

Aesthetics of Poverty

Visualizing Territories and Populations

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Abstract

This article examines the so-called “digital inclusion” of favelas of Rio de Janeiro, Brazil. By investigating the proliferation of information and digital media technologies in informal settlements, I highlight their ambiguous role in constructing a socio-spatial dynamic and argue that these technologies contribute to the formation of renewed regimes of visibility that shape ways of seeing poverty in the urban space. Drawing from a range of scholarship, including aesthetics, critical geography and digital humanities, this article suggests that the framework of digital inclusion mobilizes a scopic process through which favelas are framed by an external gaze: the spectator outside. This process is explored through the ways in which digital technologies provide new immersive experiences into territories of poverty, thereby feeding the outsider’s gaze of “fascination with the poor.” The article proposes a reflection about the implications of such a gaze to populations identified as “the poor” and territories identified as “marginal.”

Keywords

Poverty, digital inclusion, urbanism, populations, territories

Since the announcement of Rio de Janeiro as a host city for a series of mega-events, including the World Cup in 2014 and the Olympic Games in 2016, intensive regeneration plans have been designed and implemented in the city. In the context of the urban renovation and rebranding of Rio, much has been said regarding the failures of construction projects aimed at revitalizing areas of economic interest,¹ including corruption involving construction companies,² social cleansing³ and human rights violations⁴

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perpetrated against the city's residents. However, one particular project in which the city has floundered is overlooked in contemporary scholarship: that of aspiring to enter the hall of global smart cities.⁵ Ever since Brazil plunged into an intense political crisis in 2016—much intensified in the run-up to the aforementioned mega-events—Rio's aspirations to be seen as an inclusive, vibrant, and smart city have long been forgotten.

Nonetheless, it cannot be ignored that in the last few years, information and digital technologies have quickly made their way into the everyday life of Rio's population; these technologies include games, navigation apps, social media, and augmented-reality devices. Residents of Rio's *favelas*—informal urban settlements, or slums, that are historically marked by poverty, violence, and segregation—have also seen growing access to the internet,⁶ along with a widespread use of smartphones and mobile apps,⁷ including apps designed specifically for (and by) this target population.⁸ Enthusiastic voices in both the public and private sectors anticipated that digital inclusion, promoted by technology giants such as Microsoft, Google, and Facebook,⁹ would break the *social, geographical, and hitherto digital* borders that separated favelas from “the city.”¹⁰ Digital inclusion would thus overcome the so-called socio-spatial exclusion of Rio's poor. As largely uncharted territories, favelas are often seen as transient occupations of land, like enclaves interrupting the grids of the “official city” of Rio. Indeed, a favela is often found entirely separated and aesthetically different from “the city”: it crawls up hillsides, while the urban grid tends to spread along the coastline (See figure 1). Studies show how both public and private initiatives work to disseminate the democratic promise of the internet in Brazil¹¹ and in contexts of poverty more generally.¹² Therefore, intersectoral digital initiatives (collaborations between the local administration, ICT corporations, community organizations, and other actors) have been welcome in Rio with the hope of achieving a much desired and anticipated integration of favelas back into the city—potentially overcoming centuries of territorial segregation and stigma.¹³

This article interrogates the professed digital inclusion of favelas from an aesthetic perspective. I argue that information and digital media technology play an ambiguous role in the socio-spatial dynamics of favelas and should be approached through a lens that is mindful of its multifaceted effects. By drawing from aesthetics, critical geography, and digital humanities scholarships, I argue that digital technologies put in motion a scopic process through which favelas are reframed by a spectator outside. This is construed as a reiteration of the typical gesture of gazing at, or observing, the poor. In other words, digital technologies seem to provide new immersive experiences into territories of poverty, and feed the outsider's gaze of



FIGURE 1. “Favela Dona Marta, Rio de Janeiro, seen from Corcovado,” by Brian Snelson, licensed under the Creative Commons Attribution 2.0 Generic license. Available at Wikimedia Commons at: https://commons.wikimedia.org/wiki/File:Favela_Dona_Marta.jpg Accessed March 13, 2019.

a “fascination with the poor.” I also make the case that digital technologies are prompting aesthetic effects in such territories, particularly in changing the very idea of what a favela is, how it is organized, and how one can navigate around it. The purpose of this article is to investigate the implications of the gesture of visualizing poverty.

