning resources and does so in keeping with the potential profitability of new sites of value extraction necessary in order to stave off the falling rate of profit. In this respect, computation has the structure of a derivative on any activity whatever, opening up a market for risk management and liquidity preservation to wager on an exposure to the underliers of any calculation whatever. Engineers, scientists, and coders manage their portfolio of interests to create their income streams. "Create needs, then help," writes Trinh T. Minh-Ha (1981), summarizing the colonial logic of "development." Thus, as with the development of colonial banking, analyzed by Rosa Luxembourg, that puts colonies and colonial labor in the service of capital—first by making them service an ever increasing debt incurred on their purchases from the colonizer of the instruments for the modernization of production, and second by making them compete each against the other in debt servicing—the development of computation, despite the democracy-themed PR that accompanied the rise of the desktop computer, further pits each against all. "Yes, but email," some will exclaim, or, "FaceTime!" "The Higgs Boson!" We can't help but wonder if the creators of Slack and Zoom savored the irony of their platform names. No more slacking off while zooming in on the requisites of the value form! Let's intensify the production and invisibility of our own off-screen death in pursuit of pure production! Long live the factory code.

Innovation organized by entrepreneurs of the self, of the cyberself, creates possibilities for arbitrage on those super-sets of labor-time, attention and life-time; and all the while, everyday risk management is underpinned and indeed anchored by the calculus of genocide. From the binary of the A-bomb to IBM's punch-carding of the Nazi Holocaust, from the calculus of sovereign debt to that of social media, the lives of people (in Nagasaki, in Auschwitz, in Furguson), become the substrate that registers the meaning of the compute—at least the meaning as far as they may have been concerned. So many are posited as but renewable pawns in an endless game, and the game goes on. Dispossession and genocide, and the capacity to wreak these, guarantee the liquidity of the financial system by guaranteeing that there will always be some billions willing or forced to do anything for its money and the access to information, to informed matter and therefore to life that it provides. In our era, we see clearly that, under capital, the "stability" imposed by systemic integration and its programs of finance, surveillance, security, mediation, and so on produces ever greater volatility, and we see that this volatility risk can be bought and sold; it can be cut up, bundled, bought, and resold, priced as content-indifferent numbers based upon volatility indices. Meanwhile the markets roil, dispossession rages, and the planet boils.

As history could confirm, by the mid-twentieth century, the complexity of the techniques for the management of societies, from markets to warfare, from media to cybernetics, and now from social media to the derivatives created by synthetic finance, all required discrete state machines to store and manage the pertinent inventories, schedules, and programs—their valuable information. Though usually thought of as properly belonging to the history of science, communication, mathematics, or computation, the socioeconomic endeavors composing the history of the discrete state machine and its ever more supple functionality are to be thought as part of the increasing complexity of capitalist abstraction and thus the abstraction of social relations. They are the elaboration of real abstraction, the expansive formalization of the field of exchange taking place "behind the backs" of living people. These socioeconomic endeavors such as Google, Facebook, the security state, are the effective occupation of space and time at all scales by the logistics of exchange and its expanding field of production.[12]

Datalogical representation is already risk management. Management, efficiency, optimization; Foucault's entrepreneur of the self; and even Brian Massumi and Erin Manning's "more than human of the human" all recognize a technological paradigm of control operating in and through (and as) the individual (Massumi 2018). We may also observe that the techno-logic of capitalism bent upon efficiency—the maximum exploitation of the laboring

substrate to meet the demands of the falling rate of profit—prevails across all organizational scales, from the individual to the laboratory to the university to the jail, the township, the state, and the nation-state. In "cultural" spaces, representative agents (a.k.a. subjects) manage and aggregate resources, offering themselves as profiles or brands that are themselves not only marketable, but marketable as derivative exposure to their underliers: their audiences, networks, assets, and currencies. I "friend" you to add you to me, to gain exposure to your network, to add you to my portfolio. I am an "influencer." "Culture," too, understood as a semi-autonomous domain separable from materiality and technology, can today only be a fetish—another case of platform fetishism—because the generalization of computing means that culture as the connective, communicative tissue of the sociosemiotic is ever more subject to the granularization and grammartization of commodification on the "object" side (and, its other aspect, the fractalization of fascism on the "subject" side) in what, from a global standpoint, is a racial capitalist sociocybernetic bio-techné. Such is "culture" today—an expression of an overall informationalization of social relations subject to historically imposed computability. Cultural form, computable because inseparable from computation, heretofore always a way of connecting to (or disconnecting from) a multiplicity of networks, is now itself a derivative—a social derivative. Its derivative condition explains what was known as "the postmodern condition," and is instituted by the universal expansion of the factory code toward the total colonization of space, time, representation, and mind: sociality itself in the largest sense.

That the principles of the ordination of matter, being, time, and value by number (or of publics by statistics, and/or of opinions by likes) were perceived to be universal, that is, generally applicable to all phenomena, was more than convenient. It was, as we have said, colonial. It was racializing and gendering. It was capacitating and maiming (Puar 2017). The math, though famously "content-indifferent," was never value free. Nor were the devices, from desktops to mainframes, from bombers to smartphones, that it spawned. As Diane Nelson (2015: 56) writes in *Who Counts?*, her astonishing ethnography of Mayan number systems and genocide and, also and as importantly, her scathing ethnography of Western mathematics and genocide, "Double-entry bookkeeping is *also* an 'ethnomathematics,' but one with an army." Double-entry bookkeeping was also a proprietary technique; its truth claims, in the form of accounts, implied pathways of control and functionality that served as conduits for capitalization and colonization. It was a system of representation that repressed noise (context) to clearly resolve the value signal called price in a calculus of profit and loss. In our own period, where we see very clearly (simply by look-

ing at the business pages or, for that matter, the culture pages in any newspaper) that contemporary global capitalism is in lockstep with computation, we might expect that the politico-economic meaning of computation as an emergent order of proprietary organization is becoming clear. As new and powerful terms such as *platform sovereignty* (Bratton 2016), *algorithmic governance*, and *the society of metadata* or *"metadata society"* (Pasquinelli 2018) indicate, it appears that it is the information itself that has (or indeed *is*) value. But the argument here is that it is only valuable within the framework of computation, and indeed within the framework of computational racial capital—at least thus far. Information is the result of that framework; it is an *ethno-graphic* (not just anthropocentric) instantiation composed from, in, and on states of matter. The framework, a computational infrastructure that is also primarily fixed capital, emerges in conjunction with the myriad phenomena that are now treated informatically; the apparatus is the other side of the supposedly raw material of information. Information is and can only be a relation. The clear implication of this argument is that, just as a DVD presupposes a technical world that can record it and make it play, the very presence of "information" implies the background armature of computation as a mechanism of perception and organization that is fundamentally social and historical. This background armature of perception and organization further indicates the background armature of racial capital as the primordial condition—the meta-machine architecture—of the present social system of accounts. We note, and not only in passing, that this way of narrating the epic poem of AI puts anti-Blackness, slavery, settler colonialism, indentured servitude, imperialism, sexism, proletarianization, racial capitalism, and the active organization of oppression for profit at the epistemic center of a compute that could be called world history. It is computation that perceives information, and it is capital expansion that requires the perceptual-instrumental processes endemic to quantification, digitization, and computation. The entire system has its conditions of possibility and derives both its significance and its character from the history of capital accumulation, that is itself theft and only theft, and which is, to defer again to the chorus: colonialism, slavery, white heteropatriarchy, imperialism, globalization, financialization, and genocide.

