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To cite this article: Avi Marciano (2019) The Politics of Biometric Standards: The Case of Israel Biometric Project, *Science as Culture*, 28:1, 98-119, DOI: [10.1080/09505431.2018.1556628](https://doi.org/10.1080/09505431.2018.1556628)

To link to this article: <https://doi.org/10.1080/09505431.2018.1556628>



Published online: 12 Dec 2018.



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The Politics of Biometric Standards: The Case of Israel Biometric Project

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ABSTRACT

In 2017, after years of public debate, Israel ratified a national biometric project consisting of two initiatives: issuing of biometric ID cards and passports to all Israeli citizens and establishment of a centralized database for storing their bodily information. Design and implementation of a preceding four-year pilot study were accompanied by extensive standardization. Discourse and standard analyses of 33 official state documents – from legal records to performance reports – published by Israeli authorities during the pilot study, unravel the politics of biometric standards employed as part of this project. Biometric standards were used to establish hierarchies between individuals and groups by defining particular bodies as ‘biometrically ineligible.’ These individuals are mostly members of underprivileged and marginalized social groups. Biometric standards were also constructed discursively as scientific and objective to legitimize such discriminatory treatment. Israeli authorities used standards strategically, both as infrastructural elements and as a discursive means. As infrastructural elements, biometric standards were employed, *inter alia*, to achieve predetermined results and confirm the project’s success. As a discursive means, Israeli authorities actively adopted a ‘discourse of standardization’ to construct an objective and fair image to the project. Standardization of people – namely, quantification of lives, bodies and experiences – is inherently discriminatory because it necessarily results in the creation of categories and hierarchies between biometrically in/eligible bodies.

KEYWORDS

Infrastructure;
standardization; biometrics;
discrimination; surveillance;
classification

Introduction

On 7 September 2009, the Israeli Parliament approved a law sanctioning the Israel Biometric Project (IBP), which combines two distinct initiatives: The issuing of biometric ID cards and passports to all Israeli citizens, and the establishment of a mandatory biometric database for storing their bodily information. Three and a half years later, Israel launched a preliminary experiment (‘the pilot

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study') to evaluate and assess the project's feasibility and necessity, in which participation was voluntary.

Since the inception of the project, public debates have proliferated over the plan to establish a centralized biometric database. Social activists, intellectuals, cryptography experts, politicians, and journalists have weighed in on the plan, many of them warning of the formation of intrusive surveillance policies that may violate citizens' privacy. Such a step, they claimed, signifies a critical phase in the development of Israel as a surveillance society (Lebovic and Pinchuk, 2010; Marciano, 2016). Public controversy over the project, paired with technical and administrative challenges that emerged during the pilot study, led two consecutive Ministers of the Interior to extend it for additional periods of a year and a half each time, until the end of 2016. In March 2017, the Minister of the Interior ratified the establishment of a mandatory biometric database of face templates, leaving fingerprints voluntary.

This study examines the politics of biometric standards underlying the IBP, with particular attention to their discriminatory implications for underprivileged groups. Drawing on Infrastructure Studies and engaging with a rich research tradition addressing the politics of standardization in various contexts (Bowker and Star, 1999; Brunsson and Jacobsson, 2000; Bingen and Busch, 2006; Lampland and Star, 2009; Busch, 2011), I ask: What makes biometric standards political? What are the practical and symbolic consequences of such politics? And how are these consequences legitimized? To answer these questions, I first demonstrate how biometric standards are used to discriminate specific social groups by defining their bodies as 'biometrically ineligible' and in fact – physically inferior. Second, I trace the discursive construction of these standards as scientific and objective.

This paper addresses a particular type of biometric discrimination that originates in and defines bodily incompetence associated with such 'physical irregularities' as skin tone (race) and skin condition (class, age, health). This type of discrimination is only one manifestation of Israel's broader surveillance politics, which is complex, multifaceted, and consequently beyond the scope of this paper. While Israel's surveillance policy and practices have been discussed in the context of Palestine, with particular attention to discrimination, control, and oppression (Zureik, 2001; Zureik *et al.*, 2011), social scientists have given relatively little attention to Israel's surveillance in general (notable exceptions are Tene, 2013; Marciano, 2016, 2018).

The potential contribution of this study grows out from the intersection of infrastructure studies and surveillance studies. While surveillance scholars have previously discussed the discriminatory effect of biometric failures (Nanavati *et al.*, 2002; Magnet, 2011; Rao, 2013; Martin and Donovan, 2015), this study addresses it through the lens of standardization. This perspective helps illuminate the construction of elements as scientific and objective, suggesting that complex and boring infrastructural components such as numbers, tables, and

charts might be more political than they seem. Similarly, while science and technology (STS) scholars have examined standardization in relation to different technologies – from informational to medical to educational (Tutton, 2009; Bandyopadhyay and Sen, 2011; Lee, 2011) – biometrics remained largely untouched in this context,¹ although they introduce unique ethical challenges concerning the quantification of lives (van Der Ploeg, 2003; Muller, 2004). The politics of standardized discrimination, as reflected in current uses of biometrics, are therefore an intriguing point where these fields intersect, demonstrating the negotiation between science and culture.

The paper does not imply that standardization is inherently bad, or that bureaucracies should avoid categories and classifications. Rather, it seeks to disclose and discuss the politics of biometric standards by focusing attention on glitches and their potential consequences. To use Mol's words, 'the point of asking what is being counted is not to argue that counting is doomed to do injustice to the complexity of life' [...] but 'to discover how and in what ways' (Mol, 2002, p. 235).