In this analysis, the historical segregation of favelas is construed not merely as a matter of socio-spatial exclusion. Rather it is an aesthetic issue, resulting from geo-legal projects of invisibilization (or selective visibilization) of poverty which work to cast doubt on the presence, or even the existence, of the poor in the urban landscape.¹⁴ In this article, “aesthetics” refers, at first, to sense-making—i.e., ways of seeing, perceiving, apprehending, and knowing. As I will argue, social phenomena *appear* in the world through a framing process, a composition of sensorial, cognitive, affective, and even imaginative elements. This perceptive mechanism seems more evident in the context of apprehending poverty and informality.

Poverty, here, is an aesthetic category, a perceived phenomenon preceding and affecting socioeconomic distribution and classification. The visual regime that governs the gaze which sees poverty, and the visualizing technologies that facilitate it, are in perpetual transformation. The concepts of “poverty” and “the poor”¹⁵ are themselves historically inconsistent and frequently reinvented by that gaze—i.e., the outsider’s gaze, the non-poor’s gaze. Hence, the poverty to which this article refers is imagetic. I speak of images of poverty. Poverty, as we know it, was shaped and translated into existing conditions of life through a technical-analytical gaze in the register of a capitalist mode of production—in quite different terms, and with completely different social functions, than historically preceding images of poverty.¹⁶

Thus, poverty is at the same time a scientific fact and a technology that produces effects in populations and territories thus classified. In observing the concrete effects that images of poverty produce in the experience of poverty (i.e., to lives classified as “in poverty”), aesthetics comes to engage in more than sense-making and reveals itself as also being world-making.¹⁷ There are various examples that illustrate this point. When poverty is framed as a matter of individual failure, indolence, or moral degeneration, then a concrete interplay of forces disciplining people who are out of work follows. But when poverty is framed as a matter of household income, there emerge different modulations of populations found either above or below a projected poverty line. Yet, when poverty is associated with criminality, we find techniques of greater policing falling upon territories identified as “of poverty.” The conceptualization of poverty seems to always reflect divisive lines. My point is simply that the effects of framing poverty and classifying populations and territories is a re-occurring dynamic in the history of capitalism: poverty is constructed as an entity which naturalizes categorizations of people and territories. As I will discuss, the gaze mobilizes divisive senses of fear, hatred, and horror which separate the object and the subject of observation. Images (as sensorial, cognitive, affective, and imaginative compositions) produce effects as functional devices, feeding into new understandings and new interventions concerning “the poor.” They do not merely *represent* social reality; they *create* new realities. Thus, this article develops an analysis of the regimes of visibility that digital technologies seem to mobilize. I aim to situate the framework of digital inclusion of favelas as resulting from a particular mode of knowledge production and aesthetic framing, which portrays poverty as exclusion (a perspective that naturalizes segregation).

A note of caution is important here: I use the context of favelas as a concrete starting point to address theoretical gaps. But this is not an



FIGURE 2. Satellite image of Rio de Janeiro (South Zone) with Street View routes highlighted. Image produced by the author using Google Maps, August 6, 2019.

ethnographic work, and most importantly, I do not aim to diagnose the validity, the merit, or the effectiveness of digital technologies in favelas. My aim is, instead, to raise general (not local) conclusions about the aesthetics of poverty and its implications within modes of knowledge production.

1. The Appification of Favelas

There is a growing number of apps that now take favelas into account, and some are particularly relevant to the social conflicts inherent to these complex informal settlements, such as mobile applications for smart policing,¹⁸ crowdsourced crime data (Fogo Cruzado, Onde Tem Tiroteio),¹⁹ violence prediction (CrimeRadar),²⁰ reporting of police brutality (DefeZap, Nós por nós),²¹ and many others. Also, many map-based apps are now increasingly used in some favelas due to the recent expansion of digital maps that geoprocess parts of these areas, such as their streets and pathways—though many favelas still remain uncharted. For example, in 2016, Google invested in mapping a few favelas and launching an interactive platform that allows outsiders to experience a tour around a favela without ever stepping into one.²² This expansion enables, in turn, an increase of users of such applications, which further promotes the popularization of digital technologies. Figure 2 shows the extent of the Street View feature in Google Maps in the South Zone of the city of Rio, marked in blue.



FIGURE 3. Satellite image of Rio de Janeiro (Complexo do Alemão and Complexo da Maré) with Street View routes highlighted. Image produced by the author using Google Maps, August 6, 2019.

Street View clearly covers the urban grid and, in the bottom left corner, two prominent favelas marked in red—*Rocinha* and *Vidigal*—appear with disproportionate density. Interestingly, this feature advances along the main road in each area.

