6. Data as Boundary Objects, Datafication as Boundary Work

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Abstract
In this chapter, I argue the twin concepts of the "boundary object" and "boundary work" (Star 2010) enable researchers to tease out how the datafication of governance and bureaucracy results in inclusion and exclusion. The concept of boundary work enables us to ask how, for whom, for what purposes, and in what circumstances data are created, collected, categorized, used, and processed. The concept of the boundary object invites us to scrutinize the tangible records of datafication such as categories, units, numbers, and symbols by asking what forms of inclusion and exclusion they maintain or challenge. In the chapter, I explore the analytic potential of these concepts by comparing historical analogous and contemporary digitized bureaucratic governance of human mobility. The case of historical Surinamese slave registers and the contemporary Dutch passport show the urgency of questioning taken-for-granted intersectional power relations between boundaries and datafication. Future research may explore further how datafication benefits some, hurts others, materializes in particular data objects, and reflects particular situated (historical) contexts.

Keywords: datafication, boundary objects, boundary work, governance, slave registers, passports

Throughout history, governance has relied on the datafication of administrative structures and processes. Consider, for example, analogous and digital data used to control the mobility of human subjects. Think about state census records, ID cards, and biometric passports (e.g., Torpey, 2000). Focusing on examples of historical and contemporary governance of mobility, in

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this chapter I will describe how we can apply the twin concepts of the "boundary object" and "boundary work" (Star 2010) to study datafication as a process of inclusion and exclusion. The concept of boundary work offers a means to study how humans or cultural, political, and natural processes are categorized into separable, bounded units. Here, I take boundary work to unravel what happens over the course of the process of abstracting the complexities of the world into representational forms of differentiation like numbers, categories, and symbols. The concept of boundary objects can be used to shed light on the concrete manifestations, outcomes, and protocols of boundary work. In the context of mobility governance, boundary objects include birth certificates, travel passes, or visas. With these twin concepts, we can grasp how datafication procedures and outcomes are inherently discriminatory (e.g., constructing hierarchical distinctions between nature and culture; between self and other; between genders, "races," nationalities, citizenship, among others).

To demonstrate the analytic potential of the two concepts, I will discuss an example of historical analogous and contemporary digitized bureaucratic governance. First, I will sketch the historical Surinamese slave registers as boundary objects. These registers reveal how non-white bodies were recorded and categorized. Contextualizing these registers offers insight into the boundary work conducted under the colonial regime, dominated by parties including powerful government institutions, wealthy corporations, and privileged societal groups. Secondly, I take the Dutch passport as a contemporary boundary object and trace the boundary work behind the passport by looking at the actors involved and decision-making processes. By having these cases speak back to feminist, postcolonial, and critical-race theories, we can draw out the common threads and recognize how data and datafication reflect and reproduce power relations and inequalities. The comparative framework is beneficial for making strange the relations between datafication and boundaries, which are commonly taken for granted. The chapter is structured as follows: Definitions and genealogies of boundary objects and boundary work are considered below, and then the two cases are presented. I end the chapter with a conclusion and reflection on the potential scope of the analytic framework presented.

Conceptual Stepping Stones: Boundary Objects, Boundary Works

The concepts of the boundary object and boundary work are heuristic lenses articulated in the field of Science and Technology Studies (STS). STS

scholars study "systems, assumptions and exclusions" (Lupton 2019, 263) as fundamentally relational processes. For this, STS offers conceptual and methodological tools to understand what political, cultural, ethical, social, and economic choices are folded into socio-technical systems. In particular, I will draw from Susan Leigh Star's work (1954–2010). Her personal and intellectual legacy combined offers alternative feminist and anti-racist analytical frameworks to understand, question, and intervene in how power emerges from the relationships between humans and technological agents. Star, who was "half-Jewish, one-quarter Scottish, and one-quarter English" (Bowker and Star 1999, 11) embodied the feminist slogan "the personal is political." She helped set the agenda to study the everyday in relation to technological concerns. In her words, she pursued "Lived experience, technologies (both everyday and those at some remove) … and silences" (Star 2007, 227). This latter point can inspire us to address who is included and can speak in relation to who is silenced and is excluded because of datafication.