The paper consists of four major sections. The Theoretical Framework integrates various definitions and features of standards to stress the inherently political nature of standardization, stipulating five types of standards central to the present analysis. The second part details research Methodology, including the corpus for analysis and the analytical procedures employed (standard and discourse analyses). The third and principal section, Analysis and Discussion, revisits the politics of standardization as presented in the introduction by delineating the ways in which biometric standards define underprivileged groups as biometrically ineligible, drawing attention to the concrete effect of such definition, and by examining the discursive construction of biometric ineligibility. The last section summarizes the paper, discusses its main limitation and offers a complementary direction for future studies.

Theoretical Framework

Standards: Definitions, Characteristics and Politics

Over the past three decades, a large body of research addressing the encounter between people and standards has emerged, as modern life increasingly relies on diverse types of standards (Timmermans and Epstein, 2010; Busch, 2011). The growing popularity of this scholarly trend has yielded various definitions. Some scholars define standards as agreed-upon rules for the production of objects (Bowker and Star, 2000), while others describe them as a means to order people and things (Brunsson and Jacobsson, 2000), judge them (Busch and Bingen, 2006), or promote equalization among them (i.e. constructing uniformities) (Timmermans and Epstein, 2010). This study suggests that standardization of people in particular, as implicated in efforts to define, quantify, and sort individuals and groups, necessarily results in excluding hierarchies.

A review of the literature suggests at least four distinct yet interrelated points regarding the politics of standards. First, they exhibit constant tension, as they are ubiquitous yet invisible (Slaton and Abbate, 2001). In other words, although standards have a profound influence on our daily lives because of their omnipresence, they have become a reality that we take for granted, a natural ‘part of the technical, political, social, economic, and ethical infrastructure that constitutes human societies’ (Busch, 2011, p. 13). This ‘trivialization of standards’ has a concrete result: They have become boring black boxes embedded in daunting infrastructures, consequently escaping consistent academic attention (Star and Lampland, 2009), at least until recently.

Second, standards embody social, political, and economic power relations (Busch and Bingen, 2006). Power, in this context, is the privilege to set rules that others have to follow, or to limit the range of possibilities from which they can choose (Busch, 2011). However, unlike traditional power exercised by sovereigns, the power of standards is anonymous: Even if we do know who sets and enforces standards, they ultimately ‘take on a life of their own that extends beyond the authorities’ (p. 29). Following Busch (2011), I use Porter’s approach of ‘mechanical objectivity,’ which refers to the use of numerical procedures to reduce human judgment (Porter, 1995). The former claims that ‘such mechanical objectivity is manifested in standards when they are designed to be quantitatively precise, thereby limiting the discretion of those who use them and making them [...] apparently unaffected by personal bias’ (Busch, 2011, p. 69).

Third, in keeping with the previous remarks, when applied as a means of social regulation, standards and standardization allow for a gentler form of control that can replace traditional manifestations of overt power (Yates, 1989; Brunsson and Jacobsson, 2000).

Fourth, standards are inherently linked with discrimination. As a staple of all classification systems (Bowker and Star, 2000), they prevent unlimited diversity, ultimately resulting in the exclusion of people and things. Star and Lampland (2009) point out that silencing ‘others’ is a moral choice rather than a given outcome of standards use.

These four points correspond with the concept of black box – a mysteriously operating technical system that remains unexplored as long as it works properly and meets operators’ expectations (Pasquale, 2015). Several scholars use the term as a verb – blackboxing (Pinch, 1986; Latour, 1999) – to refer to ‘the way scientific and technical work is made invisible by its own success’ (Latour, 1999, p. 34). Linking the above points with the concept of black box, the present analysis will demonstrate the politics of biometric standards by pointing out the ways in which their invisibility and trivialization – i.e. their blackboxing – allow for and mask gentler forms of power such as establishing ‘objective’ hierarchies that legitimize discrimination (see also Howe *et al.*, 2016).

Types of (Biometric) Standards

In this paper, I use the term ‘biometric standards’ in its broadest sense, to refer to the different types of standards that Israeli authorities adopted as part of the IBP to allow and support biometric surveillance. To that end, I rely on two main typologies suggested in the last decade, using five out of eight types of standards: Design, performance, procedural (Timmermans and Epstein, 2010), filters, and ranks (Busch, 2011). These standards, as I demonstrate below, have a significant presence in the documents analyzed in this paper.

Design standards detail specific components of social and/or technical systems to ensure their uniformity and mutual compatibility. For example, ‘the Protocol for Biometric System Experimentation during the Pilot Phase’ (D 28 in Document list) obligates the Israel Biometric Database Management Authority (IBDMA) to follow the standards set by the International Organization for Standardization (ISO) in order to produce fingerprint templates (ISO-19794-2) and biometric facial images (ISO-19794-5). It also requires the IBDMA to evaluate template quality using ISO-19794-4 or NFIQ – the standards set by the National Institution for Standards and Technology (NIST) of the United States.

Performance standards determine outcome specifications. For example, the IBDMA has defined the acceptable percentage of failure-to-enroll (FTE) cases according to which it will assess the pilot study’s success. Similarly, the protocol sets a goal of high quality biometric information acquisition from 90% of registrants within no more than ten minutes and in no more than three attempts. Other performance standards detail the desired outcome for identity authentication – no more than one false acceptance and one false rejection for every 10,000 and 100 registrations, respectively.