Similarly, figure 3 shows another area of the city, the North Zone of Rio de Janeiro, with two major groupings of many favelas: *Complexo do Alemão* in the center and, in the right, *Complexo da Maré*.

Zooming into *Complexo do Alemão*, figure 4 reveals some street names that are recognized by Google and a handful of markers of public interest establishments (mainly businesses and churches). The image also shows the diverse landscape: a maze of alleys that challenge cartographic recognition. The ethnographer Eugênia Motta explains how from a technical-analytical point of view the spatial contiguity and disorderliness can figure as a resisting factor against quantification. This serves as a challenge for both cartography and household censuses. It is because of such a challenge that favelas came to be officially defined as “subnormal agglomerates” in 1950. Motta explains how this classification situates favela as an entity and, thus, how statistical scrutiny defined that entity as a problem. This is



FIGURE 4. Satellite image of Rio de Janeiro (Complexo do Alemão), with Street View routes highlighted. Image produced by the author using Google Maps, August 6, 2019.

a crucial point to be analyzed. The “inclusive” framework derives from a longstanding view of favelas as a social problem—a problem to be fixed.²³

The “hope” of the digital inclusion framework was that digital tools would foster a gradual interruption of segregation: the breaking down of the “walls” that separate and restrain free circulation of favela dwellers and city inhabitants; the democratization of information and of communication; the empowerment of local communities to make their voices heard; and the overcoming of the historical invisibility, informality and violence which characterize favelas of Rio de Janeiro. Although there certainly are stories of success—and Google’s interactive platform indeed narrates such stories²⁴—I argue that the impacts of digital technologies are rather ambivalent and that they raise ethical implications, particularly for the gesture of visualizing poverty. In other words, while it is important to recognize that digital maps and applications provide important tools for local struggles and for individual life trajectories, the so-called “inclusiveness” can be seen to produce further complexities in the city of Rio which, in turn, suggests that digital inclusion might not be aligned with a project of social inclusion after all. One territory can be subjected to different processes of signification, and digital framings add layers of meaning to social relations and worldviews. Yet technologies themselves cannot translate the complex social and symbolic aspects that such spaces combine. There are incidents, for example, of drivers being guided into “dangerous areas” by navigation apps²⁵ which are unable to detect codes

and knowledge that locals commonly share. The technological challenge, then, becomes one of creating the appropriate tools to navigate the city and avoid the areas of risk—which will remain unchallenged—and which end up producing renewed exclusionary dynamics.²⁶

From the other standpoint, that of favela residents, the widespread social engagement engendered by the digital world remains inaccessible, or only problematically accessible, despite the growing popularization of apps. This became evident in 2016, when the world-famous augmented-reality mobile game *Pokémon GO* was launched in Brazil. As a location-based GPS mobile application, it accentuated the complex restrictions of circulation in the city of Rio. In addition, as already mentioned, favelas are often misrepresented in maps as blank spaces with few streets, and so as seemingly unpopulated areas. With a low density of landmarks and of features such as “PokéStops”²⁷ in favelas, the game produced new dimensions of socio-spatial inequalities²⁸—an issue also raised in the USA within predominantly black neighborhoods.²⁹

Another example of digital ambiguity is the case of interactions known as “smart mobs” in contexts of a “digital democracy.”³⁰ Social media mobilization seems to be often unavailable to populations in favelas. This became clear with the shooting of ten young people in Maré in the midst of the 2013 mass demonstrations throughout Brazil.³¹ These demonstrations were largely organized through social media (mainly Facebook), and although police repression was generally violent, nowhere else did the police use actual gunfire to repress the crowds. The case of Maré, a complex of sixteen favelas, reveals how police violence was particularly lethal when the crowds were comprised of favela residents.³²

Other aspects of the impact of digital technologies can be found in everyday life interactions and circulation of residents. Digital innovations can promote concrete changes in territories—such as local cartographic initiatives of naming streets and numbering houses³³—and create new territorial innovation when, for example, Uber addresses the safety concerns of drivers by creating safe pick-up points in favelas.³⁴ These experiences generate data, codifications, and quantifications which, in turn, re-create the favela as a reality—again, a statistical reality turned into a concrete reality.³⁵ More and more, records of virtual activity offer crucial tools for collecting and geo-processing information about favelas and their residents, with potentials for data production that feed the usually outdated or deficient charts of informal spaces by the very users of digital technology devices.