Let us not romanticize the awesome capacities of so-called civilization. Sadly, indeed tragically, with the encroachment of value thus described, to value something, anything, threatens to be a mode of evaluation for capital. Odds are, anyway. And so much has been swept away, repressed, annihilated. In this book we will also have occasion to dwell on the remainder, on what Neferti Tadiar calls "remaindered life," a category I understand as designed to

demarcate the domains or haecceities of experience that fall outside of systematization—a dialectical category for that which is beyond the resolution of the dialectic. Remaindered life—a social derivative on capital whose market value went to zero but that nonetheless persists as lived experience, existence, or survival beyond the horizon of capitalized representation. As I understand it, remaindered life is the disavowed context and condition of relations for any and all value creation. However, despite our adherence to an "immanent outside" (Massumi) in this volume and everywhere, the dominant and dominating principles organizing value and evaluation have been colonized by what Randy Martin called "the financialization of daily life" in the "society of risk," centuries in the making. This financialization structures representation, and the structuring of evaluation—internal to the elaboration of the value-form and to the universe of information—gives renewed meaning to this longstanding and recurrent theme in my own work adopted directly from Marx and already invoked here: again, the forming of the five senses is a result of the entire history of the world down to the present. As Marx's observations themselves imply, and as this text is at pains to elaborate in a sociocyborg vein, our senses have been further informed—by/as information and informatics—since he wrote that line. The urgent and perhaps ultimate question of whether or not we might use these emerging perceptual capacities to reprogram the *socius* echoes Marx's abiding stake in revolution and what today (at least before Spring 2020) for many seems even more unthinkable than ever before—the abolition of private property and the withering away of the state. However, in the key of Marx in *The Communist Manifesto*, we hasten to add that this abolition and this withering has already been achieved for more than 2 billion people—that is, for twice the living population of Earth during the time Marx wrote. We must take courage from the fact that much of what "we" might claim to value has already been lost for two planetfuls of people. For that allows us to see that what would like to pass as "our values"—which in one way or another might include an allegiance to the enduring virtues of the nation state, of private property, of "liberal" society and its pleasures—have fallen into the black hole of self-contradiction and self-negation. As the shiny and pleasant other side of dispossession, they are never to be resurrected or redeemed, for beneath their veneer they are literally the expressions of hell on Earth. And this adherence to their bloody privilege is why the "liberals" of today are closet fascists, and why at the time of revising the copyedits for this book, Joe Biden, a racist, misogynist white man, is the liberal candidate for President of the United States.

Therefore, the event horizon of this book is the end of capitalism, a horizon that forcibly, it must be admitted, exceeds the horizon of contemporary

common sense—at least it did when I began writing it. Witness Stanford economists who, dismissive of the very possibility of revolution, blithely suggest along with the *Daily Telegraph* writer James Bartholomew (2015) that we "learn to love economic inequality." But as Gramsci (1971: 170–171) reminds us in *The Modern Prince*, "Anybody who makes a prediction has in fact a programme for whose victory he is working," and this without doubt includes today's self-proclaimed realists, as well as a more reactionary faction in open pursuit of profits from the volatility of racial war. Another aspect of the topos of the argument here is that not only have the imaginary and symbolic been transformed by capitalist informatics, but a corresponding transformation of (human, but not only human) being itself has been instantiated. It is thus unsurprising that those with the big paychecks (economists at Stanford) uncritically parrot the logic of computational racial capital, even if they may be partially unconscious of its basis in slavery and murder-by-numbers, and even if they refrain from explicitly demanding that we lick the bottom of their boots. But people get the unconscious they can afford. Most can no longer afford to build our egos on such self-serving ignorance—if they ever could.

But are fascists really people? We demand the right to wonder if anyone is left in there after being fully colonized by computational racial capital's AI. Capital's realization and generalization of simulation by digital logic—as, for example, with spectacle in the aesthetic register, or by means of statistical modeling in the computational register, and with multiple grids of intelligibility and evaluation (algorithmic governance) in various other academic and social disciplines—allows for the machine-(re)thinking of ontologies *in general* in terms of the effects of processes of instrumental inscription and codification. Metaphysics itself is under siege. Is there any remainder in the fascist?

Thus, when considering the recent interest in ontology, Fredric Jameson's "Always historicize!" comes to mind (1981: 9). Machine-thinking, which is one with execution, entails a reconfiguration of ontologies. As Alex Galloway (2012) taught us, the medium of computing, which instantiates its objects via programming, is metaphysics. And as Allen Feldman (2015) brilliantly demonstrates in analysis ranging from South Africa to Guantánamo to drone warfare, metaphysics is a medium of war. However, in a classic disappearing act of the medium, this fact of the instantiation of executable ontologies by computation, as well as their ascription to physical forms, most often goes unremarked—despite the fact that the reformatting is "the message." The question is whether or not it is possible to critique this computational, capitalist ordination of phenomena and thought—and the stakes here are far higher than what is generally meant by "academic." Ontological claims, such as "*x* is

y," always have an addressee. The ontological layer, what something *is*, is an artifact of data visualization—in short, an inscription, an act of writing, and a speech-act—and never a neutral endeavor. Simulation deconstructs objects into distribution patterns; it makes us skeptical about who or what is present, both objectively (as we regard the perceptible) and subjectively (in ourselves as consciousness). It ordains "a tremendous shattering of tradition" (Benjamin: 236). Fake news! Data teaches us that we, as subjects, may not be the privileged addressee. The reign of simulation is everywhere imposed as antecedent forms of subjectivity are garbled, shattered, reformatted, and placed on a continuum with informatic throughput. Through an inversion of the priority between world and data visualization, the digital simulation of the world by concepts encoded in apparatuses at once reveals the stakes of intervention in the protocol layer of computation and raises the pointed and possibly still political question of what may remain of so-called humanity beyond the purview of a now fully financialized knowing that is a kind of doing—and here again, we glimpse the remainder. It does so by posing the question of the possibility of a "beyond" to (contemporary) simulation, particularly in a world—and in keeping with current physics, a cosmos—in which simulation has overtaken the place of truth as ground, and has done so in a way that both implies and corroborates the insight that number, deeper than matter or energy, is the fundamental component of All. I'm not sure, but it seems that some of us have an awareness of remaindered life and its possible alternative futures, and others not at all. It is no wonder the oppressed called Pinochet's brutal fascist supporters "mummies."