Procedural standards delineate appropriate ways to perform processes, specifying the steps necessary to meet particular conditions. Following this definition, some of the working documents that the IBDMA published during the pilot study (e.g. Biometric System Compatibility Testing) essentially function as procedural standards. Four documents are particularly salient in this regard. ‘The Law for the Inclusion of Biometric Means of Identification in ID Documents and Database—2009’ specifies three goals: ‘Setting arrangements for identification and verification,’ ‘setting authorized uses of the biometric database,’ and ‘setting arrangements necessary to protect privacy’ (D 3, p. 256). Similarly, ‘the Regulations for the Inclusion of Biometric Means of Identification in ID Documents and Database—2011’ detail the Minister of the Interior’s guidelines regarding implementation of the project, and the IBDMA’s activity in particular. For example, according to these guidelines, ‘photographing faces should follow [...] the principles set by the International Civil Aviation Organization (ICAO)’ (D 4, P. 1283). A third document, ‘the Order for the Inclusion of Biometric Means of Identification within ID Documents and Database—2011,’ provides

a ‘detailed list of tests to be taken during the pilot study,’ as well as quantitative criteria to evaluate it (D 9, p. 12).

Like these documents, the protocol mentioned earlier is defined as a ‘comprehensive document specifying the tests and examinations to be performed during the pilot study’ (D 9, p. 12). Following Timmermans and Epstein’s (2010) typology, these four documents are procedural standards in their own right, as they list arrangements, guidelines, tests and criteria for the implementation and evaluation of the pilot study.

Filters are dichotomous criteria, usually numbers, that some people or things meet while others do not. For example, the IBDMA has decided to allow no more than six attempts for the scan of every fingerprint and face. This threshold functions as a filter that determines (un)successful enrollment.

Ranks are hierarchical criteria that organize people or things from the lowest to the highest. For example, during registration, the biometric system rates every fingerprint by its ‘biometric quality’ on a scale of 1–5. While filters forthrightly determine ineligibility, ranks produce hierarchies that might justify indirect exclusion.

In many cases, one simple guideline may incorporate different types of standards. For example, according to the regulations document, ‘in case a facial image fails to meet the aforementioned required quality after reaching the maximum number of attempts, an official will choose the best-quality image’ (D 4, p. 1283–4). In other words, the facial images should meet a design standard (ISO-19794-5), while a performance standard sets the desired outcome in terms of maximum number of attempts. This guideline is in itself a procedural standard because it delineates the steps to be performed when a registrant does not meet these standards.

Methodology

The corpus for analysis consists of 33 official state documents concerning the IBP. Selection of these documents was guided by two criteria: Publication by an official state authority, and detailing of biometric standards, thereby playing a role in standardization of the project.

Documentary Sources

During the pilot study (August 2014 – March 2015), the IBDMA published a series of three documents entitled *The Need for a Database* (D 15–17). As this title implies, these documents affirmed the need for a biometric database before the end of the experiment that was conducted precisely for this purpose. These documents thus support claims about the deceptive role of the pilot study as a mere performance for public consumption (see also Pinch, 1993). The conclusions of the Israel Digital Rights Movement’s report are further supported by the State

Comptroller, who raised concerns about ‘manipulating the results’ (D 33, p. 16) and by Attorney Avner Pinchuk of the Association for Civil Rights in Israel, who argued that ‘every examination is subject to manipulation, especially when it is conducted by the same authority that runs the pilot study,’ asking: ‘Have you ever seen a failed pilot study?’ (Pinchuk, 2012).

Here ‘D x’ refers to Document No. x. Every quote will be followed by parentheses with the number of the document, as listed in [Appendix 1](#), and the number of the relevant page. A detailed list of these documents, including titles and dates of publication, is available in [Appendix 1](#). All documents are in Hebrew and are available online.

I classify these documents into eight categories: (1) Law related documents – from bills to court records; (2) IBDMA semiannual performance reports, that assess the project’s feasibility; (3) Israel Central Bureau of Statistics’ semiannual reports, intended to provide impartial statistical evaluation of the project; (4) the IBDMA series of documents entitled ‘The Need for a Database;’ (5) Israel Population and Immigration Authority leaflets addressed to the public; (6) tenders published by the Ministry of the Interior for the purchase of technical systems; (7) documents relating to the petition opposing the project submitted to Israel’s High Court of Justice by social movements and individuals in 2012; (8) other documents. These documents were analyzed using two complementary methods: Standard and discourse analyses.

Standard Analysis

Social analyses of standards pay close attention to infrastructure (Edwards *et al.*, 2009; Bowker *et al.*, 2010; Howe *et al.*, 2016), defined as something that other things ‘run on’ (Star and Lampland, 2009), from material equipment necessary to human activities to more abstract elements that enable knowledge work, such as memory (Bowker *et al.*, 2010). As a backstage substrate to the work of other elements, infrastructure is typically invisible, taken for granted (Shapin, 1989), and commonly buried in boring and technical representations (Hanseth and Monteiro, 1997). Its politics, therefore, is rarely explicit.

To unravel the politics of the IBP’s infrastructure, I employed two complementary strategies: Bowker’s (1994) ‘infrastructural inversion’ and Star’s (1999) ‘observation during breakdowns.’ The first aims to bring infrastructure and its inner workings to the fore (See also Hanseth *et al.*, 1996). Practically, it means deconstructing backstage elements to restore the narratives of standards, including tracing their historical development, illuminating the choices made throughout their employment, and assessing their political consequences. In this study I asked why specific standards were chosen over others, by whom, and with what consequences. The second strategy – ‘observation during breakdowns’ – assumes that the normally invisible nature of working infrastructure becomes visible when it breaks. The present analysis therefore focuses primarily

on technological failures in which the biometric system fails to enroll specific individuals. Paying close attention to these malfunctions illuminates the role of standards in such failures and their impact on specific social groups.