The growing field of digital urbanism explores how digital technologies and images can be functional and productive of urban life by

materially transforming the spatio-territorial functional uses of land. Benjamin Bratton points out that the continuing complexification of a cyber-megastructure triggers geopolitical transformations. The political divisions of space and jurisdiction are now challenged to expand from the horizontality of land to the verticality of “the Stack,” which Bratton describes as the interdependent layers of *earth, cloud, city, address, interface, and user*. Bratton argues that cloud computing, smart cities, augmented reality, robotics, artificial intelligence, and so on are part of the “accidental mega-structure” that reorganizes our political and economic structures, demonstrating new spatial and temporal models of politics. These are produced and productive technologies, which affect the very sites and populations that are geo-data-processed through them.³⁶

Elizabeth Judge and Tenille Brown have examined these material effects in the case of the damage caused by mobile gaming apps to real estate value—an interesting instance of intellectual property disturbing real property. In that case, the authors point to a renewed movement of enclosure that takes place with the advent of digital applications at the level of a virtual space.³⁷ However the contention I have set out to explore is different: it concerns the extent to which such technologies challenge traditional socioeconomic and geopolitical boundaries—as they seem to promise—and what might be the impacts of such a move. In this case, the perception of a movement of enclosure can be conceptualized as a reiteration of old segregational designs, that is, an instance of when digital maps reproduce the historical invisibilization of favelas. A virtuality with very concrete effects.

Perhaps territorial transformations can be better construed under the framework of a “digital production of space” into calculated territories. Andrés Luque-Ayala and Flávia Neves Maia frame digital mapping as “a political technique re-making territory through computational logics—operating as a calculative practice that, beyond simply representing space, is productive of the political spatiality that characterizes territory.” Digital technologies within informal urban settlements can, thus, create new territorial formations by impacting circulation, mobility, spatial regulation, and control. They can also, the authors point out, work to depoliticize the territory of urban informality and its inherent conflicts.³⁸

Literature on digital urbanism also offers critical interventions in the overall optimism regarding the “inclusiveness” of digital technologies in territories of poverty. It is important to highlight two main streams in this scholarship. Firstly, data-processing and the codification of spatial relations in everyday life is often associated with renewed modes of surveillance over populations that would thus far (allegedly) escape the grid



FIGURE 5. “Cerco_à_Rocinha” by Fernando Frasso/Agência Brasil, 4 November, 2017, licensed under Creative Commons Attribution 2.5 Generic license. Original source: <http://agenciabrasil.ebc.com.br/geral/foto/2017-09/exercito-e-aeronautica-chegam-rocinha>. Accessed 29 July, 2019.

of social control by not being accounted for in official censuses, surveys, and maps. Considering the informational and digital calculability as techniques of state power, this scholarship points towards a digital governmentality as digital urbanism operates as a mode of governing, reordering urban flows and circulations and shaping the political order.³⁹ Although this is an important critical inquiry, it seems insufficient to argue that the technological developments conceal an apparatus of power as if local populations were passive recipients of oppression. Moreover, this position tends to overlook the fact that favelas are highly policed and militarized and, thus, in no way escape social control. (Figure 5 illustrates how heavily militarized the atmosphere of a favela can be.)

Another equally prominent critique of the discourse of digital inclusion of informal settlements focuses on how the neoliberal marketization and corporatization of newly chartered areas turn spatial calculation into an instrument of capital accumulation and expansion.⁴⁰ In this sense, digital inclusion is construed as a neocolonial practice of exploring and occupying new territories through economic incorporation, that is, the operations of a calculative spatiality that prioritizes economic and financial interactions.⁴¹

The critique developed within this scholarship contends that the inclusive agenda is part of an emancipatory process, or an achievement of struggles for the right to the city, when in fact economic inclusion is prioritized over social inclusion. It is argued that digital mapping of favelas is made for outsiders and tourists, and made with an emphasis on businesses—opening the favelas to commodification. This market-oriented underlying aim would lead to processes of gentrification⁴² and end up reinforcing inequalities and the logic of evictions, not of inclusion.

