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Rationalized Stratification

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Across institutional domains, tracking and measurement is expanding and becoming ever more fine-grained. We argue that a new regime of moralized social classification, backed by algorithmic techniques and dependent on large volumes of quantitative data, is in the process of emerging as a result. Digital traces of individual behavior are increasingly aggregated, stored, and analyzed. As new techniques allow for the matching and merging of data from different sources, the result is a constellation of positions and locations in a network of organizations. These *classification situations* (Fourcade and Healy 2013) provide the basis for consequential forms of social categorization and differentiated opportunities.

The process of classification allows institutions to apprehend their clients, users, or employees through new instruments of knowledge, efficiency and value extraction. It also yields, for the individuals classified, a super-charged form of capital that emerges from one's digital records. Organizations have learned to "see" in a new way, and are teaching people to see and value themselves in that way, too. We outline the consequences of these twin processes of data-based valuation (of individuals) and value-extraction (from individuals) for social stratification. We argue that these new lenses, and especially the self-quantification tools they rely upon, are also presented,

and experienced, as a moralized system of opportunities and just deserts. They act back on people by way of self-feelings, behavioral injunctions, and forms of regard and disregard. But they are also giving rise to a new economy by which the person themselves becomes an object of investment and monetization.

From persons to numbers

Efforts to rationalize the process of stratification have a long history. The current growth and deepening reach of automated decision-making recalls earlier forms of sorting and scoring by organizations. Modern forms of information processing are only "the most recent installment in the continuing development of the Control Revolution" that began in the nineteenth century in both state offices and corporate firms (Beniger 1986, 435). When Max Weber discussed the step-by-step, distributed, and nominally objective procedures for selection and sorting that characterized decision-making in modern bureaucracies, he was discussing a form of "algorithm." None of this is new.

Weber also saw that capitalist markets and bureaucratic organizations shared an affinity for the systematic application of rules and measures. In the nineteenth century's credit market, for example, American rating agencies developed methods to identify good credit prospects. They collected bits of information—gossip, really—about the economic reliability of individuals and corporations. Arbitrary as it often was, the use of this data to "place firms in a clear set of ordinal categories" created the impression of precision and order within the market (Carruthers 2013, 533). Agencies got better at it as time went on.

Similar processes happened in other domains, too. The life insurance industry collected and compiled data at the population-level, and used it to slot individual subscribers into coarse risk classes (Bouk 2017). In the first half of the twentieth century, individuals started being tested and fitted into an array of statistical distributions, from IQ scores to the SATs, that apprehended them not through category membership but through percentile location. Modern techniques work on similar principles—they just use more, and more varied, data. What stands in for the individual is neither an aggregate nor a position in a statistical distribution. It is a *profile*: a precise set of records, attached to an identifiable person, drawn from a wide range of sources soon to be mined in digital form, and customizable at will (Gandy 1993). The maturation of this "data double" returns to the promise of the painstakingly collected, and often highly subjective, personal record of the nineteenth century credit report—except the new record is much, much more exhaustive, its components are processed automatically, it circulates with much greater ease across institutions, and it can be deployed for a much broader range of purposes.

These classificatory activities have been automated, obscuring the role of human intermediaries. Aggregate analyses and individualized records can now be managed

at once. Bits of information logged by digital devices (on one's person and in the environment) and the scores and categories derived from them are tradable objects. They can also be matched to other sorts of records, nominally public but until recently inaccessible at large scales. Court filings, voter information, driver data, property records, city fines—all have been repurposed to feed the ever-expanding appetite of private agencies and data brokers who resell them to third parties, including, sometimes, the state itself. Any organization can now produce opportunistic, made-to-order classifications. First comes a *dragnet* that produces a wealth of data. Next, algorithmic methods that allow for *scoring and classification* on a large scale. Finally, an array of *interventions* are produced.

From scores to capital

Theories of institutionalization help us understand the convergence of dragnets, scores, and interventions. Organizations draw powerful injunctions from their broader institutional environments about what they should look like and do. Satisfying these institutionalized myths takes precedence over the "demands of work activities" in the formal structure of modern organizations (Meyer and Rowan, 1977, 341-344). Data collection in modern organizations bears this ceremonial character to a high degree. Professionals recommend, the institutional environment demands, and technology enables organizations to sweep up as much individual data as possible. It does not matter that the amounts collected may vastly exceed a firm's imaginative reach or analytic grasp. The assumption is that it will eventually be useful, which is to say, valuable. Weber (1998) remarked that technology does not need a purpose. It is its own purpose. While formal organizations have long had this tendency, recent technical advances have transformed the quantity of information that can be collected and the quality of analysis that can be performed. Contemporary organizations are both culturally impelled by this data imperative and powerfully equipped with new tools to enact it.

The output of rationalized measurement are scores and classifications. Data is processed to produce real consequences, usually as differentiation in terms of service, products on offer, and prices. This process of sorting and slotting people into categories and ranks for the purpose of managing a population or extracting some form of material or symbolic profit from it generates what we call *classification situations*. Importantly, classification situations both are structured by organizational imperatives, and they structure people's opportunities and life-chances. They are also dynamic, constantly readjusting to new objective functions and new data flows.