However, despite the broad embrace of boundary work research across fields, as Maria do Mar Pereira argues, inequality has remained largely undertheorized and empirically understudied in boundary work research: "there is still much work to be done in integrating into our theorizing of boundary-work a central and systematic consideration of how that work is gendered, racialized, and structured by other axes of social inequality" (2019, 340). For this purpose, she argues to connect boundary work and objects with feminist, critical-race, and postcolonial theories to study how and for whom boundary work does and "does not work" (2019, 338). Before articulating these new connections, I will discuss the emergence and travel of the two concepts.

The concept of the boundary object was proposed by Star together with James R. Griesemer in a 1989 paper, which examined the collaboration between various actors in Berkeley's Museum of Vertebrate Zoology (USA). The paper analyzes how amateurs and professionals collectively aimed to preserve and thereby represent natural history. The authors observe how the various actors involved in the museum established a modus operandi based on boundary objects such as repositories of knowledge, ideal types, and standardized forms. As such, a multiplicity of actors and certain degrees of structure or dynamism in arrangements are key characteristics of boundary objects, as examples like field notes, maps, and specimens demonstrate: "Their boundary nature is reflected by the fact that they are simultaneously concrete and abstract, specific, and general, conventionalized, and customized. They are often internally heterogeneous" (Star and Griesemer 1989, 408).

Seen in this way, when we consider objects or whatever kind of material, we should not assume or attempt to find an essence or fixed "thing-ness" but rather acknowledge that objects are "something people (or, in computer science, other objects and programs) act toward and with" (Star 2010, 603). As the "stuff of action," objects are arrangements, including materials and political-socio-cultural-economic processes that "form the boundaries between groups through flexibility and shared structure" (Star 2010, 603). The boundary object is the result of "information needs" and the desire for "making an orderly array out of natural variety" held by actors (Star and Griesemer 1989, 393). We should add here that these needs cannot be seen in isolation from questions of power and control, as its dominant actors have the chance to initiate boundary work.

Boundary work, then, revolves around arranging people and non-human entities into standardized systems. This is a convoluted process, which raises questions about the role and workings of actors including gatekeepers and about who ultimately gets to define and allocate boundary objects such as categories or standards. Thus, the construction of standards reflects a certain outsourcing of morality to objects, which "is at the core of many social justice issues concerning standardization" (Star 2010, 614). The gap between what can be made to fit into pre-conceived standards, ranks, or categories of legibility and elements that cannot be made to fit presents an important entry point for grasping the politics of boundary work. For example, those subjects in efforts of administration and categorization who end up being slotted into residual categories such as "not elsewhere categorized," "none of the above," or "not otherwise specified" (Star 2010, 614) are often outsiders of the given system. Seen through the prism of boundary work, we can scrutinize how datafication and ordering the complexity of the world into neat categories demonstrate that boundary objects are never total, complete, or stable.

Across the humanities and social sciences, the concepts of boundary objects and boundary work have become widespread. These are commonly used to address how particular categorizations have become accepted or rejected as well as to pay attention to the role of various actors involved in these processes. Let us consider exemplary studies and cases relevant to researching data from the perspective of media, art, and performance studies and adjacent fields. In critical data studies, boundary objects and work have been applied to study the politics behind the categorization of data in open data platforms (Seoana and Hornidge 2020). In game studies, they have shown to be generative to reflect on the development and limitations of the field (Gekker 2020). In the field of journalism, the term boundary work is used to