This appeal, in the face of foreclosure, to alternate strategies of account—to ontology, otherwise—would be the place to reflect for a moment on the fact that a marginal strand of thought, namely, deconstruction, has today become the dominant mode of state power, practiced on a massive scale by what Feldman (2017) calls "the deconstructive state." Ironic that this intervention in the protocol layer of language function was introduced by philosophers, but then again, none of us really know whose thinking we are doing. The incredible grammatical and conceptual innovation that Derrida used to dramatize *différance* was first developed and utilized to intervene in the axiology of the extant colonial, imperial, and patriarchal epistemes. These knowledge formations supported the hegemony of various Western regimes, sustaining a broadband governance that functioned by producing and mobilizing a contiguous, persistent, dominant reality, along with its attendant objects and subjects. Derrida's technique of shattering these state-supported knowledge formations ostensibly grounded on axiology with a kind of accuracy that combined the

skills of diamond cutter and watchmaker, disassembled seemingly—inviolable metaphysical first principles such as the superiority of Western civilization, or of men over women, and other forms of "truth" like "God" or "Man" or Truth. At the time deconstruction was a highly specialized strategy and toolkit developed by certain forms of feminist and postcolonial theory: Hélène Cixous, Luce Irigaray, Judith Butler, Gayatri Spivak, and Homi Bhabha, to name only a few. The appropriation and inversion of these strategies of deconstruction for the disruption of ontology by hegemonic actors who now deploy it tactically, if without subtlety or study (there is an analogy to be made with a hatchet somewhere), to scramble *marginal* ontologies is shocking, yet it must be seen as another example of the right-wing appropriation of left political techniques. Deconstruction has been financialized—it's a volatility inducing accumulation strategy. When the United States and Israel defend freedom of speech and democracy, when pinkwashing enables embarking on the representational and practical deconstruction of the individuals, families, homes, organizations, and nations which are their targets and victims, we must observe that there has been a sea change in both the calculus of dominant representation and the status of its objects. The discursive *overturning* of local reality now occurs by means of an executable language backed by media platforms and military power, by a formalization and calculus of what, almost twenty years ago, Sarah Ahmed (2004) called "affective economies." By a strange inversion, "reality" has gone from an independent variable to a dependent variable. It has become dependent upon the information that produces it and that allows stakeholders to bet on its outcomes. It is information itself that is now the independent fact and has the status previously held by "reality." It, information, is now the necessary condition, ground and medium for any wager on the future. Google's and Facebook's recent forays as defenders of privacy against the state's encroachments on our information is a similar result illustrating the priority of information over any specific reality: it is not a defense of "us" but only a proprietary strategy, a narrative and datalogical exploit for control over the means of production of on-demand realities. The organization of affect driven by the profit motive, depends upon the deconstruction and recomposition of read-write ontologies.

In gesturing toward the situatedness of even this world of total and indeed quasi-totalitarian computation, a totalized world that, whether by means of finance, physics, or the screen most often has the force of a (rewritable) fact, we observe that the deracinated, ascetic world of computational racial capital's dollars and sense is simultaneously the world of financial derivatives. Computation writes options on reality. Derivatives, as it turns out, are only more elaborate and more structured schematizations of the liquidity risk endemic

to financial contingencies present in the very process of commodity formation (production and consumption) through what was always distributed production and sale. The financial derivative allows for the breaking apart of an asset or bundle of assets to sell off its various components in pieces, so that it become possible for example to structure risk and trade it without owning the underlier. The risk management necessarily engaged in, one way or another, by all participants in a capitalist economy can now be managed from above by a specialized cartel of market makers offering specialized products—executable contracts of new types—all to the greater benefit of financiers. Additionally, as we shall further demonstrate, advertisers and politicians become the authors of social derivative compositions, semiotic forms of risk and information management. These derivatives formalize the contingencies bearing on their liquidity and are operative everywhere in both formal ways as financial instruments and in informal ways as advertising and social media currencies of affect such as likes and votes, and, like most everything else today, these instruments best succeed through data analysis and can only do their accounting with computers—they are extensions of computer programs. By a process that the brilliant new work of Robert Meister (2021) defines as collateralization, packages of risk may be rigorously defined and (Gramscian) bets made on the contingent outcomes of events. Derivatives are thus liquidity premiums that would in principle allow exposure to the upside of any asset whatever while limiting the downside by clearly structuring risk. The last chapter of this book treats this question of the derivative directly, moving in a direction suggested by Randy Martin's understanding of the social derivative as a strategy that was social before it was formalized by finance, and in accord with Bob Meister's key question "Is justice an option?" It partially accepts the historical shattering of ontologies and endeavors to offer a way forward—one that neither mandates nor fully excludes forms of historical return, for example, to the subject/object or to experiences of truth. Because colonial "invasion is a structure not an event" (Wolfe: 388), and because we recognize that economy is a network of networks, it will be argued here—and this may be a hard pill to swallow—that a successful revolution capable of sustaining a postcapitalist sociality, will have to have, in addition to all other requirements, a new financial imaginary.

Financial derivatives are sustained by ambient computation, although they nonetheless also have their own psychotropic, experiential, aesthetic, metaphysical, and behavioristic affects and effects. We shall see here that the explicitly financial derivative is only the most obvious form of what, culturally speaking, has become a general case in relation to the acceleration of computational calculus that iterates recursively and consequently induces volatility

as it pursues its arbitrage on labor-power through the articulation of social difference and capacity. The result is unending (e)valuation in every domain and continuous risk management—in Randy Martin's term again, the financialization of daily life. Such is the situation for the implantation of the cognitive-linguistic and such is the situation for the image and for the body—navigating a volatile world of increasing precarity. Logically this situation extends to any people who may be involved—more or less everyone. Indeed, we know now (or at least are in the position to know) that there is no semiotics (to speak of, much less to tweet about) without media platforms, and we also have begun to openly suspect that, with "convergence"—another way of saying the general absorption of mediation by digital computing—these platforms, whatever they may have been in the past ("natural language," "writing," "humanism") have been more or less completely subsumed and thus "denatured" by full financialization.