In his analysis of the connection between social classification and economic class, Pierre Bourdieu considered society as a site of "classification struggles." These are symbolic conflicts aimed at "transforming the categories of perception and appreciation of the social world and, through this, the social world itself" (Bourdieu, 1984, 483).

In Bourdieu's analytical framework, classification struggles are fought through the mediation of various forms of capital. In a generic manner, capital is fundamentally an *embodied* set of resources that profits its bearer, allowing him to fit naturally into the dominant social group—the rich, for example, or the cultured, or the well-connected, or the socially authoritative. Deep, early family socialization is the most efficient vehicle for capital's transmission, particularly in its immaterial, symbolic forms.

We argue that the digital information available about an individual, accumulated over one's life and encapsulating the totality of her relations as expressed through digital traces, is a form of capital. In contrast to Bourdieu, we emphasize the growing technological inscription of this capital and its high dimensionality. Because of this, we call it "eigencapital."[1]

Eigencapital has great potential power, but it is also a genuine engineering problem subject to failure or incomplete realization. Hence the drive to constantly enhance its materiality and numerical character. It is also a contingent empirical phenomenon that can be ordered and made more tractable through various techniques of dimensionality reduction. At one extreme, it takes the form of a single, all-encompassing score, as in China's proposed Social Credit System. The resulting classification struggles are oriented to measurement and calibration. Positions are bestowed on people algorithmically, often in a manner opaque to them. Advantages may accrue to those who accumulate eigencapital—better prices, better service, kinder consideration and higher standing across domains.

In this respect the new form of stratification resembles the well-established benefits of the Bourdieuian *habitus*. Indeed, it amplifies them. Electronic systems transmute what in the past were purely interactional processes into quantitative data, and the well-situated feel the benefits directly. Their reputation is no longer confined to a local community of peers. The trust they feel confident extending is no longer circumscribed by their social network. Instead, they carry it with them, in their wallets. Moreover, to the extent that it works successfully—and it is important to bear in mind that getting these technologies to work is a huge challenge—the process fades into the background. You do not see the bad actors who tried to use your card but were automatically denied. You do not have your integrity questioned by a sales clerk, or a border patrol agent. The system smooths the way by seamlessly authenticating you and finding appropriate matches for you, including people, products, services. It imposes high costs on those who try to evade being measured and classified. The fortunate and the virtuous (by the system's standards) experience this as a well-deserved kind of ease. In a way, the infrastructure of eigencapital revives an old kind of privilege. It promises the portable,

[1] In our earlier piece (Fourcade and Healy 2017), we used the term Ubercapital. Here we turn to "eigencapital," which we feel better conveys the high-dimensional nature of the data bundle this capital relies upon.

universally recognized trustworthiness and good reputation of the gentleman abroad, sustained by his word and a letter of introduction, in a newly quantified and nominally democratized form.

It is important to remember that value scales are not necessarily unified, and do not fully cohere. There are myriad scores and ratings, all instrumentally designed to serve specific purposes. In many instances, they are made to order, to express the value of particular types of individuals to particular organizations. A person with low eigencapital in general terms might nevertheless be valuable for that very reason to a particular company. For instance, the company may pay dearly to acquire lists of people with gambling problems, or chronic health issues requiring medication, and so on. In a system of classification situations, no one is in principle excluded. As long as individuals are visible, measures can be calculated and an acceptable transaction can take place. Only the terms may change. The more voluminous the data about you, the more organizations will strive to predict *how* they should serve you, which is after all what consumers and citizens want organizations to do. But that may also mean predicting who is most likely to be tempted by an exploitative deal, or to become a burden on social services. Organizations are, in effect, primed to take advantage of any intimate truth captured by the data-dredging apparatus.

From classes to classifiers

New social divisions are emerging, fueled by measurement technologies. Whether at the hands of the market or the state, positions are defined in relation to thresholds and cut-points on ordinal or cardinal scales: terrorist or not; prime or subprime; legal or illegal worker; Platinum, Gold or whatever the algorithm's (and thus the organization's) objective function is in any particular case. Because this approach is internal and inductive, it tends to make the traditional first questions of class analysis moot. We need not argue *a priori* about the conceptual basis of class taxonomies, or about which classification situations will always and everywhere matter. Nor can we inherit and partially aggregate the official system of occupational classifications laid down by the state. Rather we must concentrate on the classification schemes induced by data-hungry institutions. These schemes, we contend, have reactive or performative effects on individual behavior, on organizational strategy, and on people's life-chances.

For Weber (1978, 182), while the distribution of property or skills is the precursor to class formation, "the kind of chance in the market is the decisive moment which presents a common condition for the individual's fate." Class members are constrained in the same way by market exigencies. Hence, classes arise when "a number of people have in common a specific causal component of their life chances" and thus "class situation is ultimately market situation." The traditional challenge for this approach has been to establish the categorical class situations that flow from the distribution of

property, skills, and other resources people bring to the market, usually conceived as the labor market. We emphasize instead efforts by both organizations (whether in the market or in the state) to classify people—to identify them as members of some class, to offer prices, services, or other opportunities on the basis of that membership, and to reconfigure both the criteria for class membership and the overall system of categories in the effort to maximize returns from consumers, productivity from employees, or benefits to the governed.

