

*The World Computer Derivative Conditions  
of Racial Capitalism Jonathan Beller*

*The World Computer*

THOUGHT IN THE ACT

A series edited by Erin Manning and Brian Massumi

# *The World Computer*

Derivative Conditions  
of Racial Capitalism

**JONATHAN BELLER**

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

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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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I

*Computational  
Racial Capitalism*

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# 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 telecommunications” 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.<sup>1</sup> 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.<sup>2</sup> 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 decolonization 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 systematically *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.<sup>3</sup>

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 from 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.<sup>4</sup> “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 socio-historicity 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."<sup>5</sup>

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.<sup>6</sup> “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.<sup>7</sup>

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 I.O (DCI). 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 from 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 themselves 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.<sup>8</sup>

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