As the factory code morphs into social codes and computer code and into "the New Jim Code" (Ruha Benjamin 2019: 1–48), and as institutions migrate into platforms, the meanings we may most easily produce and transmit are those in some way consonant with and therefore supportive of racial capital. If capital has its way, these meanings that conform to capitalist production and reproduction would, very generally speaking, include all of them—even the ones that as noted by Stew and quoted in the epigram that opens this Introduction "speak truth to power." The everyday disavowal of the capture of expressivity by platform-based mediation is also a disavowal of the derivative condition of knowledge. The deeper significance for semiotics—of the content indifference of the mathematical theory of communication and of racial capital—is the full colonization of meaning, representation, and consciousness. Consciousness is instrumentalized by a vertically integrated background order that delimits the significance of any expression whatever to an option on the value form. Paradigmatically, social media profits from anything and everything you can say or photograph, but this case is just the most obvious one in a system in which representational media have been captured and subordinated wholesale by computational logistics. Thus, we should not be the least bit surprised by the effective if not also actual racism of a Mark Zuckerberg or, similarly the fascism of a Jeff Bezos. By means of informatics, the logic of capital has been combined with the very substance of things and of expression at the level of their appearance—we confront a logistics of perception and simultaneously an instrumentalization of the objects of knowledge organized by computation and capital and the exploitation of social difference. Psychologically, many experience a balancing act between "reality" and psychosis, between

abjection and megalomania, that informs everyday violence, domestic terrorist gunplay, melancholia, and the insane oscillations between murderous rage and delusional mastery. Critical poetics dances on the high-tension lines and in the borderlands linking what appears with what could be; it calls for a restoration of politics through an abolition-feminist reclamation of the power of expression (and economy) and seeks sustainable practices of anarchocommunism in ungovernable and utopian pursuits of the not-yet.[13]

Cybernetic Ontologies and Derivative Conditions

We could say that the concept of computational capital allows us machine-thinkers to understand how, by the time of postmodernity, the financialization of culture renders culture as both a means of capitalist production and an economic calculus. Culture—with a capital "C"—becomes a grammar of extraction, and cultural work becomes a wager on a future: the condition of art and the artist in a nutshell. We may understand postmodern culture as production and calculus precisely because we grasp that in myriad ways cultural production is networked to machinic mediation, and we recognize that these machines, including discrete state machines and the infrastructure that supports them, are fixed capital: Marx's "vast automaton" in the form of the world computer. Cultural practices, which include epistemological transformations, the strategic codification of representations, and read-write ontologies are computer-mediated and parametrically ordained; the "human" inputs are thereby subsumed as necessary and surplus labor in the calculus of production cycles. Some of this labor—which, truth be told, includes that of critical theory—is locally leveraged within the field of computational capital for personal and political survival and perhaps gain, even as it is part of an arbitrage structure to stave off the falling rate of profit. With computing, writing is no longer typing but proto-typing.

The production of culture, like the production of everything else today, is necessarily, then, a position on the market. It is a risk management strategy—a derivative position organizing, as best it can, a set of contingent claims. Of course, this book directly delivers on only a very small portion of what may be the ultimate affordances of its specific derivative position, wagered as it is as a critical-poetic, political-economic concept of computational racial capital and its world computing. I hope to propose outlines for a clear-cut analysis and critique of computational racial capitalism's expropriation of the general intellect, its brutal liquidation of (in)human resources, and its violent reordination of the material world. The book's primary purpose is to establish the

concept, broadly suggest its possibilities and implications, and then use the concept as a heuristic to rethink a very limited number of inflection points for political theory, media theory, critical race theory, and decolonization. In the short term, it would provision tools for the ongoing revolutions that are the other sides of universal subsumption by information—the immanent outsides. In the long term, it would be part of creating a position on the capital markets that will destroy them. I think I have made my peace with the fact that this book will not make any money. I hope my publishers have too.

Though I have, perhaps unavoidably, presented some of the above conceptualizations and claims as if they were deracinated abstractions emerging directly out of the rarefied conceptual tick of the dialectical clock, the book is committed to sounding the *material* histories of the formation of social practices becoming real abstractions and in turn becoming concepts and computation. The text is grounded in and—to work up its concepts—mobilizes an abiding commitment to the investigation of historically produced social difference and of the instrumental production and organization of inequality endemic to contemporary forms of social mediation. The codification of social difference—particularly but not limited to racialization; gender differentiation; and religious, national, linguistic, and other cultural forms of difference and the anti-Blackness, racism, sexism, and Islamo-, homo-, and trans-phobia that these feed—becomes the fodder for the emergence of a computational nascency in what Cedric Robinson identified as racial capitalism. Computational racial capital, like prior forms of racial capital, is built upon—which is to say, functions by means of—the production, codification, and recodification of social difference and the abstraction of the media of differentiation. It is a racial formation that is itself an engine for the mutability and profitable (re) deployment of racism, what we called some pages ago, a social-difference engine. Whatever else they are or have been or may have been, today race, gender, sexuality, and class are also technologies that both objectify and subjectify oppression. "Class difference" is but one form of social difference, and the loss of class as a privileged analytic only testifies to the economic functionality of race, gender, nation, and so on, as well as the struggles made from those quarters and the ever more granular fractionalization, and subsequent factionalization, of the social—that is, the wholesale economization of social differentiation. "Race is the modality in which class is lived," as Stuart Hall and colleagues (1978: 394) wrote—and other forms of social difference comprise a matrix of oppressions that inevitably have an economic component (see Singh 2015).

These vectors for the development of social difference are elaborated by and as algorithms—some formalized and some effectuated—that also function

as financial derivatives: strategies of risk management that allow capital to discriminate, to securitize, and to bet on the aggregation of difference in synthetic products including mortgages, insurance, security, and other forms of debt and credit, as well as in military, police, and surveillance technologies designed to control variously marked populations for the purpose of capital preservation. The proposed analytic extends the powerful notion of "racial formation" proposed by Omi and Winant (1994) beyond the curated imposition of identities and ethnicities to abstractions and to machines. It sees "society" in places where it is usually thought to be absent: namely, operating in and as abstract machines; in and as what we refer to simply as machines, software, programs, and code; and on and in visuality and thought itself. This claim—that elements and functions formed within the domain of racial capital are racial formations—includes discrete state machines. As has already been noted, where Gregory Bateson famously defined information as "a difference that makes a difference," what cannot be overemphasized is that what "makes a difference" is always already social. By this I mean that the context in which any difference might make a difference—in any (and all) meaningful way(s)—is always already social; the rest is idealism, a domain of deracinated abstraction, indeed, an ascetic ideal, as Nietzsche says, a *ressentiment*-driven will to power, concocted to imagine a world without oneself, without an "us" or without "humanity's" petty concerns.