study evolving arrangements of authority, knowledge production, and the roles of gatekeepers in the face of citizen journalism and digital activism: "For journalism, boundary work is a constant process, with visible consequences, in which actors, practices, texts, and institutional structures gain (or lose) status as legitimate forms" (Carlson 2019, 1). In the field of communication studies, the lens has been deployed as an interpretative framework to scrutinize ideological rhetorical work. For example, Mark Ward has studied the organizational and technical texts of the Nazi SS underpinning its genocidal project as boundary objects, which include "formatted documents, official stationery, preprinted forms, filing codes, organizational nomenclature and bureaucratic catchphrases" (2013, xv). In the field of critical sociology, the concepts have been deployed to study the impact of digitization and datafication on workers' digital labor (e.g., Zhao 2020), while in cultural geography, they are embraced to study the spatial distribution, appropriation, and situatedness of technologies (e.g., Mahony 2021).

There are various ways to connect boundary work and boundary objects to the study of inequality, exclusion, and discrimination. Feminist technoscience scholar Donna Haraway's (1991) figure of the cyborg can be taken to inverse the boundary object: the cyborg provides impetus to reconsider and blur the boundaries between object/subject, nature/culture, and human/technology and question established categories of gender, sexuality, and race. Critical race scholars point out how the physical and digital skin act as a material and semiotic surface—or boundary object—of inclusion and exclusion, where relational power relations are formed "marking exteriority and alterity, demarcating one object from another" (Thakor 2019, 198). In a similar vein, the postcolonial thinker and filmmaker Trinh Minh proposed the concept of the "boundary event" to consider the performativity of borders, which allow particular traveling subjects to pass and halt others. Finally, Sasha Costanza-Chock's "design justice" lens allows for scrutiny of the consequences of boundary work from a decarceral, decolonial perspective; this framework of analysis addresses how the design of socio-technical systems influences the distribution of benefits and burden between various groups of people (2020).

These approaches to researching boundaries share an intersectional approach. In order to consistently draw out how datafication impacts various interrelated forms of inequality, analysis of boundaries should be combined with this Black feminist theory and methodology. Intersectionality allows scholars to move from single-axis analysis (which, for example, would single out how datafication relates to racial discrimination) to the scrutiny of how race, sexuality, gender, ability, and class interact and reinforce each other.

For example, it promotes studying how datafication replicates a particular normative relation between gender, race, and class, which Patricia Hill Collins describes as the "matrix of domination" (Collins 2000).

Researching Historical and Contemporary Data Boundaries

In this section, I illustrate how we can work with boundary work and boundary objects as lenses for a critical analysis of data as media/data as performance. I first offer a case study of the setup and historical development of Surinamese slave registers to address the boundary work of Dutch colonial data collection. Secondly, I discuss important moments in the historical development of the Dutch passport to tease out how normative boundaries have been constructed. Both case studies encompass three types of data: indexical, attribute, and metadata. Indexical data refers to data that "enable identification and linking" of individuals and attribute data concerns such as "age, sex, height, weight, eye colour," and so on, while metadata are "data about data," such as column headers and definitions of data (Kitchin 2014, 8–9). I will discuss in particular how both function(ed) as boundary objects as a result of boundary work processes by asking the following five explorative questions: 1) Who was involved in the process? 2) Who was harmed in the process? 3) Who benefitted in this process? 4) How has this process materialized in concrete (data) object? 5) How are bounding processes shaped by particular socio-historical contexts?

Surinamese Slave Registers

> While resorting to a formal archive for research on slavery, the realization can hit that the archive is a violent place. People who have been treated like cattle, or objects, similar to furniture, are listed as numbers and amounts in rows of bookkeeping records. How does one begin to unpack this? (Jouwe 2021, 324).