Discourse Analysis

Discourse analysis is the study of language in use (Gee, 2011b), consisting of various techniques for making connections between texts and their meanings in different contexts (Lemke, 2012). More specifically, it sees language as a functional means that people and institutions use to explain, rationalize, and construct ideas and actions (Potter and Wetherell, 1987). Accordingly, researchers should pay close attention to the functional use of different textual units and to the selection of specific versions over others to understand how discourses operate in a given context.

Gee (2011b) suggests addressing language as a combination of three components – saying, doing, and being – and asking not only how it allows people and institutions to inform each other, but also how it allows them to do things and be things (i.e. construct identities). To examine the discursive choices made by Israeli authorities as part of constructing biometric standards as scientific and objective, I employ several of Gee’s 27 tools (for a detailed list, see Gee, 2011a, p. 195).

The combination of these methods allowed me to examine two distinct yet complementary domains of standards and their politics: Actual and textual. The first refers to real-world discrimination, demonstrating how the employment of specific biometric standards discriminates against certain individuals and groups by defining them as biometrically ineligible, while the second addresses discursive construction that aims at legitimizing discriminatory treatment by framing standards and standardization as technical and objective. The policy documents analyzed in this study cover both domains, as they include infrastructural elements (e.g. numbers, percentiles, and criteria) that explicitly define bodily ineligibility, as well as textual rationalization that functions as a discursive strategy.

Analysis and Discussion

The third chapter of the protocol begins with technical terminology. It defines ‘score’ as ‘the numerical value produced by a comparison [of two biometric samples], reflecting the probability of accordance’ (D 28, p. 10). Unlike this technical description, the definition for ‘threshold’ demonstrates the politics of scores and grades more explicitly:

A number allowing the ascription of a score to one of two domains – identification or rejection. A number lower than the threshold shall result in a rejection (identity not confirmed). Otherwise, there will be a match (identity confirmed). Ideally, the

threshold will strictly separate the authorized from the unauthorized. *Practically*, an overlap between these groups is possible (and highly probable), wherein eligible registrants' identities will be rejected and those of impostors confirmed (D 28, p. 11, emphases mine).

Scores and grades are important elements of standardization, both because they function as categories used to implement standards and because they are fundamentally political in terms of their capacity to 'distribute wealth, income, prestige, power and status among actors implicated in the standards' (Busch and Bingen, 2006, p. 18).

The above quote does more than demonstrate how numbers determine biometric in/eligibility. It introduces two main points that constitute the leitmotifs of this paper. First, it forthrightly stipulates the meaning of using a filter type of standard in terms of the creation of two separate social realms, thus contextualizing an alleged technical process within a socio-political framework. In other words, it elucidates that the score is not simply a number reflecting a technical relationship between individuals and their biometric representations, but rather a political enactment of either acceptance/inclusion or rejection/exclusion. Furthermore, the juxtaposition of these two definitions demonstrates the elusive politics of standards: While the score produced by the comparison is originally a consecutive number, in the protocol it takes the form of a dichotomous threshold intended to differentiate between, or produce, two distinct groups. This transition from a rank to a filter – indeed, from a continuum that allows hierarchy to a binary that legitimizes utter exclusion – remains unexplained.

The second point refers to the disparity between the ideal (complete separation between the domains) and the practical (inevitable overlap between them). This disparity implies that the encounter between people and standards is too complicated and dynamic to be regulated. Such complexity eliminates the possibility of hermetic separation between the domains, challenging the power of biometric standards.

The analysis consists of four parts. The first introduces residuality as an infrastructural component and discusses symbolic and practical sides of biometric ineligibility. In the second part I show how biometric ineligibility – a purely political manifestation – is discursively constructed as scientific and objective, and how individuals' bodies are similarly constructed as the source of their failure. The third part focuses on a particular infrastructural component ('supervisor confirmation') to illustrate how standardization translates into real-world discrimination that goes beyond infrastructure. Finally, I show how Israeli authorities have knowingly and strategically adopted a 'discourse of standardization.'

From Symbolic Exclusion to Bodily In/eligibility

Tables 1, 2, and 3, like many other tables in the documents, are part of the IBP's infrastructure. They summarize some of the pilot study's outcomes,

Table 1. Authentication by interview. Reasons for granting exemption vs. granting confirmation despite failure (IBDMA semiannual performance report no. 1, D. 6, p. 32).

Reason	No. of cases
Correct yet inaccurate answers	32,089
Exemption by law	0
Identified and authenticated by other documents	1769
Other	475

Table 2. Types of registration. (IBDMA semiannual performance report no. 1, D. 6, p. 34).

Type	Percentage
Full registration (facial image and two index fingers)	97.53
Partial registration (facial image and other fingers)	2.38
Failed registration (no fingers)	0.09

Table 3. Quality of biometric fingerprints. (IBDMA semiannual performance report no. 3, D. 8, p. 12).

Quality of fingerprints	Value	Percentage
No. of fingerprints scored 1 (very high)	107,114	34
No. of fingerprints scored 2 (high)	210,590	66
No. of fingerprints scored 3 (moderate)	57	0
No. of fingerprints scored 4 (poor)	113	0
No. of fingerprints scored 5 (very poor)	244	0

encapsulating a dynamic experiment with numbers that intend to represent people's success/failure to meet biometric standards. The lowest numbers, in the bottommost cells of these tables – 475, 0.09%, and 0% – narrate complicated stories of discrimination, exclusion, and marginality.