Although I am also challenging the inclusive framework of digital technologies, the argument I am making is not directly aligned to either of these streams. Despite raising important points, these two recurring critiques seem to reveal a dualistic reasoning: on the one hand, they focus on state control and sovereignty (the public); on the other, they focus on market and economic interests (the private). Both streams indeed identify renewed mechanisms of domination and exploitation, and bring about useful considerations to support local resistance. However, in an age of public–private partnerships in processes of militarization and of financialization in urban centers, the separation of state control from market interest is not so sharply defined. This is a point often raised by critical scholars, for example, in contesting the general understanding of neoliberalism as a dispersed governmentality by stressing the strong connections between privatization and state violence.⁴³

At the sites where the concrete and the digital worlds meet, the transformations of everyday life dynamics are undeniable. Both the space (the favelas) and its users (residents, visitors, entrepreneurs, tourists, and others) are impacted by the growing access to digital technologies. My intention here is to illustrate how opposing effects can stem from the digital expansion into territories of poverty—both liberating and violent. In the next section, I am going to frame the use and effects of digital technologies in favelas as enabling a renewed gesture of visualizing the poor. This gesture engenders data production about populations and territories—this time by the very users of digital technology devices—and, thus, feed the usually outdated or deficient registers of informal spaces.

2. The Gaze of Fascination with the Poor and the Production of Territories of Poverty

I will turn to the reiteration of the gaze towards the poor and how digital technologies have transformed this gesture in recent years. Before I do so, though, some contextual information and clarification about favelas is

needed. For this, I draw mostly on urban studies to address how urban segregation works to instantiate this gaze historically. I will then move on to analyze the digitally renewed gaze, as it is played out in new immersive experiences into territories of poverty created by digital tools.

Described by Raquel Rolnik as “spaces of indeterminacy,” favelas have historically been constituted by the ambivalence of, on the one hand, informality, occlusion, and invisibility, and on the other, extreme surveillance, securitization, and commodification. These are also spaces of “territorial stigma” where the urban poor are contained and segregated in the urban space.⁴⁴ However, favelas are also the vibrant hubs of Rio’s popular culture.⁴⁵ Popular culture created in favelas can be appreciated “outside,” but it is usually criminalized “inside”—from samba in the early twentieth century to funk today.⁴⁶ The flow of cultural exchange frequently takes place in a fixed direction: it is possible to adopt a look of fascination “from outside,” to explore the vibrancy of favela culture, and even develop tourist activities and “safaris” in favelas⁴⁷—as long as safety measures are provided. This fascination can also be expressed in terms of hatred, fear and horror. The inside-to-outside flow of cultural exchange tends to be more problematic, as when the poor dare to occupy spaces of the rich. At the end of 2013, for example, a clash of worlds was seemingly provoked when groups of young residents of such territories of poverty visited shopping malls in wealthier areas of the city. For a few months, these experiments challenged segregation. What started off as a spontaneous gathering of friends in the city of São Paulo, though, soon transformed into a political movement in different cities, collectively organized through social media.⁴⁸ The phenomenon came to be known as *rolezinho*, and the reaction to it has been desperate and violent, from the closing of the doors of the shopping centers to the criminalization of attendees; the reaction also included episodes of police violence. *Rolezinhos* made explicit, once more, the violent segregation that was long known by the poorer segments of society.

It is important to stress that the socio-spatial segregation, although unofficial, is very much sponsored and justified by the public and private sectors, including through a series of hostile urban design models that, both symbolically and physically, build divisive walls. That is the case with the controversial acoustic barriers built along the way to Rio’s international airport which pushes *Maré* out of sight. While they are officially justified as a way to protect residents from noise pollution coming from the busy motorway, local groups have denounced it as a “wall of shame.”⁴⁹

In criticizing the general optimism regarding digital inclusion, I contest the frequently evoked “mission” of digital technologies to resolve

this historical urban segregation by promoting a conciliatory inclusion of favelas into “the city.” My claim is that the categories of exclusion and inclusion are inadequate tools of analysis in a city that is inherently constituted by socioeconomic and racial segregation. There is no exclusion to be solved when segregation is integral to the formation of Rio de Janeiro.⁵⁰ The territorial containment of the urban poor is a fundamental characteristic of the city. My critique is concerned with the obverse of the discourse of inclusion. That is, instead of validating a flow in which favelas are to be finally incorporated into the official city, I point to a movement *from* the city *towards* favelas, in other words, an external gaze directed at favelas. The proliferation of businesses exploring the tourist interest in favelas in recent years illustrates this flow.⁵¹

Digital information technologies today offer new immersive experiences into territories of poverty. The experiential immersion facilitated by the technical-analytical gaze in territories of poverty is not a recent innovation. Instead, they are a continuation of other historical shifts promoted by “poverty knowledge” expeditions. Charles Booth exemplifies one typical scientific and cartographic approach. Others, epitomized by George Orwell, sought to experience poverty as an attempt to avoid the externality of the gaze. At each new methodological innovation, the visibility of the urban poor would have been consistently impacted and reshaped: early social surveys are known to have fabricated direct connections between poverty and criminality;⁵² literary experiments created an understanding of poverty as an issue of moral sensibility.⁵³ The impact of digital technologies, establishing a new “way of seeing,” is not qualitatively different from prior modes of visualization of the urban poor; rather, it is methodologically different.