The slave register in what is now known as the country of Suriname in South America was established by Royal Dutch Decree in 1826. "In these books all private slave owners and slave-owning plantations were registered, together with the names and additional information on all the people they owned" (van Galen and Hassankhan 2018, 504). By arguing that these nineteenth-century administrative technologies datafied enslaved people in Suriname for the purpose of identification, categorization, and rule, this

first case study offers a preliminary pre-history of analogues of administrative datafication. Here, I draw inspiration from the perspective of "deep time," an archeological approach to media history that, following Siegfried Zielinski, does not seek to find "the old in the new" but rather aims to "find something new in the old" (2006, 3). By seeing such analogue record keeping systems as pre-digital forms of datafication, we can consider historical parallels, continuities, and ruptures with the mechanisms, protocols, and techniques that undergird contemporary migration governance systems. More specifically, by addressing the slave registers from the perspective of deep time and pre-digital datafication, we can trace how the "deep pressure points" of colonialism (Stoler 2016, 5–6) and the "wake" of slavery (Sharpe 2015) built norms of anti-Blackness and white supremacy into seemingly objective and efficient administrative technologies.

The bureaucratic administration of enslaved subjects was initiated by Dutch rulers, which included private companies (Dutch West India Company, Suriname Company [Sociëteit van Suriname]) and public agencies (Fatah-Black 2013). To optimize efficiency, extraction, and profitability, the Dutch colonial rulers devised a complex administrative system, which included myriad analogue, pen-and-paper-based procedures of datafication. Boundary work alongside mapping and visualization of sugar, cotton, and coffee plantations included the design and maintenance of "tabular media" like cargo lists, insurance policies, and slave registers, which supported the "remediation of black bodies as commodities" (Wernimont 2020, 145).

Founded as a plantation colony by British settlers in 1650, Suriname was taken over by the Dutch in 1667. Under Dutch rule, the Surinamese plantation economy thrived in the eighteenth century, maximizing profit using forced labor, in particular of enslaved people from Africa. An estimated 213,000 people were brought to Suriname as part of the slave trade (van Galen and Hassankhan 2018). During the Napoleonic wars, Suriname again came under British rule, and trans-Atlantic slave trade was abolished by the British in 1808. In 1816, the colony once again became Dutch. The Atlantic slave trade ban was ratified in 1814 by the Dutch, but slavery did not end until the abolition of slavery in Suriname on July 1, 1863. The slave register was established to end elicit slave trade and smuggle. Starting in 1826, owners of enslaved people had to register their "properties" with a civil servant in Paramaribo or Nieuw Rotterdam. Afterwards, every "mutation" ("mutatie) had to be filed, including births, deaths, acquisitions, departures and gifting, trade, and sales of enslaved people, creating a near complete closed registration system. Two centuries later, forty-three books currently remain containing 15,000 folios. The early records are the least well preserved, but more than

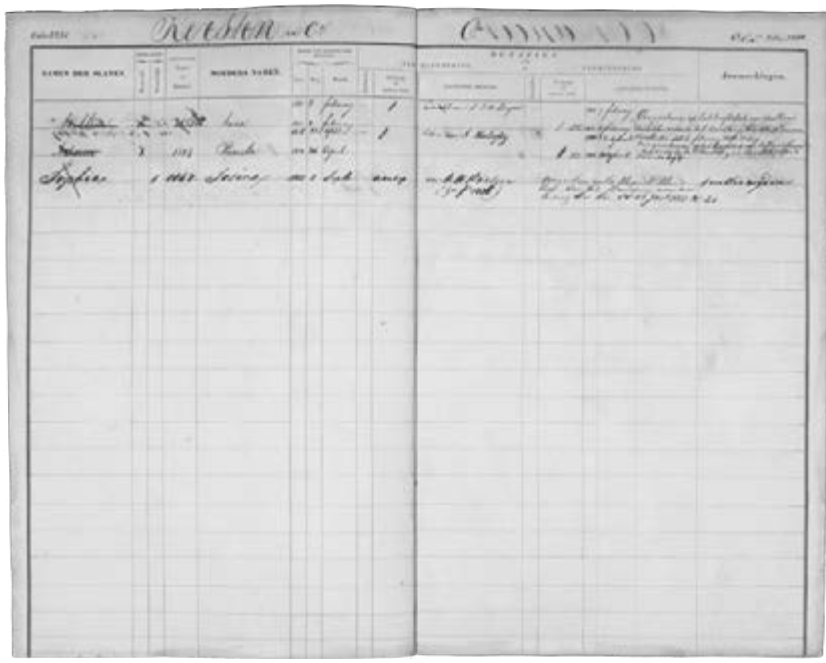

Fig. 5. Surinamese slave register folio 2320, NT00461.15 15 (Nationaal Archief).