These cells and their content function as residual categories (Parsons, 1949; Star and Bowker, 2007), that can be defined by two levels of residuality. The first level refers to uncategorized items, those that are left over after a classification is set and therefore cannot be formally represented within a given classification system (Star and Bowker, 2007). Such residuality usually appears as 'none of the above,' 'not otherwise specified,' or simply 'other,' as shown in Table 1. The second level of residuality, which is the focus of this paper, refers to those deemed ineligible – people who do not meet the standards and are consequently ascribed to a category that was established only to designate incompetence and marginality.

While the first type of residuality results in the grouping of outliers who do not fit any classification, the second yields a specific classification of ineligibility. These types of residuality are essentially and visually similar in the sense that both appear as peripheral, seemingly negligible data that invites disregard. Practically, residual categories serve as an elegant means for handling 'challenging cases,' as they are created for objects and people who are 'too complicated to describe' or 'too disorganized to present anything the classification system can

handle' (Star and Bowker, 2007, p. 274). These 'challenging cases,' as this study shows, consist of individuals who fail to meet biometric standards primarily because of their age, disability, or skin tone.

Table 2 classifies total entries during the second stage of the pilot study (the first half of 2014) in terms of the registrants' compliance with biometric standards. The data indicate that 97.5% of the entries were full (consisting of a facial image and two fingerprints) while only a small remainder (less than 2.5%) were partial or failed registrations. This negligible number appears almost irrelevant compared to the impressive majority, yet it represents 5,000 individuals who met the standards only partly. The lowest number in the table – 0.09% – represents 183 people who completely failed the test because none of their ten fingerprints met the standards adopted by the IBP; these 183 registrants were thus defined as biometrically ineligible.

Pugliese (2005) reflects on the symbolic meaning of biometric ineligibility, arguing that in the age of ubiquitous biometrics, the inability to produce a biometric template 'is equivalent to having no legal ontology, to being a non-being.' Those who fail to enroll, according to Pugliese, are 'equivalent to subjects who cannot be represented and whose presence can only be inferred by the very failure to be represented' (p. 14). In these terms, the standard that defines registrations as full, partial or failed, excludes and deletes 'failed' individuals by depriving them of biometric representation.

But these biometrically ineligible are deleted in more than one way. Table 3 displays the distribution of registered fingerprints by their rank on a 1–5 scale, using two different standards. The first (biometric) standard defines 414 fingerprints as being of moderate, poor or very poor quality, thus labeling them as insufficient or ineligible. The second standard has to do with the convention of data presentation. Table 3, unlike the previous one, has two numerical columns – one for absolute value and one for percentage. Together, these columns define 414 cases as zero percent. This standardized data presentation pattern legitimizes the nullification of 414 cases, which in the real world are never zero. The combination of these two standards – one defining ineligibility and the other nullifying the ineligible and removing them from the documentation – appears natural and can hardly be suspected as exclusionary. Nevertheless, such nullification conforms with Pugliese's interpretation regarding the symbolic deprivation of legal ontology.

The shift from symbolism to concrete in/eligibility is reflected in the second chapter of the law, which defines 'low-quality facial image' as an output that allows visual identification of a person but cannot be used to produce useful biometric data to enable computerized or semi-computerized identification or authentication (D 3). In other words, a low-quality facial image is a biometric product that does not meet the standards and is therefore ineffective. Who are the people behind these low-quality products, and what makes their bodies ineffective? Who are the individuals ending up at the bottom of the biometric

hierarchy, such as the 5,000 registrants or the 183 whose bodies are classified in Tables 2 and 3, respectively, as ‘inferior’?

The first IBDMA semiannual report details the causes for failed fingerprint scans, revealing the identities of those defined as ‘exceptions’:

8.3.3.1. Wounds, burns, and mutilations: Defects caused by wounds and burns, or a complete lack of fingerprint due to hand or finger mutilation; 8.3.3.2. Worn fingerprints, especially of the elderly or diabetics who undergo regular pricking; 8.3.3.3. Dermatoses: Severe inflammatory skin diseases; 8.3.3.4. Disabilities: Physical handicaps, such as shaky hands or paralysis; 8.3.3.5. Oncological treatment: Certain chemotherapeutic medications might reduce the quality of fingerprints and even eliminate them temporarily on rare occasions; 8.3.3.6. Laborers: Certain types of manual labor might harm the skin and fingerprints (D 6, p. 36).

According to these criteria, those who fail to meet the biometric standards adopted for the IBP are mostly the elderly, the disabled, laborers, and people who suffer from illnesses such as cancer, diabetes and the like. This classification is neither arbitrary nor incidental; the next three examples demonstrate how it is constructed in the documents as a technical and objective outcome related to external circumstances, and unaffected by human judgment.

The Discursive Construction of Biometric Ineligibility

The protocol details the procedures to be performed during registration, determining that ‘every biometric feature will be scanned up to six times, *under the same conditions*, in order to attain high quality data; should it fail, an *exceptions procedure* will be executed’ (D 28, p. 55, emphases mine).