We recognize that, for some, this self-serving asceticism which makes ego, masculinity, and whiteness disappear in the very medium of its fabulations produces comforting thoughts. The scientist, who insists that his biology, chemistry, or physics contains truths that exceed "man" and exist before and after, addresses himself *to* man. With his grandiose statements, he humiliates man—at times not without provocation and often not without dire results. Nonetheless and despite their seeming indifference to an Other, the ontological pronouncements, the ontological claims, are always triangulated; they are speech acts—a something for someone, a signifier for another signifier. They are also fetishistic, ways of knowing and not knowing, ways of preserving the phallus man in the face of his castration. The child-man killing the traditional father-man to marry mother nature and consummate truth: this becomes science the universal man whose power is now expressed in sublime technologies that in the next generation threaten man with further castration. Such hand wringing about "technology itself" becomes a mansplaining complex as deadly as it is schematic and even absurd—though one nonetheless dangerous for its libidinal-economic logic, its patho-logic. Among the stakes in the analysis of computational racial capital, therefore, is a critique of this very sense of disem-

bodied mind, of the "us" that is supposedly without us. The imperial, Oedipal "us," to be sure, the psychotic, the sociopath, the fascist. One clearly grasps the problem: god or cyborg—and, in this, Donna Haraway's materialist answer still resonates: "I'd rather be a cyborg than a goddess."

Cybernetics as the now unavoidable ontology of ontologies must become the ground for anarchocommunist becomings, sociocybernetic becomings. Information as physical process bound to alienated, deracinated labor, is itself a cyborg formation. Janelle Monáe, as if building on the Fanonian analysis of the impossibility of Black ontology, makes answer to both the prohibition of all but cyborg ontologies and the violence of abstraction. With her brilliant musical and video work, most recently, the song "Screwed" and the "emotion picture" *Dirty Computer*, embodied and desirous, dynamic, assertive, affecting, sexual and creative dirty computing becomes a kind of answer embracing queer, Black, and non-normative alternatives to being constituted and commanded to perform by the deracinated abstractions that colonize bodies. And the emotion picture changes the way we are screwed (together): "You fucked the world up, now we'll fuck it all back down." This *détournement* of the activity machine that is the body, dancing, musical, thinking suggests that we can and perhaps must occupy computation differently, using the resources of our bodies, of our musics, and of our histories. Since everything runs on us, since we are the substrate at the bottom of the stack, Monáe proposes and actualizes a creative utilization of the immense reserves of capacity in music, dance, movement, song, experience, and embodied knowledge. Such an embarkation is not a total answer but a strategy that suggests alternative kinesthetic ways to process information. One thinks also here of Erin Manning's (2018) work on neurodiversity and Black life, the living taking place beyond the confines and perceptions of institutions: "The urgency of these undercommons cannot be ignored. We are moving through them, but are we proliferating enough? Are we inventing at the speed, in the duration, of the movements of thought that move us to ask what else it can mean to know?" (5).

As societies move from cultural hegemony to computational hegemony machine-instituted forms of abstraction and computing become colonial enclosures, worksites, and camps—lived, embodied experience. Computers and their programs are thought to be technical deployments of mathematical concepts and mechanisms that up until now have most often been perceived as value-neutral, that is, as technical or scientific or objective. This misunderstanding provides those vested by the current technocracy with an alibi. An additional purpose of this book is to permanently disrupt the very notion that concepts and machines occupy or could ever occupy such a neutral zone, a kind

of degree zero of technicity, untouched by histories of social difference and the practices of inequality. It is as foolish to think that machines are neutral as it is to think neutrality is neutral. "The ruling ideas are nothing more than the ideal expression of the dominant material relationships" (Marx, 1978: 172–3). Thus, today we might say that the ruling thinking machines are nothing more than the informatic expression of the dominant material relationships, the dominant material relationships grasped as technologies and therefore the machines of their dominance. As opposed to the various quasi-ontological instantiations of dominant informatics (e.g., "the self," "greed," "human, "~~white~~"), we glean that consciousness is at once material and distributed, relying upon a whole set of substrates, machines, images, and codes as well as upon the visible living beings—and, what's more (much more), the beings disappeared—among them.[14] In view of such distributed systems, therefore, you are not the locus of your thought, even if the functionality of "your" thought simulates you as such; the locus of your thought is the world computer and its material implantation in the bios, what Benjamin Bratton (2016) poetically and indeed accurately conceives as "the stack." You is a node. Nodes of the world, remake your networks! The only thing you have to lose is your algorithms of oppression (Noble 2018).

Despite not being able to write in the key of Marx any longer, it is possible to politicize social relations that are naturalized, technologized, or buried in abstraction, in machinery, and in the unthought. Social difference, the profitable maintenance and elaboration of social differentiation fundamentally but not exclusively along "racial" and monetary lines is inherent in information itself. Learning from Hortense Spillers, this critique of information extends itself to the *grammar* of social differentiation and to the increasing granularity of that grammar. It is impossible to write in the key of Marx because of the historical materialist recognition that both the writer and the reader are distributed cybernetic agents who are themselves caught up and constituted in the traffic of information and must therefore decolonize themselves as they work to decolonize the world. No single perspective is adequate to such a task. We observe that the situation of difference and differentiation, inseparable as it is from histories of violence, is, in fact, the deeper meaning of what is called "the world market." The world market is the real-time computational processing of the evaluation of everything—and from which today (next to) nothing escapes—by the relentless calculus of the value-form endemic to profit under the historical system of racial capitalism.

By looking at specific machine histories and processes of grammartization we shall demonstrate that modern machines themselves are racial formations.

They are formed by actual practices of racialization and are informed by them as these relentless and for the most part remorseless activities crunch money into more money. But how could they not be? Indeed how could we not be? Machine-mediated hegemony continues to posit (if less and less convincingly) autonomous individuality and value-neutral machines, while at the same time facilitating a disavowal of the fact that "we" think what we think because of our cybernetic relation to machines and to objectified bodies (ours or others) consigned to what in *Get Out*, Jordan Peele (2017) brilliantly configures as "the sunken place." It is these sunken places that provision liquidity for those who put folks in them, and if they run dry, if we die, more have to be created. When we consider the social totality in this way, when the integrated information machines of social mediation are designed to confer life to some and social death, debility, or disposability on others, it should really be no surprise that racist encodings sedimented into institutions and machines organized for value extraction reencode racism. But for some it is, and for some, no matter how clear the argument—this singular fact in an instrumentally postfactual world, namely, that capitalist technology is a racial formation, will remain unintelligible.