90% of the records covering the period of 1851 to 1863 have been preserved. Digital scans of the registers can be accessed and studied through the website of the Dutch National Archive (https://www.nationaalarchief.nl), and original files are held at the National Archive in Suriname.

The slave registers act as boundary objects, as they show how boundary work is materialized through a process of datafication. This analogue, paper-and-pencil-based datafication of enslaved people will be argued to have operated based on an intersectional matrix of domination, which reflects boundary work along the lines of race, gender, sexuality, and other categories in the name of colonial, hetero, capitalist, and white supremacy. The registers are devised from the standpoint of the dominating party (white European rulers), who sought to administer their property of Black enslaved people to yield profit. The registering of enslaved people is boundary work, and the slave register is in essence a boundary object, creating and reinforcing differential standings between plantation owners and enslaved people.

The institutionalization and normalization of enslaving subjects, for the purpose of extracting profit, was partly made possible by abstracting, dehumanizing, and de-individualizing particular bodies through paper-based coding, categorization, and labeling in slave registers—all processes

of pre-digital datafication. When studying the scanned records in detail, we can see how enslaved people became administered. In figure 5, we see from the top left the folio number and the name of the owner (in this case Kersten and Co). Categories of registration include "names of slaves" ("namen der slaven"), which is already an important indication of how humans became stripped of their individuality. Only first names, given by the owners, were recorded. To ensure identification and avoid overlap, we see in the registry additions entered following first names, which might be a number, e.g., "Charles 2e" (Charles 2, born 1828, registered as male, owned by plantation Johanna Maria Coronie); a property such as "Santje groot" (large Santje, born 1808, registered as female, owned by plantation Hooijland divisie beneden Commewijne); or the abbreviation of a plantation.

Only after the abolition of slavery could freed people obtain and have recorded a last name and sometimes additional first names. Alongside names, gender ("geslacht") was to be indicated as binary male ("mannelijk") or ("vrouwelijk") as well as the year of birth, estimated or known ("geboortejaar. Gegist of bekend"). Per owner, men were registered in order of their age, followed by women and additional entries of people who joined during the registration period (children). The gendered division of labor (enslaved men were preferred for heavy plantation construction and maintenance work—which was seen as more prestigious; women were forced to pick crop—less prestigious) is discernible in the records, as more men than women died on plantations (van Galen, Quanjer, Rosenbaum-Feldbrügge, and Kraijo 2021).

In the years following initiation, details recorded in the slave registers grew. For example, the slave registers from 1848 also mention the mother for each registered person, which makes reconstructions of female family lines possible. The colonial materialization of knowing and ruling people by datafying boundaries between people based on assumed cisgender, heteronormativity, and binary genders is still dominant in the contemporary boundary work of classifying people. Furthermore, the registers have many silences and unknowns. For example, "n.o." (name unknown) is a residual category, and other residual categories such as "sent as contaminated" ("verzonden als besmet") were deployed to mark those enslaved people who had fallen ill with leprosy or parasitic worms. Their illnesses were not specified, but the label of "contaminated" marked them as an unproductive cohort for the workforce that had to be isolated, as they posed a risk to their owners and fellow enslaved people. Enslaved people were commonly registered as the property of pl./plante. (plantation). "Pé" was the marker indicating private ownership, a residual category commonly indicating

(and masking) forced domestic labor, which included the prevalent sexual exploitation by predominantly male owners. "Privé en N.ux." (private nomen uxoris) indicated a person was registered as the property of a male owner and his wife was in a residual category.