The reference to ‘the same conditions’ under which different bodies are captured corresponds with Timmermans and Epstein’s (2010) definition of standards as a means of promoting equalization across various social aspects, aiming at emphasizing the objective, almost scientific nature of the registration process. Ironically, in this case, ‘the same conditions’ are the very reason for failure. As the lighting of facial recognition cameras is usually calibrated according to the characteristics of the majority, it inadequately illuminates dark-skinned individuals, resulting in a vague, nondescript image (Nanavati *et al.*, 2002). Even the text that accompanies one of the exemplary photos determines that ‘improper calibration of the camera resulted in darkened photos that lack distinctive details’ (D 6, p. 40). In this context, Pugliese (2010) points out ‘the constitutive role of whiteness as an infrastructural racialized gauge that sets the operating parameters of these image acquisition technologies’ (p. 60), claiming that some biometric technologies are simply calibrated to whiteness. The reference to ‘the same conditions’ therefore implies that some people fail to enroll in spite of the institution of equal circumstances, but at the same time ignores the manner in which such equalization counteracts the unique conditions required for minorities to meet eligibility.

The first semiannual report lists four principal causes for failed face scans, one of which addresses ‘lighting problems,’ determining that ‘one of the criteria is a homogenous distribution of light on the photo. In certain cases [...] or due to *strong environmental effects*, it is difficult to achieve a homogenous distribution, thus requiring a supervisor’s confirmation’ (D 6, p. 35, emphasis mine).

None of the documents explains what kind of ‘strong environmental effects’ can cause lighting problems within a roofed station. In fact, the professional literature on biometrics rejects this explanation, suggesting that ‘environmental effects’ are only relevant for facial photographs taken outdoors, under natural light conditions (e.g. field photography of trespassers at national terrestrial borders) (see footnote 37 in Petermann *et al.*, 2006). Alternatively, it is suggested that failure-to-enroll (FTE) situations – in which facial recognition cameras often fail to produce biometric templates for dark-skinned individuals – are a more reasonable explanation (Nanavati *et al.*, 2002; Pugliese, 2005; Magnet, 2011). As noted above, such failure has to do with biometric cameras that are calibrated to capture white people, resulting in heterogeneous lighting of dark-skinned people that in turn produces vague images. The first semi-annual report provides implicit evidence for this explanation, as paragraph 8.6.3.1 (entitled ‘flawed facial image’) presents a photo of a dark-skinned individual under the text ‘example of an excessively dark photo’ (D 6, p. 40; see [Figure 1](#)).

In this case, the employment of particular biometric standards results in a failed registration of minorities because of their racial characteristics, yet the documents explain this failure in terms of ‘environmental effects.’ In other words, discrimination and ineligibility – political manifestations of standardization though they be – are constructed as technical results of external circumstances. Reliance on external circumstances, as opposed to human decision making, reinforces the value of objectivity that is also implied in the reference to ‘the same conditions.’

The third example continues this line of reasoning, demonstrating a strategic underestimation of human agency in the process of standardization. Another cause for failed face scans of the four listed in the first semiannual report addresses ‘physical disabilities,’ focusing on blind people who cannot open their eyes. ‘In these cases,’ says the report, ‘a supervisor’s confirmation for the photo is required, as *the standard (ISO 2011) demands* that the eyes be open when one is photographed’ (D 6, p. 36, emphasis mine). Such discursive framing suggests that the agent responsible for enforcing special treatment is the standard rather than human agents. Reliance on and personification of standards dissociate biometric discrimination from the realm of human decision making, thus portraying it once again as an objective, technical and inevitable result of standardization.

These cases – reference to ‘the same conditions,’ misleading reliance on ‘environmental effects,’ and personification of standards – are strategic discursive choices aimed at depoliticizing standardization, rendering it scientific and



Figure 1. 'Flawed facial image'. Credit: IBDMA report, 28 January 2014.

objective. The following two quotes demonstrate the discursive construction of the ineligible – those who are subject to standardization:

Most populations meet the goals of registration, as detailed in the protocol [...]. We identified a problem in older populations. There is a problem capturing, reading and comparing fingerprints of people older than 60, probably due to worn fingers and other parts of the skin at this age. This results in multiple attempts at capturing and comparing fingerprints of people in this age group, which in turn affects the duration of registration and the burden imposed on the bureau's officials (D 7, p. 35, emphases mine).

Data published around the world show that it is impossible to produce proper fingerprints for about 1%–2% of the population [...]. *Non-disabled populations present better results* [...]. We expect better results in our current array because we have chosen an advanced sensor, capable of producing very high-quality images for different kinds of populations [...]. We expect more than 90% of full or partial registrations *for populations of a certain age*. Meeting this expectation will be a sign of success (D 28, p. 69, emphases mine).

These citations reflect the construction of particular groups not only as the source of the failure but also as a burden. The phrasing of the first quote assigns responsibility for failure to the people themselves: Compared with ‘most populations [who] meet the goals,’ there is ‘a problem in older populations.’ This framing implies that the failure resides in the elderly, thus constructing them – rather than the professionals who adopted discriminatory standards – as the source of the problem. Furthermore, it uncovers a technical perception of those reluctantly subjected to multiple attempts: Not a discriminated group marked by the act of standardization, but rather an administrative burden.

The first quote clarifies that ‘meeting the goals’ is judged vis-à-vis ‘most populations’ rather than all potential registrants, while the second focuses on ‘non-disabled populations’ and ‘populations of a certain age.’ Another paragraph addresses the duration of the comparison between ‘live’ and stored biometric data, setting the expectation of ‘no more than one minute for *populations with no special needs*’ (D 28, p. 74, emphasis mine).