By 2019, readers will no doubt have seen that, despite various forms of public knowledge about racism, and despite the mostly unpublicized yet mass experience of racism, today's journalistic commentators are nonetheless surprised when it is pointed out that facial recognition software or linguistic search functions recapitulate, reenact, and reinscribe the racism of the social. Shock has been expressed at the suggestion that Google or Facebook are racist—at least by those who don't know from experience that all the games are rigged. Few want to draw the obvious conclusion that there are algorithms for racism, for this admission would mean that racism has been encoded and sedimented into machines and that they are racist in their function. Images, it is hastily explained when the facts emerge, contain human prejudices—the implication is that racism may be in the images or in the selection process, but not the computers. Time and again someone will say, yes, people can be racist, but *technology* is value-neutral. Most often, these iterators and their explanations hew closely to the idea that one can get beyond the pedestrian concerns of the social, that technical form is based in scientific research and that with a few responsible correctives, given the appropriate input and the rigorous weighting of results, the machines, their learning, and their neural nets will work neutrally again and without prejudice. What is forgotten is that the images and word clusters, corrected and adjusted or not, are not just *of* the machines; they are *parts* of the machines—they *are* the machines. The image is

no longer a freestanding entity if it ever was—like the word, it is a component in a network, at once of the machine and itself a machine. These machines, authored in strife, are machines of extraction and are themselves social relations in every aspect of their functionality. Like every other part of the computer, signs—linguistic, numeric, and visual—are encoded abstractions operating on a complex set of networked material substrates that include the technical image (Flusser 2000), feminized labor in the production of circuitry and devices (Nakamura 2007), rare earth blood metals (e.g., the coltan wars), the general conditions of cultures, and the many histories and practices—including censuses and holocausts—necessary to constellate and incarnate computation. Acts of computing are moments in a planetary process of encoding and valuation that runs on inequality and that has *already* coded the visual and semiotic domains with the perceptual and ideological, not to say *material*, logistics of race, gender, nation, and class. Not only is consciousness distributed through, by, and *in* these machines—a result of distributed computation accumulating and intensifying over seven centuries or more—but so too are racism, sexism, ableism, cis-heteropatriarchy, and the like endemic to the world computer. It is politically and historically necessary for us to learn to see the social basis operating at this level of abstraction—as *in*formation—in order to see the image, the word, or even the machine or platform not as a stand-alone formation but as what, in a similar context, Régis Debray (1996: 22) described as follows: "To speak of the videosphere is to be reminded that the screen of the television receiving signals is the head of a pin buried in one home out of millions." Then we perceive that the default functionality of the machine, like that of information, is racist and capitalist. The only real hope beyond poetry is a revolutionary attack on the racial capitalist order of things, its ordering of things. This attack requires a materialist, informatic, cultural, and economic strategy.

Technology, as Joel Dinerstein (2006) once argued, has long functioned in the United States and beyond as a "white mythology" (570). It allows racial thinking to masquerade as technical thinking. We can go a step further. The history of racialization and gender differentiation is sedimented into machines, machines that in turn organize our thought, and all of that recursivity is part of a financial calculus in which—increasingly and ever more rapidly and thoroughly—absolutely everything we may know, think, or do undergoes, with ambient computing, a leveraged background monetization to produce both the massive accumulation of capital and the massive distribution of dispossession. Such is the factory code. The computational matrix that extractively abstracts every utterance and act as information presents an inordinate problem, one that—though mostly unthought, both in our everyday interfacing

and indeed everywhere, all the time—is nonetheless the most diabolical problem of our time: society and the bios as incorporated by the world computer running the operating system of racial capitalism.

Digitization, parallel processing, the Hayekian market, informatics, financialization. The problem that is computational racial capitalism is known mostly by its scattered symptoms: burnout, ADD, psychosis, genocide, famine, border walls, camps, interminable war, settler colonialism, carceral society, climate injustice, militarized policing, state terrorism, plutocracy, Apple, Google, tech boosterisms, business innovation, high school shootings, bail bonds, megalomania, neo-Fascist grandstanding, Lamborghinis, super yachts and the like. Like our words, images, and thoughts, our problems do not exist in isolation, even though atomization, separation, and social alienation may seem to render them modular. Though ostensibly disparate and unevenly distributed, these problems and too many others to name here are profoundly integrated in and through their striated differentiation. *The World Computer* endeavors to offer a partial description of the rise and function of this matrix of extractive abstraction that results from the historically imposed conversion of any and every thing whatever into an informatic asset that is, in one way or another, a derivative exposure to risk; a description of the abstract machines of differentiation and integration, separation and accumulation, profit and dispossession—machines that, though abstract, function in an integrated fashion. They function concretely by crunching information, shattering life, and shedding blood.

Is it possible to invert the process? Through the visceral and in many respects subaltern calculus of "dirty computing"? Through cybernetic communism?[15] Through the embodied calculus of social derivatives wagered on a better world fucked all back down? Through distributed computing and the crypto-economic creation of new social architectures? Such a reparative informatics might radicalize finance by redesigning the protocols of money and credit to reconfigure economic media, and do so in such a way that a fully expressive postcapitalist medium becomes capable of abstraction without extraction. It might thus allow for the collective authoring of futures and sharing risk to create radical solidarity. On the way to really asking these questions well, the chapters that follow would derive and elaborate several other significant ideas and concepts from the notion of the world computer. These new formulations are put forward to both substantiate and give amplitude to the central concept. To list the main ones here: the computational unconscious, the programmable image, computational racial capitalism, informatic labor (a redefinition and refinement of the labor theory of value and of the attention

theory of value), the computational mode of production, advertisarial relations, the advertisign, derivative living, the fourth determination of money (beyond the classic three: measure, medium of exchange, store of value), economic media, and platform communism, cybercommunism—or, perhaps better, derivative communism. Though each of these ideas might themselves offer materials for book-length projects, the aim here is to generate a new conceptual armature and its necessary terms, such that the new tools can be utilized and refined in multiple domains by the ongoing critics of and revolutionaries against the everyday compute of racial capitalism, by those who have been and who remain bound to struggles for social justice, reparations, and emancipation. Fuck the police!

NOTES

Introduction

1 Sohn-Rethel writes, "To substantiate my views three points have to be established: (a) that commodity exchange is an original source of abstraction; (b) that this abstraction contains the formal elements essential for the cognitive faculty of conceptual thinking; (c) that the real abstraction operating in exchange engenders the ideal abstraction basic to Greek philosophy and to modern science" (28).

2 Alex Galloway writes that, "For all its faults, protocological control is still an improvement over other modes of social control. I hope to show in this book [*Protocol*], that it is *through* protocol that one must guide one's efforts, not against it" (2004: 17). Briefly, if money is a network functioning in accord with a set of protocols, protocol redesign, that is, the redesign of money itself and its modes of abstraction, may well generate a pathway out of capitalism. The who and the how are the key questions here.

3 There are many reasons to criticize and indeed to hate white-identifying Western societies (and also perhaps white-identifying Western Marxisms), but I will endeavor to correct an abbreviated version of their willful blindnesses here: social difference always makes a difference. Whiteness is the result of colonial and imperial histories of racial capitalism, its embrace often (but not always, as in the case of white supremacists) depends on the thoroughgoing disavowal of the acts of violence that make it what it is. To claim whiteness, even as if helplessly, is a reenactment of that violence. But to deny it, to disavow it, to negate it, to cancel it, is far from straightforward—for everyone, including, though not especially, the white man. Nonetheless, the cancellation of whiteness, that is at once pre-condition and result of the operations of the world computer, is high on the list of historical tasks required for a redesign of the global cybersocial interface and of any effective distributed revolution against computational racial capitalism.