The register records are frozen moments that allow us to observe how confining social interactions between rulers and those ruled were at work in colonial-era Suriname. Slave registers as "formalizations" of boundaries (Haraway 1991, 302) between white and Black, European and non European, or ruler and enslaved people are instruments that constructed and enforced hierarchical divisions of the social world. The slave registers, from the point of view of the Dutch state and plantation owners, produced standardized boundaries, and this was for them a neutral "orderly repository" that ordered the natural world (Star and Griesemer 1989, 190). But for those Black women, children, and men not in charge over their own categorization, such administrative processes became "obligatory points of passage" (409) that stripped their individuality, context, and humanity. The slave registers were thus made to function as a rational, objective, and efficient means to legitimate the ownership and exploitation of enslaved bodies. These boundary objects thus supported "racial capitalism," which refers to the accumulation and extraction of economic value from the "racial identity" of another person (Leong 2013, 2152; Robinson 1983/2000).

Every "mutatie," such as a birth, death, registration, and deregistration, required an entry. Over time, the number of "manumissies" and "vrijlatingen" ("released enslaved people") increased, and people could be "freed" subject to government permission. The number of registered "gemanumitteerden" from 1831–1863 grew initially with (sexual) partners and children to a more diverse group of 6,781 registered "freed" subjects. Besides freeing, sales, deaths, trades, and gifting of enslaved people, the column for the "decrease" ("vermindering") of enslaved people has not been completed for many subjects. This lack of data is ambiguous and revealing, as there was a sizable number of enslaved people who managed to escape the confined space of the plantation and who went on to establish self-contained communities in the jungle (Maroons); these individuals would over time also seek to free fellow enslaved people from plantations through attacks (Fatah-Black 2013). The registers were overall a means for owners to keep inventories and oversight over their human capital, and this is also evident in the fact that after emancipation, those who could prove their ownership received 300 guilders per enslaved person. However, formerly enslaved people did not receive compensation, and many were instead forced to continue plantation work under the "state supervision" program for a decade.

With Simone Browne, we can recognize the Surinamese slave registers as boundary objects that were deployed as "simple, but violent instruments," which through boundary work "catalogued enslaved people as merchandise" as part of a broader "racializing surveillance of the slave system" (2015, 42). The colonial administration has continued effects on descendants of enslaved people, as is apparent, for example, in the recent public debate in the Netherlands on whether enslaved people who were given names by Dutch plantation owners should pay to have their assigned names officially changed in the Dutch population registry (Sneekes and Ankh Re 2021).

The Dutch Passport

The Dutch passport is not neutral but rather power ridden. As a document enabling the authentication of travelers at border sites, it reflects specific historical, political, economic, and design decisions (Torpey 2000). As "material evidence of exercising discrimination" (Keshavarz 2019, 3), the passport can be said to function as a powerful boundary object. I hypothesize that tracing the historical development of the Dutch passport offers insights into how normative intersectional configurations of gender, sexuality, race, nationality, and embodiment are enacted. Etymologically, the word "passport" is said to stem both from a document that enabled one to "pass the porte (gate) of a city" and it referred to a "pass par tout," a pass for everything (van Zoonen 2013, 83).

Borders as sites of control and containment create insiders and outsiders, and Trinh-Minh argues, "Every voyage can be said to involve a re-siting of boundaries" (2011, 27). How has mobility been encoded into the Dutch passport and for whom? What has the passport afforded and "disafforded" (Costanza-Chock 2020, 90) and for whom? Following the Henly Passport Index of visa restrictions, the contemporary Dutch passport ranks as the sixth passport in the world in terms of allowing visa-free visa on arrival access to 188 countries or territories (Henley and Partners 2021). Below, I will trace how the passport has been used to establish and normalize boundaries of race, gender, sexuality, age, and nationality through controlling the ownership of passports and abstracting people into particular categories. Colonialism, wars, commercial, and (most recently) health management incentives have accelerated the development and rollout of passports.