The aesthetic understanding of poverty, as a constructed category that frames populations and territories, entails an understanding of images as both produced by and productive of social life. The outsider’s gaze observes the “inside” of its object, producing a universal narrative about what is seen; eventually, the outsider acts on this narrative which it has understood to be the concrete world. The capitalist homogenization of spaces and, correspondingly, the opening of favelas to the external gaze, works to showcase banalized, sterile, flat versions.⁵⁴ In this context, the need to redesign and refashion territories of poverty is a symptom of the spectacular formation, in other words, of how poverty is condensed into images, an aesthetic object to be looked at.⁵⁵ This is not to suggest that there is a reality out there which is misconceived or misapprehended, or an essential meaning of a material life and a corresponding true world-view. My point is that this created image (irrespective of any reference to

accuracy) is functional: it fulfills the purpose of situating “the poor” as objects of sight. At the same time, the very isolation of favelas in the city, the enclosed and exclusionary logic of this isolation, is itself a spatial production inherent in the material conditions of capitalism—after all, it is not just now that those populations and territories have themselves become commodified images for the outsider’s consumption. Here is a paradox in (the aesthetic of) poverty: it is simultaneously marginal and integral.⁵⁶

While it is crucial to explore the political and economic impact of new digital images and data about favelas, it is also important to understand the broader history of “the gaze of fascination with the poor” it fits into. The data generated by these new optical devices are enacted and materialized in the concrete world with the potential to change the very idea of what a favela is, much like the development of statistics produced poverty as a quantitative reality.⁵⁷ What is relevant here is the computational, calculative logic that operates in the production of space through codes and information flows, resulting in new configurations and new ways of thinking about these territories and populations.⁵⁸ In this way, digital technologies engender new forms of perceiving and analyzing the world—indeed, new paradigms of visibility.

3. Scopic Processes and Technological Shifts of Visuality

I now return to a point raised earlier, namely that digital technologies reconstitute a scopic process through which favelas are framed by the spectator outside, establishing a regime of visibility that governs the gaze that sees poverty. By evoking issues of visibility in this discussion, I am not treating visibility as a matter of recognition or representation. Instead, I am interested initially in the realm of sensation and perception, as well as knowledge and existence more broadly. It is about *ways of seeing*, as already signaled. I argue that the visibility of poverty is selective. In a quite literal way, certain aspects of poverty (of a life in poverty) are rendered statistically invisible. Some other aspects are historically brought to the forefront, according to different choices of methods of observation, isolation of variables, and data production. The underlying argument in this final section is that digital technologies reenact the gesture of looking—the gesture of producing images of poverty—and in doing so, poverty *appears* in the world as a comprehensive social phenomenon.

How does a scopic process function? John Berger (among others⁵⁹) described how the invention of the photographic camera made apparent the

contradictions of linear perspective in earlier image techniques, in which the (individual) spectator was positioned at the center of the visible world and ascribed that which could be seen as “reality.”⁶⁰ Photography, then, changed ways of perceiving the world by transforming the rigid features of spatial and temporal orientations. With a camera and its registered images, “what you saw depended upon where you were when.”⁶¹ Similarly, the technological advent of the moving image and cinema marked a new shift in visibility and narrative that brought philosophical implications for time and space—with notions of duration, montage, animation, and so on.⁶² Currently, digital media technologies present new models of data production and data collection, and this gives rise to questions about an entirely new regime of visibility to come.⁶³ What would such a regime look like?