4 "Real abstraction," as Alfred Sohn-Rethel spent his life deciphering, takes place "behind our backs" as the practical and historical working out of the exchange of equivalents within the process of the exchange of goods. For Sohn-Rethel, the development of the money-form, of the real abstraction that is money, is Exhibit A of the abstraction process mediating object exchange that provided the template for

further abstraction, as, for example, in Western philosophy (1978). On "grammar" in the sense I use it here, in which all meaning is overcoded by the historical events and legacies of slavery that continue to shape life in its wake, see Hortense Spillers's (1987) landmark essay, "Mama's Baby, Papa's Maybe: An American Grammar Book."

5 Sohn-Rethel (20), quoting Marx (1990: 166) at the end, italics mine.

6 As I wrote in *Message*, "If there is not a single atom of value in exchange-value, than neither is there a single atom of value in information or computation" (Beller 2017b: 84). This does not make computation any less material, but rather speaks to the dual being of information as social abstraction and as organized material.

7 A key argument here is that real abstraction provides the basis for computing. Computation is nothing if it is not an elaboration of abstraction processes, and as we might already intuit from anecdotal evidence, computation is also the elaboration of processes of exchange. With Turing and the discrete state machine, computation is an execution of calculation by means of changes in material states—the cost of which represents a form of risk. The production and exchange of information that "wants" to be free, like the market, takes place in and as the machines of calculation. Not coincidentally, these machines are also the machines both of the bureaucratization and the automation of thought and, also, in the next moment, the machines of and for the financialization of sociality—as, for example, by social media. But what does AI want? Information wants to be free from what? From all constraints, of course, but particularly that of its cost. Why the constant urge to break down all barriers, overcome regulations, and reduce its own cost price?

Computers are not so much abstract machines but machines of abstraction, and thus machines of real abstraction, since their processes are not ideal but are dependent upon altering the states of matter by means of concepts embedded in states of matter—programs. Altered states executing altered states. In such a view, we who are ancillary to these machines which constitute the infrastructure of postmodern economy, we who are within their program, as it were—in ways that are more than merely reminiscent of Flusser's notion of the functionary caught within the photographic program in the universe of the technical image—are but their "conscious organs." Or their unconscious organs. Thus, real abstraction, as money or as computation—a difference that as we shall see is not so easy to maintain—is also lived abstraction. Despite the fact that the materiality of computation—as money or as computing, as a monetary-computational system—is integrated in, through, and around the planetary system, not enough is understood about the process and the processing of abstraction, or about living in a world in which humanoid-mediated material organization is itself abstract. Not enough is known about the role of computation in the thoroughgoing abstraction of the world, and the coemergent reformatting of ontologies by information. Information, it may be said, that turns out to be, above all else, a medium of financialization—an expression of capital.

8 As if the loss of Marxism, even Foucault's idea of Marxism, were no loss at all, the mere sloughing off of another moribund paradigm. This approach to text and

texture, a writing from the standpoint of power—a writing that while capitalizing on the affect is ultimately indifferent to the legacy of people's struggle, to people's traditions, and to the future—is therefore deeply political, and, although the lucidity of his mimesis sometimes feels radical and revelatory, its subsumption of difference in the logic of its explanation dishonors such histories of struggle. It situates Foucault's work as Eurocentric and, in its presumed value-neutrality, White. Despite his penetrating erudition and writerly sublimity, when it comes to questions of power, Foucault's comprehension approaches the reactionary and/or sadistic.

9 Ali writes, "According to the cyberneticist Gregory Bateson, information, or rather the elementary *unit* of information is "a difference that makes a difference" (Bateson 1972: 459). Crucially, on this view, a difference is "not a thing or an event"; rather, it is an "abstract matter," and in the world of communication and organization this "abstract matter" whose essence can be shown to lie in form and pattern, can bring about "effects" (458). To the extent that race constitutes a difference—perhaps *the* difference—that makes a difference in the world in terms of its impact on political, economic, cultural and other social concerns, it *can* be analyzed in informational terms" (93).

Significantly the "paper aims at contributing towards critical enquiry into the nature of information using a reflexive hermeneutic approach to explore the differences made by—or 'effects' that result from—the interaction of race and information, both of which make reference to the concept of difference" (93). Detailing the highlights of "more than twenty-five different theories of information [that] can be identified in the period from 1948 to 2009" (94), and drawing on decolonial and critical race theory of Omi and Winant, Walter Mignolo, Ramón Grosfoguel, Charles Mills and others, Ali argues, correctly I think, that "What remains largely if not entirely unexplored is the possible contribution that information theory, systems theory and cybernetics can make to an understanding of race, racism and processes of racialization" (97). He writes, "According to Fuller Jr. (1984), racism, which on his view is identical to white supremacy, is a global system composed of nine major areas of activity or subsystems, viz. economics, education, entertainment, labor, law, politics, religion, sex and war. This *systems*-theoretical formulation is important since it constitutes a contribution towards an *information*-theoretical framework for thinking about race that is also critically *race*-theoretical in orientation. In this regard, it represents a radical alternative to systemic frameworks based on the critical theoretical perspectives of thinkers such as Giddens, Bourdieu and Habermas, each of whom takes economics, politics and culture to be primitive (or 'core') subsystems in a capitalist systemic whole" (98).

The field paradigms thusly interrupted, Ali notes, "It is important to recognize that critical race theory and critical information theory are not fields of enquiry whose terms of reference are universally agreed upon; on the contrary, what counts *as* critical race theory and what counts *as* critical information theory are, arguably, highly contestable, if not highly contested, issues, reflecting different agendas and, significantly, differential power relations among theoreticians" (98).

It is precisely these differential power relations among thoereticians, but also among theories, indexed to race, nation, gender and class, that we here aim to explore and indeed transform. Adroitly, Ali turns here to "pattern" and "narrative" in proposing "a critical information-theoretical perspective" (99) on race before proposing "a critical race-theoretical perspective" (101) on information. He writes: "According to Capurro (2009), the term *information*, at least in its original Greek-Latin and Medieval usage, originally had two meanings: (i) an objective meaning ('giving form to something') and (ii) a communicational meaning ('telling something new'). Consistent with this position, Baeyer (2003) maintains that information should be understood as both *inform*-ation and in-*formation*, that is, as involving both the transmission of meaning and the transfer of form (arrangement, configuration, order, organization, pattern, shape, structure and relationship). Crucially, on his view, 'the meaning of a message arises out of the relationship of the individual symbols that make it up' (Baeyer 2003, 19)" (99).

What we have here are criteria by which certain perceptions are encoded as information that is at once *form giving* and *telling something new*, and by *which other perceptions as well as other possible perceptions are excluded*. The context in which, "the relationship of the individual symbols" for the signification of the message that they compose is information inclusive, but it does not register systemic externalities that prepare the message for encoding. Thus "objectivity" and "communication" are constituted in information by means of networks of inclusion that are also systems of exclusion.