A priori exclusion of minorities – including the disabled, the elderly, and those with special needs – from evaluation of the pilot study further supports perception of these groups as a burden, constructing them as a distraction that might impede achievement of the desired results. It also suggests that the pilot study was instituted to ratify predetermined conclusions and confirm success rather than to evaluate the project’s necessity and feasibility. This possibility is supported by the conclusion of a comprehensive report published by the Israel Digital Rights Movement on March 2016, according to which ‘the IBDMA did not fulfill its obligation to perform a genuine experiment’ (D 33, p. I).

Exemplifying Infrastructure: ‘Supervisor Confirmation’

Table 4 shows that out of 203,902 registrations, 95% met the quality standards while the remaining 5% had to undergo six biometric scans before receiving supervisor confirmation. While this confirmation reflects bodily incompetence and indicates marginality, it also allows those who fail to meet biometric standards to complete registration.

This confirmation is part of the pilot study’s infrastructure, because it is the outcome of using biometric standards. As an infrastructural component, it may conceal significant aspects of standardization yet escape attention

Table 4. Data regarding the registration process. (IBDMA semiannual performance report no. 1, D. 6, p. 34).

Type of Registration	Value
Registrations that met quality standards	194,553
Registrations requiring supervisor confirmation for facial image	7,098
Registrations requiring supervisor confirmation for right fingerprint	987
Registrations requiring supervisor confirmation for left fingerprint	1,264

nonetheless. Indeed, the supervisor confirmation required for those defined as biometrically ineligible is mentioned only incidentally, although it has significant consequences.

The need for supervisor confirmation inflicts symbolic marginality on 5% of all registrants, but more importantly – it results in practical discriminatory treatment of 10,000 individuals who are forced to undergo six attempts before being classified as ineligible, and then have to wait for confirmation. At an Israel Population and Immigration Authority Bureau, one may encounter the hidden meaning of supervisor confirmation: Next to the biometrically eligible, who enjoy quick and efficient registration in private cubicles, there is a long queue of elderly persons, disabled individuals, cancer patients, dark-skinned people and other members of biometrically ineligible groups, waiting for a supervisor to share their personal stories that could not have been standardized.² As those defined biometrically ineligible are mostly members of underprivileged groups, their tagging as such, combined with the discriminatory treatment they receive, reproduce and reinforce the marginality they already experience on a daily basis. Using Gandy's (2012) terminology, biometric standards function in this context as technologies of discrimination that certain population experience as 'cumulative disadvantage' (p. 125).

The Strategic Adoption of 'Discourse of Standardization'

In his pivotal book 'Keywords,' Raymond Williams addressed the tension between two interdependent words—standards and standardization. While the word 'standard,' in its modern sense, bears laudatory connotations of 'source of authority,' 'level of achievement' and 'correctness,' the word 'standardization' echoes derogatory connotations of repressive uniformity, because 'people can't be standardized' (Williams, 2014, p. 298).

The documents published during the pilot study suggest that the IBDMA has acknowledged and exploited the approbatory connotations of standards, adopting a broad 'discourse of standardization' whereby it proudly presented and emphasized the central role of standards in the project. For example, all four IBDMA semiannual performance reports point out that 'the IBDMA has established a secure computerization center according to the strictest standards' (pp. 51, 91, 53, 28) and that its comparison system 'meets common standards' (pp. 22, 67, 17, 21). Central to this discourse of standardization are

motifs of progress and international uniformity. The first document of the IBDMA series, entitled ‘The Need for a Database,’ suggests that ‘the biometric database [...] constitutes a new progressive standard’ (D 15, p. 15), while all four semiannual reports indicate that the new biometric ID cards and passports are issued ‘in accordance with the most modern standards’ (pp. 5, 14, 6, 6). The second document of ‘The Need for a Database’ series further emphasizes that ‘increasing standardization, especially international standardization, is a factor impelling [...] towards adoption of biometric systems and technologies’ (D 16. p. 28).

The importance attributed to the publicity of standards is particularly evident in a series of three informational leaflets distributed to the public by the Israel Population and Immigration Authority. These documents suggest that ‘the smart ID card follows international standards’ (D 18), that ‘every card includes a smart chip [...] and a combination of advanced services that strictly meet international standards’ (D 19); and that ‘the new passport was designed according to ICAO standards’ (D 20). These references, like many others, show that Israeli authorities were fully aware of the laudatory connotations (using Williams’ phrase) and used them strategically to ‘sell’ the project.

Conclusion

This paper addressed the politics of biometric standards employed as part of the Israel Biometric Project (IBP), asking what makes them political, what are the consequences of standardizing people, and how these consequences are constructed and legitimized. Drawing on infrastructure studies and following works focused on ‘opening black boxes’ (e.g. Pinch, 1992; Winner, 1993), I analyzed 33 documents related to the project to illuminate the politics of biometric standards, make their internal workings visible, and challenge their assumed neutrality.

In the most basic sense, biometric standards are political because the combination of two technical realms – biometrics and standardization – has made them an opaque black box that hides practices of discrimination, exclusion, hierarchy, and ineligibility. Yet, it is rarely challenged because of its misleading image of neutrality and objectivity.

The analysis combined Bowker’s ‘infrastructural inversion’ with Star’s ‘observation during breakdowns.’ The first encourages researchers to pay close attention to those ‘innocent’ elements that usually escape scrutiny but influence people and experiences in order to expose their impact, while the second suggests that such an impact becomes clear when systems fail. By examining the role of commonly neglected infrastructural elements such as tables, percentiles, ranks, and thresholds in constructing and legitimizing ‘technological’ failures, the analysis illuminated the politics of the IBP’s infrastructure. Such

infrastructural inversion suggested that the politics of biometric standards resides both in the ways they are used to establish hierarchies between individuals and groups and the manner in which they are constructed discursively to legitimize such discriminatory treatment.