In addressing the geographies of cloud computing, Louise Amoore analyzes the “algorithmic modes of reason” that promote perceptions and calculations of the world through intertwined (human–machine) cognitive and sensorial faculties. In that exploration, Amoore proposes that cloud computing renders perceptible and actionable that which would otherwise be invisible to human vision. Algorithmic techniques transform cognitive and sensorial thresholds of what and who is rendered perceptible. What was earlier in this article referred to as a computational, calculative logic—and what Amoore describes as a “correlative abductive reasoning” in contrast to the modern deductive form of reasoning—is based on a search for patterns, links, associations, and inferences derived from correlated databases. Within the scopic framework used here, Amoore points to a change in the “aperture of observation,” in the sense that extraction of information from the correlation of disparate data makes available an otherwise “subvisible world.” Drawing on Peter Galison’s *Image and Logic*, Amoore proposes that cloud computing renders perceptible and actionable—through an aperture of “almost seeing”—that which would otherwise be beyond vision.⁶⁴

In an earlier work, *Data Derivatives*, Amoore explored how this new way of seeing translated into a mode of knowledge production characterized as an “ontology of association.” Unlike modern, disciplinary modes of knowledge based on *causality*, the contemporary pre-emptive security practices based on machine learning techniques inaugurate new methods of *correlation* of fragmented data, rather than personal or biographical data *collection*. Instead of the counting and profiling techniques used in twentieth-century social surveys (based on classifications and curves of normality), digital technologies put in place a new mode of data abstraction for “encoding population” that supersedes the photographic spatial

and temporal location, and becomes projection onto uncertain futures.⁶⁵ The preemptive feature of the data-derivative model instantiates new orientations of temporality as it frames populations “yet to come.” Cloud computing prompts dynamic “archives of the future” and enables action in the present,⁶⁶ or what Agnieszka Leszczynski called “material-discursive projects of future-ing” of cities to come.⁶⁷

A similar logic is found in digital cartography where, unlike in a typical map and census, sites and residents are not just counted and registered but the data produced are records of their own virtual activity—for example, navigation, check-in, saved places, and events in public spaces. In a context of indifference to singularity, the fragmented, disaggregated subject is then brought into being with an extra-limited capability of administering its “ways of being seen.” Drawing on Isabelle Stengers’s *Cosmopolitics*, Amoore situates cloud computing in a “paradigm of experimentation” which brings things into being beyond the previous “paradigm of observation” by constructing something that exceeds human knowledge: “it is precisely in the subvisible experimentation that a person or thing of interest is brought to the surface of perception for action.”⁶⁸

This is part of what digital platforms can provide with the purported digital inclusion of favelas. For better or worse, new ways of generating information could make perceptible currently invisible dynamics. When I claim that digital technologies are potentially transforming the visibility of favelas, it is not merely about altering territories, as is the general consensus of the literature explored in this article. Rather, the transformation is also part of a change in the ways of seeing and perceiving social phenomena, and in this context, the question of poverty. In considering the links between visibility and conceptualizations of poverty I am not speculating on what is to come; instead, I am highlighting the relativity of the concept of poverty according to different regimes of visibility. Indeed, what I am speculating about is the materiality of poverty as we know it: a capitalistic poverty.

Finally, I now return to the technical-analytical gaze that sees poverty and makes it visible. For this, I turn to a discussion that I see as particularly relevant in interrogating the effects of digital technologies into poverty as an aesthetic category. In his *Visualisation and Cognition*, Bruno Latour develops an ethnography of inscription in scientific practices, according to which objects are translated into two-dimensional inscriptions (maps, photographs, records, surveys, censuses, files, etc.) that are mobile, immutable, and flat, while at the same time made reproducible, recombinable, and superimposable. This is possible due to the optical consistency secured by the linear perspective. His argument is that the “trend

toward simpler and simpler inscriptions that mobilize larger and larger numbers of events in one spot” is part of the agonistic model of visual construction and of knowledge production—which articulates visual effects to accumulate allies (confirming a position as a matter of fact) and defeat dissenters. Stacks of digital data (concerning virtual activity, for example) are larger in scale and can be construed as working to mobilize and muster new resources, especially in the case of phenomena which are invisible to the naked eye. Mobilization and inscription, then, precede the perception of a phenomenon. Like “economy” and “market”—exemplified by Latour—I am suggesting that “poverty” is a visual construction. It is framed as a thing in the world after a process of inscriptions that collects and sums up “a few indicators out of many traces” about foreign places and times. As such, I am also situating digital technologies as one such optical device that innovates by accelerating the production of cascaded inscriptions, by producing both “a new type of vision and a new phenomenon to look at.” I have indicated in the previous sections how digital technologies register daily life and allow external spectators to know a favela without having to set foot in one. My point is that that formation is a reiteration of a visual gesture that not only sees poverty but also makes poverty visible in its own terms.⁶⁹