There is a long pre-history to the passport. As detailed in the Old Testament of the Bible, in 445 BCE, Nehemiah could assist in the rebuilding of Jerusalem because he could show letters from his king that granted safe passage. In 206 BCE, in the Chinese Han Dynasty documents, which included

identifiers such as an individual's height and age, were introduced to regulate movement in the imperial territories. The medieval Islamic Caliphate issued proof of taxes paid that allowed travelers to cross checkpoints during their travels (Mangion 2020). In several ways, these pre-modern passports, often issued on behalf of rulers or cities, resemble modern official documents granted by state bodies to national citizens. The concept of the worldwide passport, however, is a relatively recent invention. In what is now the Netherlands, a passport law was issued in 1813. From then on, distinguished men could obtain a "passe-port," an A4-size document signed in the name of the Dutch king and issued in French that facilitated mobility. This document contained data on the owners' appearance, including height, hair color, and eye color. For example, travel documents were granted to colonial officials to warrant safe passage between Europe and the West and East Indies (present-day Suriname, Indonesia, among others). Until the beginning of the twentieth century, Dutch state borders were generally open for all, and only Roma ("gipsy" or "zigeuner") travelers' mobility was actively controlled (Taylor 2014). The mobility of Roma travelers remains heavily contested until today, a reminder of how particular racialized groups of people are considered undesirable and in need of thorough scrutiny.

From a relatively small number of international colonial male travelers, the number of Dutch inhabitants owning passports grew during the First World War (1914–1915). The Netherlands sought to remain "neutral" and therefore kept its borders closed. At the initiative of the German, the Belgian–Dutch border was sealed with a two thousand volt charged barbed wire to avoid Belgian refugees escaping the war via the Netherlands. However, the Netherlands wanted to ensure transnational commercial activities for its nationals, and the passport proved an efficient boundary object to facilitate cross-border movement of eligible travelers. In the interbellum, there was a brief movement to abolish passports, but suspicion between countries resulted in the maintenance of passports.

The Second World War (1940–1945) resulted in the further institutionalization and broader adoption of identification papers. In May 1940, the Netherlands was occupied. From October 1940 onward, all Dutch inhabitants over the age of fifteen were instructed to carry an obligatory identity card (called "persoonsbewijs"). This identity card was designed by Jacobus Lambertus Lentz. This civil servant was previously in charge of the State Inspectorate of the Dutch Population Register. Right before World War II, he took the initiative to set up a system to register the identity of all Dutch inhabitants. In March 1940, the Dutch government rejected this plan, stating that it "basically considers every citizen to be a potential criminal"

(Roest et al. 2014, 155). But soon thereafter, his plans were incorporated by the German occupants. The ID included a photo, full name, date and city of birth, full address, binary gender male/female, signature, special characteristics (markers such as a missing eye), date of registration, two prints of the right index finger, stamps, and a registration number. This pass was increasingly used as a tool to expedite the identification and genocide of Jewish Dutch people. Starting in late 1940, Jewish Dutch inhabitants had to register themselves separately. Their identity cards were stamped with the letter "J" on the front and back. Beginning on May 3, 1942, Jews also had to wear a yellow star on their clothing. To protect against the creation of fake documents by the resistance fighters, receipts of all distributed ID cards were kept in a unique "national centralized population registry" housed at the Kleykamp villa in the Hague. Lentz's "house of cards" was eventually bombed by allied forces in 1944, destroying an estimated 17–40% of the register (Ketelaar 2020, 33b).