More specifically, the analysis demonstrated that those defined as biometrically insufficient or ineligible are mostly members of underprivileged and marginalized social groups, and that the IBDMA not only employed biometric standards to place these groups at the bottom of the biometric hierarchy, but also constructed their bodies as the very source of the failure. This attribution of people's ineligibility coincides with their reduction to an administrative burden, legitimizing their symbolic nullification as well as their exclusion from the criteria in order to reach the desired results (as the exclusion of ineligible individuals seemingly improves the system performance and renders the pilot study successful). Such treatment of underprivileged individuals not only produces and reinforces their symbolic marginality, but also results in practical discrimination that I suggested addressing in terms of cumulative disadvantage.

These findings suggest that 'standardization of people,' to use Williams' words, as opposed to standardization of products or processes, is discriminatory because quantification of lives, bodies and experiences necessarily results in the creation of categories and hierarchies.

I also argued that Israeli authorities used standards advisedly and strategically, both as infrastructural elements and discursive means. As infrastructural elements, biometric standards were employed, among others, to achieve predetermined results to confirm the project's success. As discursive means, Israeli authorities actively adopted 'discourse of standardization' to construct an objective and fair image for the project. In both cases, biometric standards have been used – either in practice or discursively – to sell the project to the public.

The paper's chief limitation is the focus on the institutional level. Concentration on state's role in determining the uses and consequences of standards is a warranted first step in examining a national project in its planning phase, but it fails to express peoples' voices. A subsequent follow-up study may provide a complementary ethnographic perspective that delves deeper into the role of biometric standards as a 'category of experience' (Busch, 2011, p. 3). Such a study may ask how biometric ineligibility influences people's lived experiences and how they deal with enforced ineligibility (e.g. through acceptance, opposition, or negotiation). Moreover, while the focus on discrimination that stems from 'physical irregularities' demonstrates micropolitical aspects of standardization, this case sheds light on, and warrants further examination of the ways in which standardization of people can operate macropolitically, particularly in highly militarized societies like Israel, in which war on terror entails a stark distinction between 'us' and 'them,' 'good' and 'evil.'

Notes

1. To my knowledge, the only exception is Donovan (2015), who studied the meaning of biometrics within the specific context of post-apartheid South African social services.
2. I encountered this situation during one of my visits to the Israel Population and Immigration Authority Bureaus. It should be understood as an anecdote rather than the result of systematic participant observation.

Acknowledgements

This article draws on my doctoral dissertation, which I wrote at the Department of Communication at the University of Haifa, under the supervision of Dr. Rivka Ribak. I want to thank her for the dedicated mentorship and guidance.

Disclosure statement

No potential conflict of interest was reported by the author.

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Appendix 1: List of Documents

No.	Title	Date
The Inclusion of Biometric Means of Identification in ID Cards and Database		
1	Draft—2008	6 March 2008
2	Bill—2008	27 October 2008
3	Law—2009	15 December 2009
4	Regulations—2011	21 August 2011
5	Order—2011	21 August 2011
Semiannual Performance Reports / The IBDMA		
6	First Report: 30 June – 31 December 2013	28 January 2014
7	Second Report: 1 January – 14 June 2014	28 August 2014
8	Third Report: 1 July – 31 December 2014	25 February 2015
9	Pilot Study Summative Report	23 March 2015
10	Fourth Report: 31 December 2014 – 14 June 2015	9 January 2015
Semiannual Performance Reports / Israel Central Bureau of Statistics		
11	Implementation of the Biometric Law: First Report	23 March 2014
12	Implementation of the Biometric Law: Second Report	14 October 2014
13	Implementation of the Biometric Law: Third Report	15 February 2015
14	Implementation of the Biometric Law: Fourth Report	9 June 2015
<i>The Need for a Database Series / IBDMA</i>		
15	Part 1: Double registrations and identity thefts	31 August 2014
16	Part 2: Biometric databases and international trends	31 December 2014
17	Part 3: Testing alternatives by the IBDMA	March –, 2015
Public Leaflets / Israel Population and Immigration Authority		
18	Comprehensive Guide to Biometric Documentation: Questions, Answers and Advantages	N/A
19	Stepping Towards Smart Documentation: Joining the National Project	N/A
20	Smart Documentation – It's Worth It	N/A
Tenders / Ministry of the Interior		
21	Tender No. 82/2013	N/A
22	Clarifications for Tender No. 82/2013	20 June 2013
23	Tender No. 28/2008	29 December 2008
24	Tender No. 4/2013	N/A
25	Tender No. 7/2013	N/A
Petition Submitted to Israel's High Court of Justice in 2012		
26	Petition	19 February 2012
27	Verdict	23 July 2012
Other		
28	Protocol for biometric system experimentation during the pilot phase	26 June 2013
29	Certificate policy document	26 June 2013
30	Administrative procedure to handle requests to issue biometric travel documents	1 July 2013
31	Biometric means of identification in governmental ID cards and database – a comparative review	14 January 2009
32	State Comptroller of Israel: A report on the National Biometric Documentation Pilot Study	June –, 2015
33	Digital Rights Movement analysis of the Pilot Study Summative Report (v.3)	15 March 2016