Hito Steyerl describes modernity’s paradigm of visibility as characterized by a linear perspective where a virtual, conventional, abstract horizon aligns every possible perception of time and space. The modern subject emerges under this regime of perception as a centrally positioned observer and, with what Steyerl calls its “objectivist attitude” that establishes a “universal claim for representation,” creates the *Other* as the observed object.⁷⁰ With the progressive shift to verticality—where views from above exacerbate the distance between subject and object—the new displaced, disembodied, and orbiting gaze is potentially multifocal. The viewer would no longer be unified as a subject but is rather a “multiple spectator.”⁷¹ However, this pluralization does not immediately turn everyone into a producer of images and narratives (giving a voice to the historically silenced *Other* as the digital inclusion proponents seem to hope for). The platform and its interfaces of everyday life construct *users*, and as Benjamin Bratton suggests, the users’ self-quantifications turn them into a composite image in a contradictory position of “over-individualization” and displaced “pluralization.” The assemblages that result in the “afterimage of the resolved *User*”⁷² are both an active entity and an outcome of the very structures they produced.

Latour’s work is useful because it rejects the question concerning the relationship between cognitive abilities and social structures. He rejects

the social/cognitive divide which assumes that society is separate from its science, images and information.⁷³ Although the idea of poverty and the materiality of poverty in the world are here recognized as part and parcel of the same machinery, namely, a network of reciprocal influences, this article is an attempt to distinguish the notions and imageries of poverty from the concreteness of a life classified as (seen as) in poverty. It is a conceptual differentiation, the purpose of which is to illuminate the interplay of both. The gesture of seeing (or knowing) has concrete effects on the very thing that is being seen and made visible. This is not to say that poverty is immaterial, purely an idea, or a mental representation. Scarcity and material deprivation are concrete, existing realities affecting lives, population and territories. But poverty as such only exists as an entity to be examined and looked at after it is made visible (with data). What turns those realities into the intelligible form of “poverty” is a series of visual practices (today mostly based on socioeconomic criteria of classification but increasingly mobilized by digitally captured data that exceeds the socioeconomic imagery of poverty⁷⁴). The reiterated gaze towards poverty, these practices and criteria, make poverty—a particular form of poverty—visible.

Visual practices shape “territories of poverty” and “populations in poverty.” These practices promote a continual objectification of poverty, and perpetuate an intrinsic ambiguity between the constructed insides and outsides of society, the included and the excluded, the central and the marginal. Hence, rendering poverty visible (by a selective frame that separates subjects and objects) works to (re)produce capitalistic poverty. This is, in part, what Luque-Ayala and Maia describe as a reproduction of colonial narratives in Google’s immersion in favelas, where “in wanting to erase differences, the favela is produced as homogeneous and coherent, which works to reify the very walls that the digital map is claiming to break down.”⁷⁵

4. Conclusions

From the concrete case of the so-called digital inclusion of favelas in Rio, this article proposed an analysis through which to consider the effects of visibility, the shifting regimes of visibility, and its relation to how poverty is conceptualized. I have argued that digital technologies today offer new immersive experiences into territories of poverty, and enable the reproduction, or renewal, of the gaze of fascination with the poor that seems to be a constant under capitalism. Digital technologies were construed as new tools of data collection about the geo-spatial fabric of poverty, producing

renewed ways of seeing poverty in the urban space and affecting the very thing that is being seen. New knowledges about poverty can potentially be extracted with digital optical devices, where the users of technologies are both the object and the subject of data production. Yet recognizing a line of continuity in the external gaze is crucial to understanding the configurations of poverty today. The technologies provide new means of looking, but the visual gesture is uninterrupted. As a result, the objectification of poverty was here identified as a process of continual reenactment, despite the celebrations around a so-called digital inclusion—which would seem to emancipate the poor from the gaze by turning them into subjects of their own imaging practices.

An image is itself a technology that produces concrete effects. It is in this sense that I claim that poverty knowledge (sense-making) is part of poverty production (world-making). Examining the contemporary idea of poverty as an aesthetic category that arbitrates territories and populations calls for an interrogation of the optical devices and scopic processes that shape it. It also requires questioning the functionality of conceptual frameworks that allow us to see—and respond to—poverty as a phenomenon to be tackled and an exclusion to be included, but which mask the foundational role of poverty to capitalist society. The actual effects of the digital abstraction of territories, of informal settlements, and of poor populations remains to be seen. For the time being, we continue on with business as usual.

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