Weberian approaches to class have a tendency to gravitate away from a few comprehensible antagonistic groups toward a multiplicity of locations. It can be difficult to avoid the pull toward more categories, more fine-grained classes, and ultimately a continuum of individual combinations of property, skills and resources. Critics typically see this as a point of failure. But we might instead see Weber correctly identifying rationally organized bureaucracies in general, and the rationally organized market in particular, as the place where this process of class assignment takes place and is made real. On this interpretation it would be a mistake to try to identify criteria for class membership in advance. Rather, we should be looking to understand the process through which classifying institutions create classification situations from the inside.

The old classifier was outside, looking in. The new digital classifier is inside, looking around. In the market, firms once tried to guess what you liked based on some general information, and often failed. Now, they know much more about what you have done in the past. Increasingly, the market sees you from within. It tracks and measures your body and emotional states, and it watches as you move around your house, the office, or the mall. This pushes firms away from an advertising model (even one with highly targeted advertising) toward one where people are dynamically classified, and where their existing classification situation allows for further diverse applications in the future. The new ideal is a personalized presence that is so embedded in daily routines that it becomes second nature.

Meanwhile, the state applies similar methods. States transform public infrastructure and services into sensor-filled sites to generate data on public behavior and diagnose public problems. They draw on the same actuarial thinking characteristic of insurance companies, assigning predictive scores to estimate which individuals are likely to be most costly or dangerous or at various kinds of risks. States might allocate opportunities, dedicated attention, benefits, and even citizenship itself on the basis of such predictions (Eubanks 2017; Cheney-Lippold 2017). Rights and benefits are no longer assigned on a categorical or nominal basis (such as by race, gender, or national origin alone), but according to multivariate, dynamic and ordinal rankings. Again, the aspiration is not new: "high modernist" states sought to classify their subjects, too. The hubris of this effort often led to failures of the sort analyzed by Scott (1997). The difference is that, like markets, the technological apparatus characteristic of "high tech modernist" states is less likely to miss the fine-grained differences between people.

Instead, it leverages them (Fourcade and Gordon 2020).

The empirical questions our approach raises are correspondingly different from the traditional concerns of class theory. First, we will need to know much more about how classification situations are coded and operationalized. This implies the study of practical methods, their historical development and their operational potential. Second, we need to learn how sorting procedures are implemented and experienced in practice by actors on both sides of the classification process And third, if classification situations are associated with differentiated market or civic positions, we must examine the stratification outcomes for individuals so classified, both in structural and phenomenological terms. As digital systems become true platforms for social interaction encompassing substantial segments of the world's population, their ability to measure and intervene in activity spills over into all spheres of social life.

From merit to asset

As digital traces of individual behaviors are aggregated, stored, and analyzed, classification situations also tend to become moral projects (Fourcade and Healy, 2007). Because they seem to record only behavior and behavior is seen to flow from conscious choices, scores become ethically meaningful indexes of one's character. Hence, the nervousness that accompanies the credit check at the car dealer or the appliance store. With access to our most intimate and unconscious behavior, new digital tools make a new economy of moral judgement possible. Passive records are turned into active metrics, which imply calculation, efficiency, and the obligation to be in control of and accountable to oneself. Metrics become moral injunctions.

Eigencapital may even be realized as a fungible form of personal visibility, or reputation. As such, it can be used as collateral for the issuing of special monies, or "personal tokens." Tokens give buyers certain rights over the issuer: the right to talk to them, to receive services or objects or social connections from them, to vote on their life choices, to be promoted on social media, to receive a percentage of their future income, and more. They can be resold, and the price may fluctuate depending on how the issuer's future upside has evolved. The valorization of oneself as an asset thus becomes deeply entangled with the management of one's overall eigencapital. The metrics, and the moral injunctions, are now integrated into a full-blown strategy of social advancement. The individual has been turned into a "capitalist of the self," with the familiar demands of accounting, asset-building and entrepreneurship (Fourcade 2016). Those who do best from such a system may resemble those who do well today, or these markets may produce new standards of desert and merit, and new means to promote and reward those who meet them.

Will these tendencies be fully realized? Obviously, we do not know. In practice, what we have are shreds and patches of a possible future. The obstacles are substantial.

Technology often does not work as promised. Scoring systems are blunt instruments. Big data may produce small insights. The social currency bubble may burst. Instead of a multidimensional cloud of data readily available for use by everyone, we may end up with absurd product recommendations, bizarre Facebook ads, terrible dates and worthless tokens. Still, the volume of engineering resources presently being directed at these problems is astonishing, and the massive diffusion of cheap, connected devices is unprecedented. Sociologists should think carefully before simply asserting that implementation problems will not be solved in something like the manner the main players are driving toward.

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