The post–World War II period is characterized by boundary work around evolving norms of gender and heteronormativity. Until 1956, a married woman was legally incompetent under Dutch law. Married women did not have an official state-issued identity, as their public identities were tied to their husbands; a passport was issued to the husband, as if a married woman's body was his property and responsibility. Until June 26, 2012, children could not obtain their own passports, and they were instead registered in their parents' passports as appendices. Until very recently, the Dutch passport also indicated the normative body is a binary-gender body. Although the non-binary gender X was technically made possible twenty-five years ago in 1996, resulting from International Civil Aviation Organization (ICAO) guidelines for machine-readable travel documents. In 2018, the Netherlands registered a (non-binary) gender X in a passport for the first time. Unlike other geographical contexts, this is not possible by self-determination but instead through a complex legal procedure, which involves suing the local government where one was born. It is important to note that non-binary gender markers in passports continue to raise suspicion at border crossings, and as such, non-normative documentation is argued to be "reinforcing Fortress Europe 2.0" (Quinan and Hunt 2021).

In recent decades, the passport is increasingly perceived as an (exclusive) marker of national belonging and allegiance. The Dutch passport is commonly invoked by Dutch politicians and policymakers in discussions about belonging and integration. These discussions are particularly heated regarding the implications of people in the Netherlands who hold dual citizenship and therefore have two passports. The Dutch passport, which recognized

refugee migrants who function well in the Dutch system can obtain upon meeting the requirements of integration procedures, is seen as the "crown on participation and integration into Dutch society" (van Zoonen 2013, 83), and as a result, politicians publicly called for former migrants to renounce their non-Dutch nationality if they have dual citizenship. But politicians argue that Dutch expats, on the other hand, should be allowed to keep their Dutch passport when migrating to another country, because "we are proud of those Dutch nationals who export our knowledge and expertise" (83).

In summer 2022, two years into the global COVID-19 health pandemic, the "Corona passport" remains a rallying point in polarizing discussions in the Netherlands and beyond. In the Netherlands, this immunity passport functions as an app that demonstrates an individual's vaccination status, proof of antibodies to COVID-19, or recent negative COVID-19 test through a QR code. In periods of government-imposed "lockdowns," it is used to authenticate holders' health statuses, thereby constructing boundaries between those abiding by state-sanctioned health regimes—who may use the app to travel internationally or enter restaurants, bars, and sport venues—and those who are not. This initiative builds on longstanding vaccination certification schemes supported by the World Health Organization, such as confirmation of vaccination against yellow fever required for entry into several countries (Osama, Rarzai, and Majeed 2021). Further research is needed to understand the broader ramifications of such new, digitally augmented passports. Through the lens of boundary objects, we can consider how these and future state-sanctioned passports are unstable, power-ridden, and paradoxical objects that play distinctive roles in processes of controlling and containing people along intersectional axes of difference.

Conclusions

When addressing datafication (analogue or digital), the notions of boundary work and boundary objects invite critical contextual and historical reflection on how people are abstracted into digital data objects. The concept of boundary work enables us to ask how, for whom, for what purposes, and in what circumstances data are created, collected, categorized, used, and processed. The concept of the boundary object allows us to scrutinize the tangible records of datafication by asking what forms of inclusion and exclusion they maintain or challenge. The twin concepts offer means to establish a much-needed situated understanding of the modalities and consequences of administrating bodies that utilize numbering and categorizing. A historical

comparative analysis of bounding through datafication allows us to make strange what has come to be considered common sense over the course of time. The apparent neutrality, objectivity, and taken-for-grantedness of administrative records can be challenged when considered in tandem with an intersectional understanding of power hierarchies as mutually constituted along axes of difference such as gender, race, sexuality, age, nationality, and health status. The cases under study—which I could only sketch in broad strokes within the constraints of this chapter —merit further in-depth scrutiny. Future research should address historical analogue and contemporary digital bounding datafication procedures from the perspective of non-state actors and stakeholders. In particular, there is an urgent need to uncover and amplify the bottom-up experiences of people subject to boundary work.

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