10 Ethereum refers to the "Turing complete" programming capability it offers running on top of its block-chain to facilitate the operation of "smart contracts" by "the world computer," https://www.youtube.com/watch?v=j23HnORQXvs. I use the term to refer to the Turing complete virtual machine running atop the *bios*. For the record, Vitalik, I thought of it first (I think). ☺

11 My effort to use historical-material formations to fabulate and conceptualize against the apparently dominant flow is clearly not the first attempt of its kind. See *W. E. B. Du Bois's Data Portraits Visualizing Black America*, Whitney Battle-Baptiste and Britt Rusert (2018: 7–8): "The vision produced by the megascope . . . is generated in part by data contained in a massive set of volumes lining the wall of the laboratory, a vast set of demographic studies collected for over '200 years' by some kind of 'Silent Brotherhood'. Dr. Hannibal Johnson . . . uses this data to plot what he calls the Law of Life onto 'a thin transparent film covered with tiny rectangular lines, and pierced with tiny holes,' and stretched over a large frame." They describe the vision and the subsequent allegory of the story this way: "When hooked up to the megascope, users are able to view the 'Great Near,' Du Bois's term for the always present but usually invisible structures of colonialism and racial capitalism that shape the organization of society" (7). Battle-Baptiste and Rusert introduce this little-known story as a preamble to their extraordinary work on Du Bois's sociology and data visualization. They write, "We hope that the infographics [collaboratively created by a team assembled and led by Du Bois] might connect to other genealogies of black design and data visualization, from the centrality

of visual design and format in Harlem Renaissance and Black Arts–era publishing to the role of abstraction and conceptual aesthetics in black visual art in the twentieth and twenty-first centuries. Produced at the *fin de siècle*, the infographics look back to a history of data visualization in the nineteenth century deeply connected to the institution of slavery, and the struggle against it, while looking forward to the forms of data collection and representation that would become central to representations and surveys of Harlem in the twentieth century. Indeed these images anticipate the forms of "racial abstraction" that would come to define social scientific, visual and fictional representations of Harlem beginning in the 1920s." (12–13)

12 In marrying the mathematics of thermodynamics to the market, the Nobel Prize–winning 1973 "Black-Scholes" equation for options pricing posited, though not for the first time, a continuum between market dynamics of the laws of physics. But which was primary? In establishing a firm basis in mathematics and science for economics, the equation seemed to unite two distinct disciplines. Arguably, it simply brought together two strands of the same: Max Weber's Protestant ethic, characteristic of Euro-American capitalist culture, and Nietzsche's ascetic ideal, characteristic of Euro-American capitalist science—a recombination of momentarily divergent yet ultimately parallel roads along the will to power encoded in capital itself. Their reunification as a physics of finance and, increasingly, as AI marks a general reunification—a "convergence"—of computation, finance, mediation, semiotics, and automation: derivative finance, advertising, public relations, social media platform development, and computing all become pathways of risk management. Wills to power of all varieties can here be incentivized, entrepreneurs of the self can choose their cyberpaths. Incontrovertibly, the management capacities that latter-day media provided also meant and continue to mean capital expansion, a *sine qua non* of capital of equal import as that other necessary and necessarily obfuscated operation: relentless, merciless exploitation without apology. Indeed, we have seen from many examples these last few years, from business to war, that exploitation done well markets itself as triumph. Here again, with triumphal images and tweets, we see that social relations are in dialectical tension with an abstraction process (multiple interconnected abstraction processes) that is at times deployed as a particular technique. But such techniques depend upon the interlocking of codes and programs. The basic structure of computation—software operating on primitives running on operating systems organizing symbolic 1s and 0s by iterating material state changes in silicon switches—became a holographic structure that ties representation to vertical and horizontal risk management across the entirety of the social.

13 I am channeling here Jayna Brown's (2018: 595) takeaway written in her great essay on Lizzie Borden's 1983 film *Born in Flames*: "Our actions, it suggests, should not be based in recognition from a nation state, or in amassed wealth, but in remaining joyfully ungovernable." Also see José Muñoz's (2009) brilliant treatment of Ernst Bloch in his consideration of queer futurity in *Cruising Utopia: The Then and There of Queer Futurity*.

14 "White" is here written with a strikethrough as "~~white~~" since it is the *unstated* assumption organizing so much of automated functionalization and informatics.

15 See Aurora Apolito (2020), "The Problem of Scale in Anarchism and the Case for Cybernetic Communism." Apolito writes that "the main communist objection to markets is that better and more sophisticated mathematics is needed to formulate and address the problem of scale in a communist economy, and in a decentralized non-authoritarian setting, than what is currently offered by borrowing market mechanisms from capitalism" (4). They add, "To avoid a runaway reaction of wealth disparity accumulation, one needs to design an entirely different optimization process that does not reside in the market mechanism of profit maximization" (9). The paper, which just came out as I finish the copyedits, explores such a mathematics of optimization. It raises the question of what I would want to call reparative informatics. However, any optimization in the redesign of money would have to detour its representative power away from the monological accounting endemic to the value-form itself. It would have to disrupt and ultimately break the value-form.

1. The Computational Unconscious

An earlier version of chapter 1 was published in a *b2o* special issue on the "digital turn": Jonathan Beller, "The Computational Unconscious," *b2o: an online journal*, Special Issue: The Digital Turn (1 August 2018), http://www.boundary2.org/2018/08/beller/.

1 On racial abstraction see Bhandar (2015). "Dispossession was not . . . simply a matter of racist notions of civilised and barbaric peoples. Dispossession was both a prerequisite and a consequence of the co-production of racial value and property ownership, rendered possible by a logic of abstraction that was central to emergent capitalist forms of property, its modern legal form, and the racial subjugation of indigenous peoples, their lands and resources" (32).

2 An anonymous reviewer of this essay for *b2o: An Online Journal* notes, "The phrase 'digital computer' suggests something like the Turing machine, part of which is characterized by a second-order process of symbolization—the marks on Turing's tape can stand for anything, and the machine processing the tape does not 'know' what the marks 'mean.'" It is *precisely* such content-indifferent processing that the term *exchange-value*, severed as it is of all qualities, indicates.

3 It should be noted that the reverse is also true: that race and gender can be considered technologies. See Chun 2012; de Lauretis 1987. See also Roth 2009 on color adjustment, the Shirley Card, and the "technological unconscious" (117).

4 "The Universes of Max Tegmark," https://space.mit.edu/home/tegmark/home.html. Tegmark is drawing on the idea of computronium proposed by Toffoli and Margolus. "Computronium is a hypothetical substance whose atoms are arranged in such a way that it consists of many tiny modules capable of performing computations," Peter Hankins, "Perceptronium," October 2014, https://www.consciousentities.com/2014/10/perceptronium.